CQ-TV

No. 164 November 1993

70cm RECEIVE CONVERTER

24cm PRESCALER

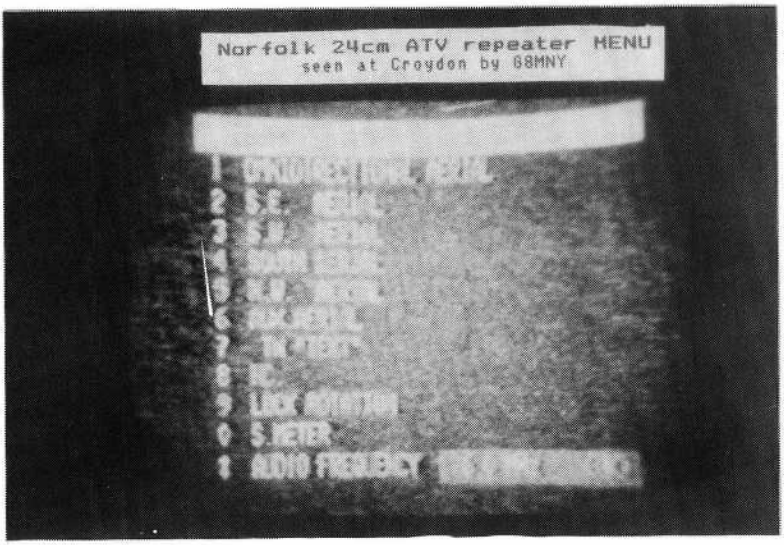
PASOKON TV

MODIFYING BSB LNBs

USING TELEVISION

MOBILE SATELLITE RECEIVER

BRITISH AMATEUR TELEVISION CLUB


Norfolk 24cm ATV repeater MENU
seen at Croydon by G8MNY


G7KZZ via GB2TN Norfolk ATV
Repeater as seen at G8MNYs South Croydon

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CLOSE FOR PRESS FOR THE NEXT ISSUE ..... 20th DECEMBER 1993

CQ-TV is produced on a 386 PC computer system, using the PROTEXT word processing package and the PRESSWORKS desktop publishing package. The camera-ready artwork is produced on an OKI OL400 Laser printer.

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POST

!

Dear Mike,

Just a line to say that the latest CQ-TV is really very interesting. Unfortunately two minor errors have marred an otherwise excellent magazine.

!) My article on the California Trip is on page 79 and not page 75 as in the index.

2) The two photographs on the inside covers were taken by me as Andy Emmerson has acknowledged in '405 Alive'. I would be most grateful if credit could be given retrospectively.

73 ... Grant Dixon G8CGK

COLOUR FAX FREQUENCY

Dear Mike,

..... 144.500 seems to have been adopted for ColourFax Transmissions, since there is no real difference between AVT sync-less SSTV and this new mode. Also, the preferred greyscale fax mode seems to be the 240 lpm 204 IOC 640*480 one, rather than the daft size Fax480, which is difficult to implement and takes around the same time to transmit.

All the best ... Peter Lockwood G8SLB

INFORMATION PLEASE

Dear Editor,

..... I am interested in using radio to send live video images, which have been digitally compressed using a compression method such as MPEG. I would be very interested in corresponding with any of the membership who have successfully transmitted digital images, uncompressed or compressed, or who are perhaps contemplating doing some work in this area.

Yours ... Tony Dixon, 5 Oakwood, Leam Lane Estate, Gateshead, Tyne and Wear, NE10 8LU.

SSTV

Dear Mike,

I read with interest in 'NEWS' in the August edition of the magazine about the apparent demise of Robot SSTV gear. As the article correctly points out, computers and software for SSTV have overtaken the Robot, so it is not surprising that sales have declined.

Although I have an interest in FSTV my activities of late have turned to SSTV and Fax, mainly because very few people are using the Nottingham ATV repeater GB3NV, which is a pity because it is there for the asking. I get P4s and 5s as my QTH is only 10 miles or so from the repeater.

Recently I bought a second hand Amiga 500 as I had seen the quality of pictures received and sent by a local amateur using this machine. Now I know why the Robot has been overtaken and is no longer a reasonable buy.

Recently some new software became available called Micro-Fax, written by Milosz Klosowicz SP9UNB and costing just $30 US. I sent to Poland for mine and received it within four weeks. Using it I soon realised that it was something very special as it offers colour and B&W fax, Martins Mode SSTV and S1 in colour. A small interface for the parallel or joystick port has to be constructed, all the necessary information being within the Micro-Fax package including circuit diagrams.

Various kinds of fonts can be set up on saved pictures, around 10 pictures can be saved to one DOS disk. I must add that as yet I have not explored the package in full, all I can say for fax and SSTVers is that it is really great!

Amiga 500 machines are becoming fairly cheaper now that the 1200 version is on the market and can be obtained at reasonable prices. The Amiga Amateur radio Club offers a great deal in other modes for radio, so buying a second hand Amiga can be well worthwhile.

I have enclosed a print out of the Micro-Fax information and the circuit diagrams, I hope that you can publish it in the next issue of CQ-TV as I am sure it will attract some interest to those who are active in fax and SSTV and possibly get others interested in this mode.

73 ... Harold Bent G0EZW

Many thanks for your time and trouble Harold, unfortunately the information and diagrams you sent were of too poor a quality to be used in the magazine. However, if anyone is interested in more information on Micro-Fax I feel sure that Harold would not mind receiving the odd letter from you. He is QTHR ... Mike

SSTV COLUMN PLEASE

Dear Mike,

I am a recent member of the BATC and my interest is SSTV. On listening through the SSTV frequencies there still is a great deal of interest in the mode, especially by people like myself, who have tried and enjoyed most other modes, but are looking for something different, or by Hams who just like the idea of SSTV.

It's reasonably easy to get on to receive and transmit, but the procedure and equipment needed to be able to transmit ones own pictures seems a bit more difficult. Also, these seems to be little information on this.

There appears to be no regular column in CQ-TV on SSTV, so can I appeal to someone who has the expertise and time to take the job over of running a column

for the SSTVers. In other words we need a little help! We need info on the availability of cameras, both new and used, some explanation of the jargon used and the availability of digitisers, commercial and kits and circuits for self-build.

I have the latest copy of SSTV Explained, which is well worth having and helpful, but I and others who are on SSTV have not found this in line with the use of PCs and modern equipment. Most people now work in colour, so what about it BATC and CQ-TV, give the users of SSTV a break, there is still a lot of interest out here.

73 ... Bert Lawrence G4HTM and Peter Simpkins G3MCL.

Well what can I say? anyone offering to write a regular SSTV column? As far as info on computerised systems look on page 9 of this issue for a review of Pasokon TV, and concerning digitisers I shall be reviewing the PC based Ventek VIP 640CP in the next issue ... Mike

THE AMSTRAD CAMCORDER AGAIN

Dear Mike,

Like Gareth in CQ-TV 163 I was one of those to spot the Amstrad camcorder CCD camera in the car boot area at Harlaxton. With work, holiday, etc., I have not had time yet to power it up. I have looked at the service manual and circuit diagram for the camera (page-18-2) and what could be a 0 and 90 degree carrier from pins-15 and 16 on IC507 to pins-6 and 23 on IC508, which looks like the chrominance part of a PAL encoded signal.

If so would feeding a 4.43 MHz carrier into pins-6 and 23 and then taking the output from IC508 pin-26 to a new filter network give you a 4.43 MHz colour signal?

As this is the first time I have had anything to do with a CCD sensor or the camera part of a camcorder and have only recently joined the BATC I would appreciate the opinion of any member who has worked on the above conversion, particularly if they have a circuit diagram for it.

Yours ... Mervyn Leeder, 101 Main Street, Lubenham, Market Harborough, Leicestershire, LE16 9TG. Tel: 0858 464753.

I personally haven't the faintest idea, I got lost after we turned left after the fish and chip shop! Anyone help Mervyn? ... Mike

NEWS

GB3HV REVISITED

As many of you will have been aware, the 23cm ATV repeater GB3HVat High Wycombe has been off air since it had to leave its original site at the QTH of Gary G4CRJ. Since that time there has been much activity by the Home Counties ATV Group to try to find it a new home, and after several possible sites had been investigated a PMR site owned by SEB was found high up on the Cressex Industrial Estate.

Permission was, in due course, granted to use the site, which boasts a proper brick-built cabin, complete with electrical supply and adjacent 80 foot lattice mast. Whilst negotiations were proceeding the repeater electronics resided with Mike G8LES for a major update and to be fitted with as many bells and whistles as possible.

On the licencing front despite a relocation of only a few hundred yards (even in the same locator square) the full licence application procedure had to be gone through virtually from square one!

With autumn rapidly approaching and advice from the RSGB that we would almost certainly get a licence granted eventually HCTVG went ahead and installed the aerials and feeders - no mean task in itself - and prepared the cabin for the repeater equipment.

As I write (*September*) all equipment is installed and tested and the licence is said to be imminent. So, with coverage now to all points

of the compass and aerials some 80 feet higher than before, GB3HV is ready to spring to life.

Things to know: Input frequency 1248 MHz FM (Video +/- 3 MHz Dev); Output frequency 1318 MHz FM; application of a 635-line picture (preferably colour) for access; 6 MHz intercarrier "Hi-Fi" sound (50 kHz Dev); all aerials energised for transmit and a polling system to select which of the four receiving aerials gets you best; lots of other features yet to be revealed!

See you soon P5!

John Bales G0HAT, Publicity Officer HCTVG

THE 'ATV IN AMERICA' TAPE

Having had a preview of the 'ATV IN AMERICA' I can honestly say I found it very enjoyable. The VHS cassette is around two hours long and features a compilation of amateur TV activities in the USA.

The opening sequence was produced for AEA, one of the largest manufacturers of ATV equipment in the USA and features, apart from 10 minutes or so of advertising their products, a montage of clips of

various ATV activities. The remainder of the tape features a varied selection of filmings of ATV stations and events, the most notable for me being the entire story in video of one of the famous Bill WB8ELK Brown ATV carrying balloon flights.

The tape has been transcoded to PAL from NTSC, but nonetheless remains in good quality. The production of many of the sequences is obviously amateur, but then again some of the clips, produced by amateurs for amateurs rate as highly as those produced by the 'experts'.

I found the tape enjoyable to watch, even my family were interested in the balloon sequences, and I convinced my next door neighbour that my 'modest' aerial farm is just that in comparison to the one featured in the film owned by KB9FO!

I reckon the tape well deserves a place alongside your copy of 'BATC The Movie'.

The tape is available from Andy Emmerson G8PTH, 71 Falcutt Way, Northampton, NN2 8PH and costs just £15 including p&p.

HOW THE BATC WAS BORN

Andy Emmerson, G8PTH

If you have seen the BATC's video presentation or read the various historical articles, you will know that the club was founded in 1949 by Mike Barlow G3CVO (silent key) whilst undergoing National Service at Catterick Camp. What these records do not say is why.

Obvious, I hear you say: he must have been interested in television. Sure, but why? There were only two television transmitters in the country back in 1949, neither of them very close to Catterick. If you analyse why people get interested in a hobby, it's usually because someone 'infects' them and captures their imagination. Seldom do people walk into the public library and pick up the first book they come upon in the hobbies and pastimes section and say, "Ah! This Ballroom Dancing/Fishing/Stamp Collecting looks interesting, I think I'll make it my lifelong hobby." So it must have been something else, some incident or person who impressed Mike so much that he felt sufficiently motivated to start a club. And look what a club it has developed into, with a worldwide membership.

Well, I think I have the answer, in fact I'm almost certain of it, but the credit for pointing this out goes to Dennis Lisney G3MNO, who is not an ATVer by any stretch of the imagination. But he does shed some fascinating light on the origin of our club Ä in fact, I'd say he has put his finger on why the club was founded by who it was and what triggered this off. Would you believe, it's all due to an IF of 45MHz?

I believe it is generally agreed that many wartime radar and allied radio equipments were designed with an IF of 45MHz, simply because the people designing them had been involved with television before the war. 45MHz was the vision frequency of Alexandra Palace, the BBC's television transmitter serving London and by most people's agreement the world's first high-definition television transmitter sending out regular entertainment television programmes (you look up the British Standard for high-definition television, you'll see that officially 405 is still high definition!).

Certainly, after the war, a lot of this equipment, now government surplus, was converted to receive television transmission after they restarted. And that's where Mike Barlow comes in, because one of the pieces of equipment that he and Dennis were involved with (Dennis was at Catterick at the same time) was the Wireless Set 10. The WS10 was a fabulous piece of hush-hush radio equipment developed during

the last war for point-to-point radio telephony communication. It operated on a frequency of 6GHz (yes, microwaves!) using pulse-width modulation (yes, digital!) and first saw operational use in 1944. The equipment was contained in mobile trailers, with dish aerials mounted on the roof, and was first used to link the Isle of Wight to Cherbourg, just after D-Day. A transportable 60-feet tower was an optional extra and the system proved invaluable for providing untappable phone links under hostile conditions. This is not the place to develop this fascinating description, though, except to say that the WS10 had an IF of 45MHz.

I'll let Dennis take up the story now. "During my time at Catterick I understand that fairly frequently the 45MHz IF stages of the WS10 were used to receive television from Ally Pally, using a yagi on the tower pointing south. The display was, I think, the VCR97 used in the 10 set.

"Wally Oliver would have been a participant with Mike Barlow. I believe it was largely this grouping that founded the BATC. It was, as I remember, a Saturday morning skive for the WS10 people to invite certain 'guests' to view when suitable. Like the Regimental Sergeant Major, etc! At that time, being a 'new boy', I was usually working on a Saturday morning.

"My recall of Mike is good because he used to 'make the press' quite frequently. Mike was definitely the instructor who used to do BR8, the eighth week of the Radio Mechanic course which dealt with general circuits. Wally Oliver used to sleep in the 10 set building and was probably the chap in charge. There must have been at least one other instructor to cover the courses that were run. Even looking through the pictures of the 'staff' of 1950/51 does not help me to recall just who was involved with Wally although I do recall that there was a small group of TV fanatics. I would expect to find a number of those names as founders of the BATC and I believe that Mike was involved with the scheme by which EMI sold below-spec Vidicons to BATC members."

Mike isn't with us any more, so he cannot confirm if this is where the initial spark for the BATC was born but even without that confirmation, I think it's a pretty good guess. Perhaps someone else can add some evidence.

If you have any information you wish to add to the above please write to Andy Emmerson G8PTH, 71 Falcutt Way, Northampton, NN2 8PH.

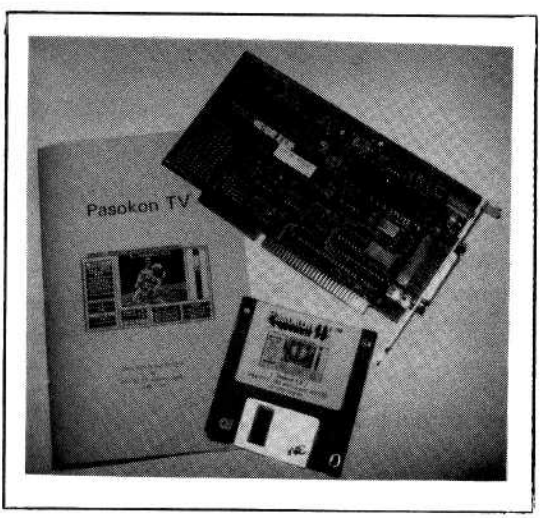
Pasokon TV - the Slow Scan Revolution ?

Review

Mike Wooding G6IQM

For many years operating Slow Scan Television meant either building a dedicated receive converter, transmit converter and, for colour operation, multiple memory units, or buying a ready-built commercial unit. Neither of these methods has been particularly cheap, in fact, commercial units have generally been of the order of between somewhat dear and very expensive.

Another problem with these 'hardware' based SSTV systems is that they are 'mode oriented'. That is, hardware based SSTV converters will only operate in one mode at a time, and to change mode, and this is only possible on a few systems, then the firmware has to be exchanged. Not a satisfactory method of operating Slow Scan, especially in these days of multiple modes and operating systems. Invariably, ownership of one of these hardware based converter systems means that you are limited to the reception and transmission of only one, or at best, a limited number, of modes.



It has been argued by many protagonists of Slow Scan television, myself included, that perhaps the time has come for a rationalisation of the multivarious modes, transmission times, etc. However, that aside, what is required is a system that allows the operator to receive and transmit in a variety of modes and at the flick of a switch, and at an affordable price. Also, this slow scan system must be easily updated to allow new modes to be added to the repertoire, thus giving the operator the ability to keep apace with the 'art'.

Well this Utopian dream of a multimode SSTV transmit and receive converter has been realised. With the advent of the affordable PC (*as low as £25 at one recent rally apparently!*) being located in many amateur shacks then by the simple addition of a card in one of the slots and a disk of software you can be running full colour transmit and receive SSTV in a choice of modes within a few minutes!

Yes!, **PASOKON TV** has arrived to revolutionise Slow Scan operation, (well, at least it will play its part).

PASOKON TV

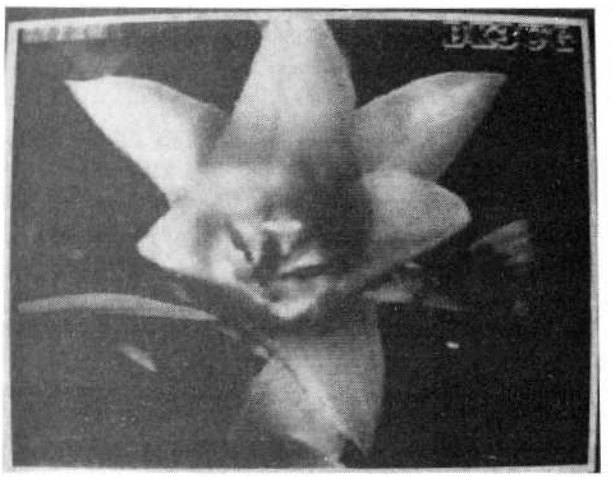
Pasokon TV is a PC based full colour transmit and receive Slow Scan TV converter. The system consists of a PC card requiring a 16-bit slot, the operating software on a floppy disc, a user manual and a 25-way D-type connecting plug. The idea, system and software is the brainchild of SSTV's old friend, John Langner WB2OSZ, who has been at the forefront of computerised SSTV for many years.

The User Manual is well presented (although those who purchased the initial version were not so lucky) and explains all you need to know in layman's terms. That is you neither need to be a computer expert nor an electronics whiz-kid to get the system installed and operational.

Chapter 1 of the handbook details the features of Pasokon and the hardware requirements, which are listed below:

Features:

Send and receive all popular modes: Robot, Martin, Scottie, AVT and Wraase
Full colour images during reception
Automatic receive mode selection with VIS code
Automatic fine-tuning for signals up to 100 Hz off frequency
Read and write popular image file formats
Graphical user interface
Mouse support
User-defined menu items to run external programs
Simple image manipulation
Test pattern generation
Easy operation



Screen photograph of a .TGA image supplied by Peter Lockwood G8SLB received using Pasokon.

Hardware requirements:

Transceiver IBM PC/AT or compatible with:

- 286 or later CPU at least 640k RAM
- VGA display and colour monitor
- Mouse (optional but strongly recommended)
- an empty 16-bit expansion slot

Chapter 2 of the user manual details a 'Quick Start Guide', which leads the reader through the very simple instructions to get the system installed and up-and-running in receive mode only. As John Langner says, 'You want to see some pictures now, not read some stupid manual first'.

Chapter 3 goes into more depth on configuring and optimising the software to suit the computer in use and also has a section dealing with what to do about hum and RFI problems.

Chapter 4 is a short section dealing with adjustment of the Clock Frequency and the Audio Output level of the card. The Clock frequency should not need adjustment on new units, but the method is detailed so that any drift due to ageing can be accounted for.

Chapter 5 briefly discusses the computer memory requirements and how best to configure the machine to get the best from Pasokon.

Chapter 6 is a detailed explanation of the operation of the program itself and the graphical user interface. Also given are the optional key presses for selecting the various modes, speeds, etc., if a mouse is not being used.

Chapter 7 is entitled 'Troubleshooting' and contains descriptions of problems that might be encountered, an explanation of their causes and possible solutions

Appendices A to F detail useful information, warranty details, keyboard equivalents to mouse operations, etc.

All-in-all the user manual details everything that you need to know about Pasokon TV from installing the unit and optimising the system to going live on air. I hope John will forgive me for saying this, but I found no peculiarly American expressions, the whole thing reads in English!

USING PASOKON TV

Operating SSTV with Pasokon is simplicity itself. Fire up the computer and load Pasokon, which automatically goes into STANDBY. Tune your transceiver into a Slow Scan signal, switch over to Pasokon, hit the ENTER key and it does the rest. It selects the correct mode and speed and the incoming image is displayed in full colour real-time during reception. There is no post-processing required. To return to standby simply press any key or click the left mouse button.

To transmit a picture a little more preparation is required. Firstly the required image must be loaded into Pasokon, which as with all other features is easily carried out using on-screen menus.

Once the required picture has been loaded in it is displayed in the Pasokon main screen. The required mode and speed are selected by clicking on the screen 'buttons' and then the Transmit button is selected and off it goes. A scroll bar at the side of the main screen shows the transmit progress.

It is all so easy! The only complaint with the system at all is that, unlike conventional hardware based converters, you cannot feed a camera or video signal direct into Pasokon to snatch an image for transmission. What is required is a separate Image Capture system in the computer which will snatch pictures and save them in an appropriate file format for subsequent loading into Pasokon for transmission.

However, a software link is provided in Pasokon for direct access to the VIP 640C Frame Grabber which John Langner recommends. By selecting Digitize from the file menu with the mouse, or by pressing ALT-D, the program switches direct to the VIP 640C system (provided that it is on-board the computer of course) and allows you to snatch a picture and load it direct into Pasokon. (Further details of the VIP 640C unit will be featured in the next issue of CQ-TV, or can be obtained from KM Publications at the adress shown at the end of this review).

CONCLUSIONS

Pasokon TV provides a relatively inexpensive means of becoming fully operational on SSTV on all modes, even if it means purchasing a PC as well. If you already have a PC in the shack then the system is highly cost-effective when compared to conventional scan converters. It is simple to use and the quality of the received pictures is as good as anything else I have seen.

The ability to switch modes at the click of a button is marvellous. With conventional scan converters, if the ability exists to be able to change modes it usually requires, at the very least, an EPROM change, and often more.

The only thing that Pasokon hasn't got that conventional scan converters have is the ability to snatch your own 'live' pictures direct. The necessity is, as explained earlier, to have a separate image capture system on board. However, any image that is on disc can be loaded into Pasokon (provided it is in one of the following formats: .GIF, .HRZ, .PCX, .PS or .TGA) and transmitted.

Screen photograph of a .TGA image supplied by Peter Lockwood G8SLB received using Pasokon.

The system was tested on two systems here, one utilising a TSENG XVGA system using the ET-4000 chip and the other using a Trident SVGA system. Both graphics cards have 1M of video RAM on board. The quality of the pictures resolved and the colour content was of a very high quality. In fact, allowing for any QRM in the received images, as good as anything any of my art packages could produce on-board.

The usual comment at the end of a review is to say that either the reviewer recommends the unit or not. Obviously, due to my close association with the product I must recommend it, but I do so backed by the knowledge that the system does work very well indeed, is comparable to anything else available at the present time and is extremely good value for money.

Pasokon TV costs £180.00 plus £6 p&p (£12.00 Overseas). The system is available solely from:
KM Publications,
5 Ware Orchard, Barby, Nr.Rugby, CV23 8UF, UK
Tel: 0788 890365;
Fax: 0788 891883.

STOP PRESS: Due to be launched very soon will be **SSTV SNOOPER**, a receive only version of Pasokon TV. The unit will consist of a very small interface which will plug directly into a spare serial port on the PC and a program disc and user manual. The system will cost £85 plus £2.50 p&p. For further details please contact KM Publications at the above address.

A 70cm ATV Receive Converter

Mike Wooding G6IQM

It has been sometime since a circuit for a 70cm receive converter has been published in CQ-TV. The Club does have a printed circuit board available for a simple upconverter and also supplies the 108 MHz crystal for it as well. However, although that circuit works very well it is probably about time that a new circuit was introduced and it is with this in mind that I decided to include the following article in this magazine. A complete kit of parts for this unit is available from: C+A Electronics, P.O. Box 25070, Athens 10026, Greece. Tel: + 152 42 867; Fax: + 152 42 537 and I wish to thank Simeon Krizias of C+A for permission to reproduce the circuit here.

The concept of the receive converter follows standard ideas - why reinvent the wheel? The 70cm signal between 430 and 440 MHz is amplified by an RF stage and then fed to a mixer stage. The mixer stage converts the 70cm signal to around 600 MHz, for direct feeding to a standard UHF TV set tuned to approximately channel 36.

SPECIFICATIONS

- Operating voltage 12V DC
- Current consumption 15 to 20 mA
- Input frequency 420 to 450 MHz
- Output frequency approx. 600 MHz (UHF TV CH 36)
- Conversion Gain >30dB

CIRCUIT DESCRIPTION

Referring to the circuit diagram shown in Fig.1, the unit consists of an RF amplifier stage, Q1 followed by the mixer stage, Q2 with its associated local oscillator, Q3. The local oscillator frequency chosen is 170 MHz, which mixes with the incoming signal, of nominally 435 MHz to produce sum and difference frequencies of 605 MHz and 265 MHz. The 265 MHz signal is then filtered out, leaving the 605 MHz signal to pass to the TV receiver tuned to around channel 36.

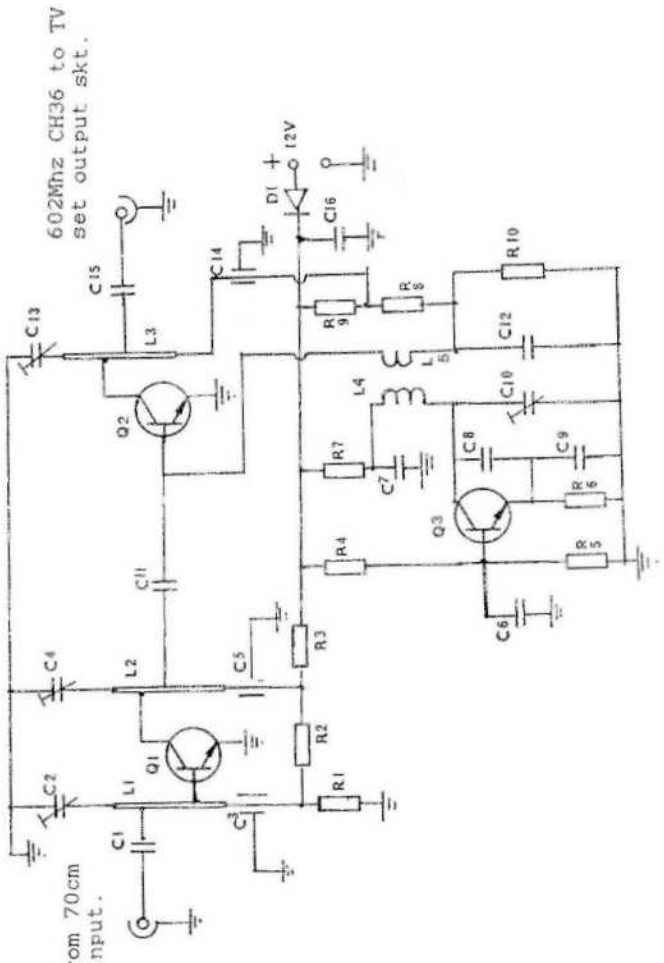


Fig.1: Circuit Diagram of the 70cm Receive Converter

In receivers and converters where the local oscillator is below the signal frequency, it is important that the oscillator harmonic frequencies do not fall on, or near, the incoming and outgoing signal frequencies as interference may result. The local oscillator 2nd and 3rd harmonics will be approximately 340 MHz and 510 MHz, both of which are far enough away from the 70cm input and the TV output frequencies to not cause and intermodulation problems.

The RF amplifier stage, Q1, employs a BFR91A transistor connected in common emitter configuration. Signals from the aerial are coupled to the input tuned circuit L1, C2 via C1. The base of Q1 is connected to a tapping point on L1 and is fed with bias voltage from R2 and R1. The collector of Q1 is connected to the tuned circuit L2, C4 and supplied with DC through R3. Decoupling for the "cold" end of L1 and L2 is provided by the feed through capacitors C3 and C5 respectively.

The mixer stage transistor Q2 is also operated in the common emitter mode, with both signal and local oscillator applied to the base. The output of the RF amplifier stage is capacitively coupled through C11 and the local oscillator is inductively coupled by the oscillator coupling coil L5. This is a very convenient arrangement as C11 and L5 form a high pass filter for signal frequencies and a low pass filter for the local oscillator frequency. The collector of Q2 is connected to the output resonant circuit L3 and C13, which is tuned to 605 MHz. The output is capacitively coupled from a tapping point on L3 via C15 to the UHF TV receiver. Decoupling for the "cold" end of L3 is provided by C14 and the supply voltage and biasing are provided by R9, R8 and R10, with decoupling of L5 by C12.

Because the ATV transmission is a broadband signal and the TV receiver usually has automatic frequency control, the stability of the local oscillator is not particularly important. However, it is important that the oscillator is adjusted to the correct frequency of 170 MHz for reasons mentioned previously. The local oscillator consists of Q3, a 2N918 type transistor in a common base Colpitts circuit. The capacitive feedback tap to the emitter is taken from the junction of C8 and C9. These two capacitors together with C10 and L4 form the oscillator tuned circuit. Base biasing for Q3 is provided by R4 and R5 and decoupling is by C6. Components R7 and C7 provide a DC feed and decoupling for the collector circuit.

CONSTRUCTION

The up converter is constructed using the a glass fibre double sided printed circuit board. The stripline inductors L1, L2 and L3 and all the usual interconnecting tracks

are printed on one side of the board and the other side is unetched to form a ground plane. All the components are mounted from the earthed side of the PCB as shown in Fig.2. The best sequence for fitting the components is: resistors, diode, disc capacitors, feed-through capacitors, trimmers, coils and finally transistors. Where the wire end of a component and C9 appears through a grounded pad, that end should be soldered onto the ground plane.

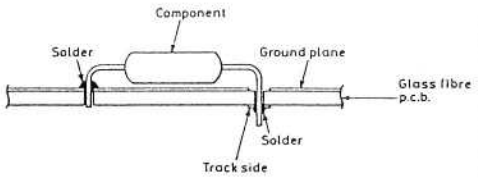


Fig.2: Component mounting method

Feed through capacitors C3, C5 and C14 are fitted from the ground plane side of the board and mounted with the insulated part of the stem projecting through a hole to the track side of the board as shown in Fig.3. The wire end of the feed through on the component side of the board is completely cut off and the body of the capacitor soldered to the earth ground plane on the component side. The other side of their wire ends is connected to the track by taking short lengths of wire as shown in Fig.3 and bending it with one turn around the centre conductor of the feed through capacitor, then laying it on top of the track EACH SIDE OF THE CAPACITOR and pushing it down flat and soldering it to the track. You should take care that the solder or the wire does not make contact with the sleeve of the feed through capacitor which is already earthed from the ground plane side of the board. Check for short circuits across the capacitors.

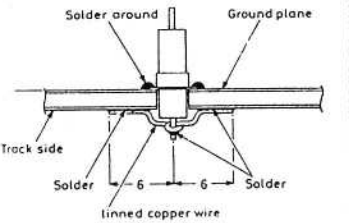


Fig.3: Fitting the Feedthrough Capacitors

The trimmer capacitors may have two or three legs, if with two, the one is earthed (soldered from earth pane) the other from the track side, if with three legs, the two common connections are soldered to the ground plane.

The coils are the next items to fit and their dimensions are shown in Fig.4. These are wound on an 8mm drill from 18 SWG silver plated copper wire. The coils should be mounted 2.5 mm above the ground plane. Use the same 8mm drill to align the axis of the coils whilst soldering in position.

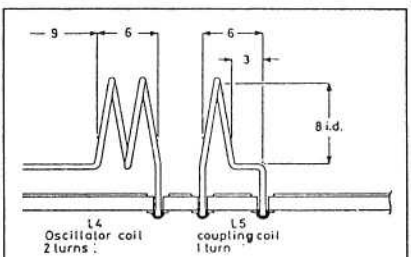


Fig.4: Construction of L4 and L5

Now for the transistors; note the orientation of the stripline transistors type BFR91A as shown in Fig.5. The 2N918 should have its case lead soldered to the ground plane.

The completed PCB should be fitted into a tin-plate or diecast box with the ground plane either soldered to the box or connected at several points using solder tags and nuts and bolts.

ALIGNMENT

Connect the completed upconverter to a 12 -15 volt DC supply, observing polarity (a reverse connection protection diode is included in the circuit thus the unit will appear dead if incorrectly connected). Check the current drawn which should be of the order of 10 to 15mA.

To set the local oscillator frequency a frequency counter or an absorption wavemeter or a grid-dip meter will be required. Connect a 432 MHz aerial to the converter input and a TV receiver to the output. Check that the oscillator is running by placing the fingers across the oscillator coil and noting that the voltage on Q3 base varies.

If using a frequency counter then closely couple the meter to the oscillator coil (make a loop approximately half inch in diameter at the end of a piece of coaxial cable by connecting the inner and screen together and connect the other end of the cable to the counter). Adjust C10 until the a frequency of 170 MHz is indicated on the counter.

If using a wavemeter or grid-dip meter closely couple the wavemeter to the oscillator coil and tune the wavemeter, noting at which position there is a change in the voltage on Q3 base. Adjust C10 until the frequency of the local oscillator is 170 MHz as detected by the absorption wavemeter.

Tune the TV receiver to around channel 36 until a 'lift' in the on-screen noise is observed. Adjust C13 for maximum noise (snow) on the screen. Using a signal source or off-air 70cm signal adjust C4 and C2 for maximum signal on the TV screen Readjust the TV receiver tuning, then C13, C4 and C2 for best performance. repeat the above until the best picture is obtained

Note: without an aerial connected the RF amplifier stage may be become unstable.

COMPONENTS LIST

RI, R3, R9, R1O	1k5	R2,R4 8k2 R5	5k6
R6	1k2	R7	33O
R8	10k		
C1, C15	180pF	C2, C4, C10, C13	2-22pF trimmers
C3, C5, C14 feed through	1nF	C8	3p3
C6, C7, C12, C16	1nF		C9
4p7C11	1OpF		
Q1, Q2	BFR91A	Q3	2N918
D1	1N4148		
18 SWG Silvered copper wire			

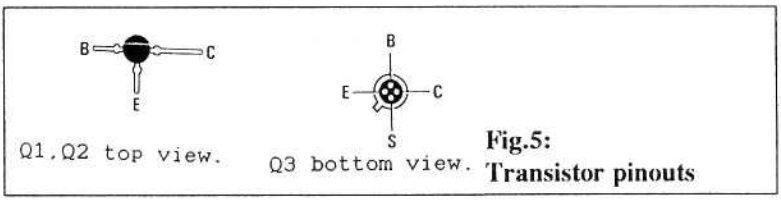


Fig.5: Transistor pinouts

AVOIDING A RABBLE SHOT

Dicky Howett

Dicky Howett recalls the time he made an amateur video and was slightly underwhelmed by the experience.

It seemed like a pretty straightforward idea. Shoot a video of the family (Mum, Dad, kids, grandparents, uncles, aunts, cousins), and post it over to a bunch of elderly emigrant relatives in North America. And why not? Should be a doddle. Unfortunately, as with any elementary concept, there are always a few problems, and these usually run strictly to a little law invented by Mr.Sod.

The first problem was that in those days I didn't own a camcorder, so hiring seemed the answer. A local video emporium (once I had squeezed my way past the pop corn and porn) offered to rent me a camera for a week. The camera, a Ferguson Videostar C 3V41 looked suspiciously scuffed around the edges, but I was assured that the thing, "takes good pictures, mate." The adjective 'good' was in retrospect, pure hyperbole.

Of course, that poor old Fergie 3V41 camera is now ancient technology compared to today's whizzing wonders. Its single Saticon picture tube (horizontal resolution 230 lines) had probably seen better days. As a result, the recorded picture detail, although acceptable, was quite soft. (Any softer and it would have oozed out of the cassette). Colour saturation varied from weak to weaker and the overall image had an unpleasant faint green tinge (slightly ameliorated by switching off the automatic white level balance). Still, every one of the 230 lines was quite sharp. The camera itself, I found heavy and awkward to handle, needing, or so it seemed, twelve fingers to operate it. Also, it didn't help that I kept forgetting where all the control buttons were located. The viewfinder (a nasty blurry washed-out monochrome image) proved less that adequate for focusing and it couldn't be adapted to fit against my left eye, which is stronger than my right. Test footage shot with the camera resting precariously on my right shoulder resulted in the horizon tilting drunkenly in virtually every scene. A case of bad posture giving the impression that I had one leg shorter than the other.

And then the battery pack gave out. The alleged half hour of shooting time per battery (one spare) was reduced to minutes what with all my zooming in and out, rewinding, pausing and generally mucking about. Re-charge time was one hour and as the spare was also flat I had to kick my heels (and almost the camera) while I waited. I consoled myself that at least the camera hire-fee was reasonable.

The second, and somewhat bigger problem was with my relatives. I had arranged for them to come to my home for the shooting (and I felt like literally doing so at the end!). Now I distinctly remember telling them all to come prepared. Time was short so I asked them to think in advance about what they'd like to say on camera, but with a strict proviso that they keep it short. Everyone effected to have misheard this simple instruction. Forewarned, I had prerecorded my own modest contribution, and this I played back to demonstrate the idea. I also instructed them to speak clearly and loudly. This was necessary for technical reasons (which they all effected not to understand) because the microphone was fixed to the camera body, (I didn't have a spare mic) and at distances of about two feet was relatively insensitive (except, of course to every sound you didn't want picked up!).

Come Production Day, I mounted the camera on a sturdy tripod (and shifting the location around the house for background variety) proceeded to photograph Aunty and Uncle, etc., individually or in groups of no more than two. (I wanted to avoid at all costs a rabble shot). When all was ready, neatly framed and softly lit, I switched the camera on, pointed to the lens and rather rashly shouted 'Action!'. Aunty and Uncle then proceeded, with total disregard of my instructions, to mumble into their chins and make eye contact with the carpet.

Muttering Uncle and Eyeball Aunty were hastily shown the first take, and then admonished to do better. By take five things had improved slightly, mainly because I just let the camera run on and told them to chat away regardless. I assured them that I would be able to cut it all down to size later.

My wife, camera-shy at the best of times, was photographed in the kitchen making mince pies. She then informed the camera that she was making mince pies. Cut to a close-up of a mince pie. Riveting stuff. Young nieces and nephews had a better grasp of the medium, less techno-shy than the oldies. My eldest daughter was word perfect in a nicely timed sequence, but she spoilt it all by later demanding a re-take on the grounds that she wasn't wearing the right earrings or something. As I had already laboriously assemble-edited her original take at the head of the

master tape (which meant I had to start all over again!), this request didn't go down too well. At that point I was having enough trouble re-arranging Aunty and Uncle Drone into something snappy. My mother, who is quite deaf, put up the best performance. She spoke boldly and clearly into the camera, as if trying to bridge physically, the distance across the Atlantic on lung power alone. It mattered little that the wayward whistle from her hearing aid crept in at times adding some merry heterodyne atmospherics.

With the last shot 'in the can', I now had the problematic task of whittling down an hours worth of what the professionals call 'raw footage', (stuff so raw it would give the term 'organic' a bad name), into something resembling a coherent television programme. But make no mistake, wonders can be performed on the cutting bench. Production editing is the same, whether film or tape. In my old movie camera days, I selected my shots, hung them up on a pin and then glued them together. The modern Howett cheap hit and miss electronic method involves scanning though the tape, remembering what was there, timing each shot and then re-locating in the order desired.

Five sweated hours later, and with several battery charge-ups (no mains adapter lead) I had a nice little 12« minutes. Believe me that was quite long enough. All that was left was to dub on some music to cover the final sequence of scenes of my home town (from whence the elderly lot had escaped twenty years ago). Even with Mozart's Horn Concerto (3rd movement) the town looked irredeemably unprepossessing. Still, I could always blame it on the limitations of amateur video.

So what have we forgotten? Here we have our tape, all ready to be shipped. It's a standard VHS, 626 line PAL and yes, you are correct, it just won't work in standard North America. You see, I had to keep explaining this. Although television is world-wide, it's like money. Where ever it goes it has to be converted into the currency prevailing. And like all currency conversions it comes with a premium. Either you buy a 'universal standards' VCR or hike down to the nearest (expensive) copy shop (which is what I did).

In the event my NTSC 525 line copy was better than I had expected, even though there was a perceptible shift in chroma hue and a bit of lateral jerking. Which just about sums up exactly how I felt after my little attempt at home video production. With all that exercise, I think it's time I had a nice quiet lay down.

(First published in 'Camcorder User' May 1991)

Low Power Video Buffer

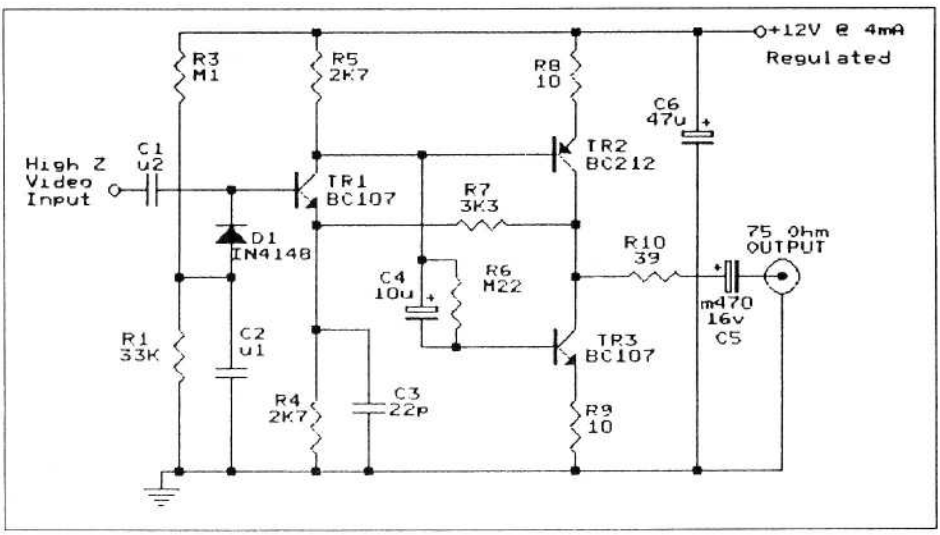
John Stockley G8MNY

This simple circuit evolved out of necessity while running out of available PSU current in a small vision switcher I was constructing. The circuit is suitable for battery operation, or, as in the original unit, merely for power saving.

The circuit is a development of the standard two transistor (25mA) design and many circuits can be modified to this design. The push-pull output means a more complex design, but it enables quite substantial reductions in power (heat) consumption by about five times.

Features

1. very low current drain, just 4mA, better than some chips?
2. Push-pull output stage
3. High input impedance, >10kΩ
4. Correctly matched output impedance to 75Ω
5. Low amplitude distortion and low phase error
6. Vision clamp irons out poor LF response and hum



How it Works

C1, C2, D1, R1 and R2 for the input biassing clamp, which maintains the input voltage at 3V. Thus, with a gain of x2 the output voltage will always be around 6V.

Tr1, Tr2 and R5 make up the standard non-inverting amplifier, with the gain being set by (R4+R7)/R4. However, R8 provides extra negative current feedback onto Tr2's emitter, which reduces the loop gain slightly but greatly improves linearity. Consequently, the improved linear driving voltage is suitable to feed via C4 the complimentary components Tr3 and R9. Tr3 provides the light DC quiescent load of 3mA from the low base current through R6.

HF compensation is set up by C3 at a value of 22pF. This results in no phase error through the amplifier. With 'faster' transistors a reduced value for C3 may be required for perfect colour phase alignment.

Conclusion

To give a 75 output impedance R10 has to be lower than the frequently encountered 68. This is due to the high output impedance created about by the loop gain being lowered by the linearising effects of R8 and R9. This limits the usefulness of this circuit for multiple outputs. The power supply must be clean as any ripple present will be fed into the Tr3 base.

A Letter to a Friend!

This epistle was sent in reply to a RadCom article by our ever campaigning member and profuse CQ-TV contributor John Stockley G8MNY, and has been reproduced here to show that we are not just sitting on our you-know-whats letting it all happen!

Dear John,

As a packet user and ATVer I read with interest your 30 MHz and up at IARU August RadCom article inviting comment.

437-8 MHz Packet Frequencies

I run ATV on 2 frequencies on 70cm:

A. For contest and DX mode 400W PEP horizontally polarised on 437.5 MHz with a blurred (1 MHz video filter) Black and white picture, which minimises QRM to and from other band users. The receiver is also filtered down to a 1 MHz IF bandwidth.

B. For local ATV demonstrations, medium and DX lift working 400W PEP on 435.185 MHz with full PAL VSB colour signal (no sound carrier) which CAN be fitted into the ATV sub-band allocation.

Just a point on ATV signals: the power is very small away from the main carrier. My VSB ATV signal is typically -20dB @ +/-100 kHz, -40 dB @ -1 MHz and -20 dB @ +4.43 MHz. Unlike the IARU recommendations that seem to have got it wrong for ATV, the standard PAL ATV specification across Europe (not France) is to use a low carrier frequency to be compatible with standard RX IF shapes. This format is essential to keep the mode accessible to beginners and novices.

So, back to your article. I was unhappy with another suggestion that the 70cm ATV sub-band should have another interfering signal in it. It already has mutual QRM problems from previous intruders into the ATV section from:

1. High repeater input frequencies near 435 MHz
2. Satellite 435 MHz downlink
3. Colour QRM from new 439 MHz packet links
4. Colour QRM from increased 440 MHz PMR band usage

Well, by now you might ask why bother with 70cm ATV, use 24cm instead, well indeed I do. But propagation is severely limited to hill top stations and the lack of trees! Generally ATV goes 3 times as far on 70cm than on 24cm. The Primary user on 24cm is very unfriendly, the RADAR systems run a mix of wideband frequencies at up to 1 GW ERP. E.G a good FM ATV signal producing a 15dB-over-noise signal in the RX IF can have 90dB stronger pulses all over it! So, for the ATVer 70cm, with all its problems, is still an important band for the mode. ATV has been on 70cm since 1952 and in colour since 1957!

My constructive suggestion is that 433.65 be made the centre of a second packet 100kHz sub-band and that 439.925 be removed.

John Stockley G8MNY

Mods to the Compendium 3cm Designs

Grant Crawford

I have been trying out the 3cm designs from the ATV Compendium and CQ-TV 141. For those who have not tried this band, I found it much easier to get going on than 23cm or 70cm! (I do not consider myself to be an 'RF person). The following notes might be of help to others.

I decided to use CA3140 OpAmps as they are designed to run from a single supply rail, as did the LM324 in the original circuit, and modified the circuit board to power the device at 12V. The resistor chain R21/VR3/R22 was set to be 15k, 20k and 30k respectively, as that gave the appropriate range. The VR1 deviation pot was set at maximum and nearly 200mV of video appeared across the test load resistor. (I was not paying enough attention as will become apparent!!). All seemed well so the Gunn diode was connected. This tuned up fine using the reflected-off-a-metal-plate method followed by fine adjustment using a receiver on a known frequency. The pictures were something awful!

So, I started to investigate. The waveform out of the receiver was a faithful reproduction of that supplied to the Gunn diode (allowing for the pre-emphasis), therefore the problem was in the modulator circuit. The AFC line was decoupled with 10uF, but the sync pulses were severely crushed - the vertical syncs sat higher than the black level (!). Lifting R17 at the OpAmp end, a 47K pot (it was handy) was wired between the 12V supply and ground and the wiper connected to the free end of R17. The syncs were now able to lock the picture and a good colour picture passed through the system, the frame syncs suffering a bit of tilt however. That was cured by increasing C10 and C11 to 1000pF each. Putting the scope probe on the end of R19 at the OpAmp output revealed a relatively large sawtooth waveform, locked to the video vertical timings. My theory is as follows:at the Gunn sits a DC (7.5V) plus 200mV of video. A fraction of this is tapped by the tune pot to give 4.5V into the OpAmp. The value of resistance between the diode and the pot wiper is:

$$3 \times 65K/7.5 = 26K$$

The impedance of 10uF at 50Hz is 318 Ohms. Therefore, as 0.3 of the input video signal is syncs:

$$318 \times 0.3 \times 200 / 26318 \text{ mV}$$

of 50 Hz signal remain at the OpAmp input. The OpAmp gain is Rf/Ri = 470. This leads to a 50 Hz component of:

$$470 \times 318 \times 200 \times 0.3 / 26318 = 345\text{mV}$$

I felt that the best way to kill this without creating too many problems in the lock-up time for the control loop was to decouple R19, and eventually found that 100nF would reduce the gain at 50 Hz sufficiently. reconnecting the control loop at R17, however, found the syncs still crushed to under a half of what the should have been. To cut a long story short, essentially, the syncs are crushed if the BC548 is turned on.

The syncs being crushed continued to bother me. After some experimentation TR5 was replaced with two FETs (2N3819) in parallel (all electrodes) with the gates having 1M to ground. The video signal now passes with syncs of the appropriate proportions, and the AFC regulation is adequate for me. (It does alter a bit from no load to a load of 200mA, but seems stable with the Gunn diode. Tune range is about 6-9 volts). The next step was to try and disable the output with the TX/RX line. Although attenuated there was still quite a bit of modulation left. Tr4 base was at about 8.5V, too high to hold it hard on, so I increased R12 to 22k and it now switches well. I had to do the same to R28 in a similar position in the audio circuit, otherwise the emitter tries to be at 3V below the base (PNP device) when turned on.

The audio was tackled last, as per the Compendium, except that a standard VOGAD circuit replaces IC1. Initially there was no output, but as only a small signal was expected (the audio does need to be about 13dB down on the video) I wondered if the scope was not sensitive enough. Once the oscillator was persuaded to wobble there was over 1V p-p of 6 MHz. This ended up with C24 at 270pF, C25 at 820pF and (the biggest change) C22 at 100nF. Nice sine wave, but not at Tr8 emitter! So, change the level control to a 1k pot which cleaned it up. However, the 6 MHz signal was bigger than the video modulation at the Gunn, so I replaced the pot with a 1k fixed resistor in series with a 100 Ohm preset. This then tunes up nicely and the deviation is calculated from basic principles. The VOGAD circuit feeds R26 with the transistor pair set for a gain of 4 (3k9 for Rf) the gain pot sits at mid-range. The audio stage is now so sensitive that the audio has to be turned well down to prevent feedback, even with the camera microphone in a room at the front of the house and the loudspeaker in a room at the back!

The above notes are not meant to be critical of the original circuit, without it I would never have got started! I also wish to offer my grateful thanks to Bob 'Gun Diode' Platts and Tony Horsfall for their help and encouragement. I shall now be listening 144.750 for 3cm contacts. ***See you there?***

24cm DIVIDE BY 1000 PRESCALER

Bob Platts G8OZP

This unit enables a low frequency LCD. counter module (Thurlby PCIM 177T (Farnell 170-383)) to display the output frequency of the BATC 24cm TX. It should also find many uses elsewhere in the shack.

The circuit of the unit is shown in Fig.1. The input frequency is first divide by 64 in the 1.3 GHz ECL counter IC1, the 200mV output is amplified by Q1 and fed to the B input of the 4-bit decade counter IC2. This divides the signal by 2.5. IC2 output is further divided two more times by IC3 and 4 again by 2.5. Thus the overall division ratio is:

$$64 * 2.5 * 2.5 * 2.5 = 1000.$$

The TTL output of IC4 drives the Thurlby counter directly. Other counters may require the output to be attenuated. Pads are provided on the PCB for this. The value of the two resistors will have to be selected depending on the signal level required.

The maximum clock frequency for the 7490 counter at 5V is 16 MHz allowing a maximum input of 1000 MHz. However increasing the supply voltage to these counters will increase their max clock rate, hence the adjustable supply. The Texas devices used in the prototype clocked reliably at 21 MHz on a 5.25V supply. Do not exceed 5.5V.

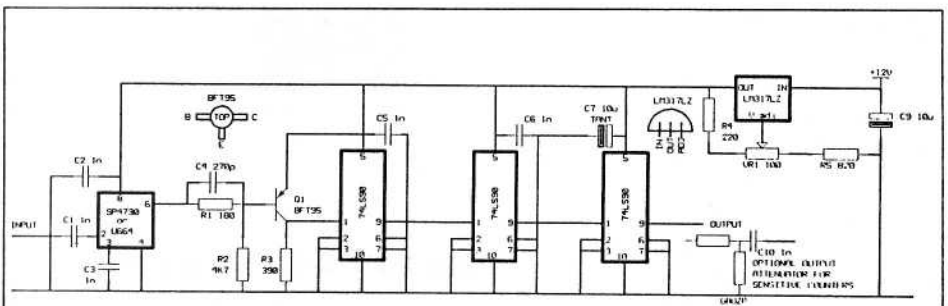


Fig.1:Circuit Diagram

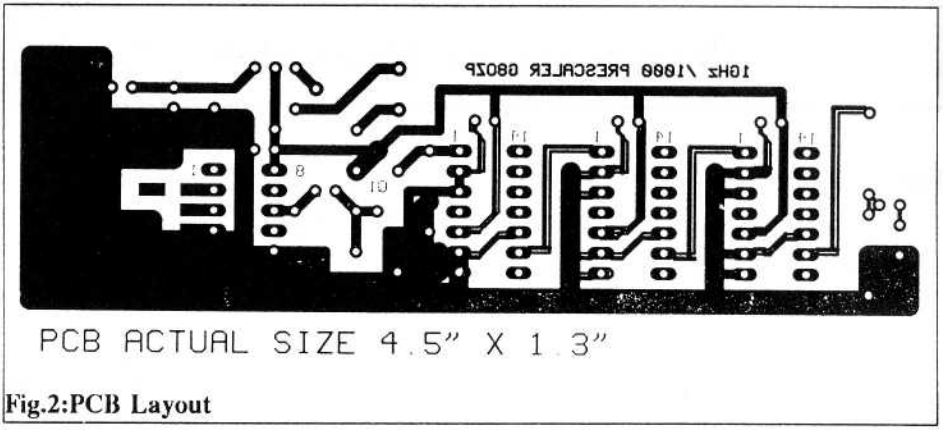


Fig.2:PCB Layout

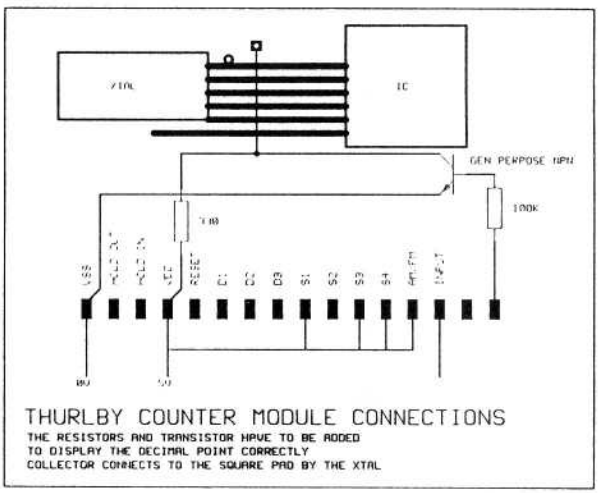
CONSTRUCTION

Fig.2 shows the PCB top view. Usual static precautions apply to IC1 which should not be fitted in a socket. Chip caps are best used for C1 and 3 though sub min ceramic with minimum lead length could be used. Q1 is surface mounted on the print side of the board. Before inserting the IC's it may be wise to check and set the supply voltage, just in case.

INSTALLATION

Input to the prescaler should be made with miniature 50 ohm coax with the minimum of exposed inner conductor and the braid divided into two tails and soldered to the ground. When used with the BATC 24cm TX the input signal should be taken from the junction of C15 and L8. The trimmer VC1 will require slight re-adjustment.

Before applying power the regulator must be set to 5.25V. Turn VR1 fully clockwise for minimum voltage, then anticlockwise to obtain the correct voltage on the IC supply rail. For other applications a short pickup probe or loop may be utilised or direct connection to a suitable part of the circuit.



Slow Scan or Facsimile *Review*

Peter Lockwood G8SLB

Over the last couple of years there has been a merging of the modes used to transmit visual images by means of audio transmissions, so much so that the only noticeable audible change seems to be the header information, and the overall time taken for the picture to finish. Normally the BATC would not have covered Fax modes, but the following might be of interest, especially to SSTV enthusiasts.

Just recently I have tried the new version of JVfax5.1 by DK8JV, Eberhard Backeshoff, and the COLOUR pictures produced from the program are truly superb. I have limited the mode to 640*480, mainly for compatibility with a standard VGA screen, and the speed to 240 lines/min and IOC of 204. Since the mode sends line sequential information, in red-green-blue sequence, the total time is around six minutes.

The biggest feature of this mode of operation is that, apart from a PC, the only interface requirement is a simple 741 opamp circuit on the Serial Port for receive, and a couple of C's and R's from the Internal Speaker to provide the audio for transmit. There are alternative interfaces which can be built, but the simple form works so well that more elaborate construction may not be necessary, though the processor is being worked rather hard using the 741 OpAmp and a minimum of 12 MHz clock would seem to be required.

This program version has so many modes and facilities built in that it will probably have something for everyone. It will do Meteosat, Wefax and the Ham Fax grey scale/colour modes. I have even set it up for use with the Xerox TeleCopier 400 which has had a new lease of life recently, an A4 grey scale data sheet can be scanned into the PC and sent out at 240 lpm/204 IOC, in about 4 minutes. The mode is quite resilient to transient noise and heterodyne carriers when these are out of the normal tone range (1 500 to 2300 Hz).

As a user of both a Robot 1200c clone, and the Pasokon SSTV board, I am well impressed by the additional features that JVfax5.1 can add. The program can be obtained from several BBSs or from those terribly nice R.I.G people. If all else fails I can provide a 1.44 MB HD disk, ready set for either a Trident 8900c or Tseng 4000c display cards, together with a printed booklet based on the authors working documents, for the paltry sum of £4 inclusive of postage.

Using Television - Part 3

Norman Ash G7ASH

In part two, we briefly looked at the methods and techniques involved when using television and I indicated how these can be well worth employing in Amateur Television.
This time I shall be taking a closer look at camerawork.

Knowing how to use your camera well can make a big difference to the amount of enjoyment an enthusiast can get out of using television, because you achieve better results with less effort.

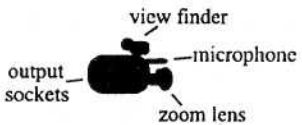
You will recall that the function of a television camera is to :

1. select and isolate an image
2. depict visual movement
3. display an image from the most appropriate view point
4. clearly illustrate the message in image form

All these must be carried out in the context of what visuals have come before and what visuals are to follow. This is a good point upon which to emphasise again how important proper planning and preparation are!

Technical Aspects

Let us begin by looking at the basic technical facilities of a typical television camera :



A Typical Camcorder-key features

The most common camera in non-professional use today is possibly the Camcorder ; having the camera and the videotape recorder (VTR) combined into one comparatively compact unit. The layout and positioning of these features often varies slightly from one Camcorder to another, but the basic functions will often be found to be the same.

Sometimes you will find that a manufacturer will call some of these functions names and terms which are different to those in common use. This can be annoying to both amateur and professional users and is something for you to look out for.

Virtually all new cameras come with a *zoom lens*; this allows you to make the picture appear closer or further away. Its control allows the continuous change between one of these extremes and the other. The *zoom lens* is often described by the **ratio** between these two extremes (often given by the angle of view which the *zoom lens* allows - look out for quoted 'zoom ratios' which are not quite what they seem, modern cameras can have electronically generated zooming features added!).

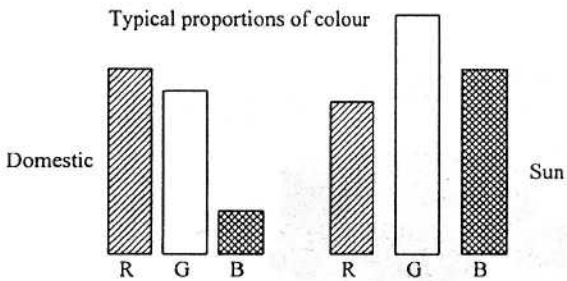
You will often find that these cameras have an *integral microphone*, which will pick up sound when no external microphone is plugged into the external microphone socket (often located near the camera microphone). The use of the *internal microphone* for general atmospheric sound tracks may be quite adequate, providing you can keep the fumbling of the camera operations to a minimum and you don't have problems of wind pick-up. However an extension microphone is recommended for most uses where sound quality is important (but watch those tiny connectors - they are very prone to damage & disconnection's etc.!).

Camcorders generally have an *electronic viewfinder* with an eye piece magnifier (often with an optical adjustment for your eyesight). This is usually in black and white, although you can get colour displays, particularly as an optional extra. When using a black and white viewfinder, the camera operator has to assess the effect of the colour present in the colour camera image (a strong colour can distract the viewer away from what you wish to illustrate). You may be able to check the picture composition and technical quality of the colour, by feeding the direct *video signal output* into a colour TV or monitor.

Colour Balancing

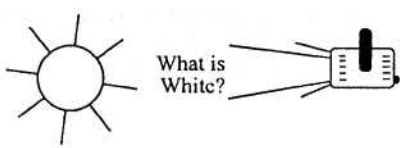
Most colour cameras have a facility to select or set-up the camera's colour. This is known as *colour balancing*, as in practice, it involves adjusting the proportion of Red to Blue in the picture.

Colour television works by using measured proportions of Red, Green and Blue, therefore it is only necessary to adjust two colours (green is usually the reference colour).

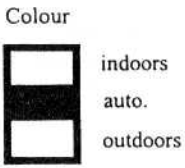


Comparison of indoor and outdoor light sources

It is necessary to adjust the cameras colour, because the different light sources which are used to illuminate the cameras image, contain different proportions of colours (proportions can vary between and from sources). The sun has more Blue in its light compared with much artificial light sources. Domestic lighting is likely to contain much Red, but very little Blue.



Television engineers set a standard colour for the white which is used. Once the proportions of Red, Green and Blue to make white have been fixed, different shades of grey are produced simply by lessening the amount of signal in these same proportions.



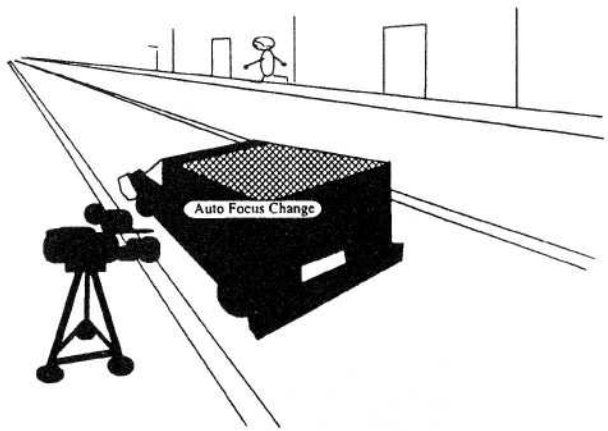
A Typical Colour Balance Switch

This switched type of adjustment is common to many cameras and is very easy to use. It will give a reasonable colour rendition for most purposes on the *auto.* setting (where you can then forget about this aspect of your camerawork). If you require a more exacting result you will need to switch over to the appropriate alternative switch position each time the lighting conditions change.

Some cameras may have adjustable controls where very fine manual settings are possible by adjusting the Red and Blue levels (this is normally carried out whilst the camera is viewing a pure white image, in full screen, using the light from the intended illumination source. Further information should be sort from the camera manual, as exact methods vary).

Auto./Manual Focus Controls

You may think that a fully automatic focusing control is ideal and for many purposes it is, but there are occasions when use of a manual setting is preferable :



This scene across the street will result in the focus constantly changing, as the traffic goes by in front of the camera. Manual focusing on the opposite side of the road, would allow the viewer to take in the atmosphere (with the traffic passing out of focus), but it would leave the key features of the street scene in clear and constant focus.

Macro-Focus

Some television camera lenses possess a macro-focus capability, which allows you to obtain very big close views of small images. Often the zoom lens has a button which allows it to travel further than normal, but it will only allow you to focus close to the lens and you loose the ability to vary the image size using the zoom control.

You may find that as you get into the television production side of the hobby and you are looking for interesting 'shots', that using the macro will produce some exciting close-ups. In drama the distorting effect of the macro on the geometry of the image is often used professionally.

Operating Techniques

After an all too brief look at the technical facilities available on most television cameras, how can you get the best out of its use?

The first and most important point is not to use any of these facilities on your camera, just because its there. Remember that unless you are playing or experimenting, you are likely to be wanting to communicate in some way.

Many professionals consider that if you don't notice the television production media functioning (as a viewer) and the producers message has come across clearly, then this is good production work There is a good case for simple presentation in preference to complex, in this respect. So your knowledge and skills in basic camerawork can take you a long way in achieving good results. Any additional presentational techniques should *always* add to the aims and objectives which you have set to achieve in your communication with the viewer.

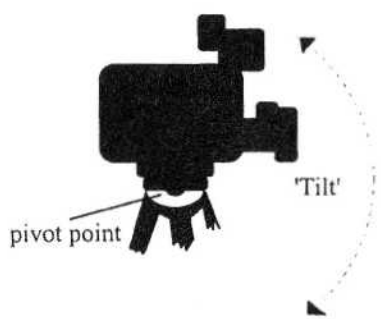
Camera Movement

Camera movement is a case in point, often the amateur will immediately be given away by the unnecessary movement of the camera. It is a good idea to start by only using the camera fixed and allowing all movement to happen within and between the images you are creating.

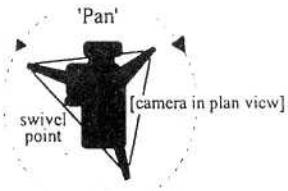
We can divide camera movement up into two aspects :

1. the physical motion of the camera
2. framing the cameras image

Moving the camera



The up & down movement of the camera about a pivot point is called *tilting*. The camera angle changes in relation to the horizontal plane.



The side to side movement about a swivel point is called *panning*. The camera angle changes in relation to the vertical plane.

Camera Support

Notice that in the illustrations there is a mechanical means of supporting the camera. Normally there is a device between the camera and its stand called a '*Pan & Tilt Head*' (this allows both movements to occur whilst still supporting the camera).

The quality of movement a *Pan & Tilt Head* will allow is very important. The better heads often have a fluid system to make the movement very smooth. These are likely to be very expensive, but look out for the so called '*fluid effect*' heads which are available at a more reasonable price.

The more expensive heads also allow the camera to be 'counter-balanced' which means that the camera should stay where it was put without locking the mechanism. This is not so on many of the heads which an enthusiast may start with and on these it is very important to **always lock the 'Tilt' movement before letting go**, or the camera may drop and damage.

Why use a mechanical means of support ?

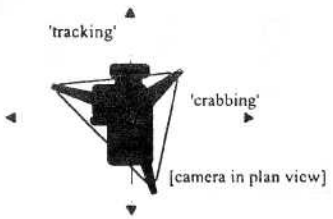
1. the movement of the camera is more controlled
2. less tiring for prolonged operation
3. the viewer is less aware of the media functioning

Think very carefully before you decide to use a camera without a means of support (*hand held*). Often it is an excuse for laziness rather than for good presentational reasons.

Sometimes *hand held* camerawork can add to your presentation. An example of this occurred some years ago in broadcast television, when a drama/documentary called 'Cathy Come Home' used it to suggest that the play was a 'real' event, happening as if in a *live* news event. The technique was suggesting to the viewer that it was not 'staged'.

The downside of hand held camerawork is that it can rapidly become tiresome to watch and intrusive to the presentation which you are trying to communicate.

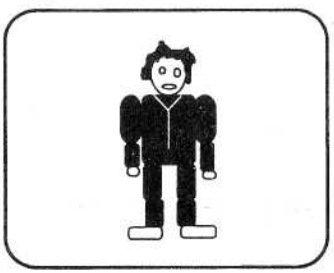
Moving on a camera support



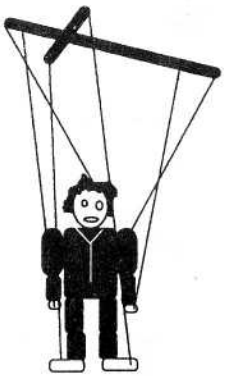
Two terms used in television in relation to movement on a camera support system may be of interest: The backwards and forwards movement is called '*tracking*' and the side to side movement is called '*crabbing*'. Typically a director would ask a camera operator to "*crab* right" or "*track* in a bit".

Framing

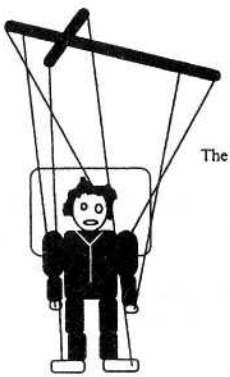
There is quite a lot to '*framing*' a television camera's image. The skills (which you pick up as you become more experienced at camerawork) are mostly straightforward, providing the operator is aware of the characteristics involved :



Framing dicates what the viewer sees

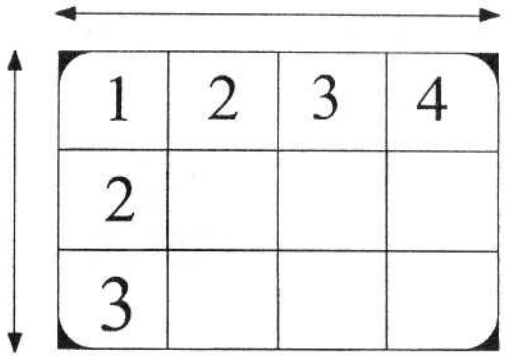


and what they don't see



The camera frames an image

and isolates it

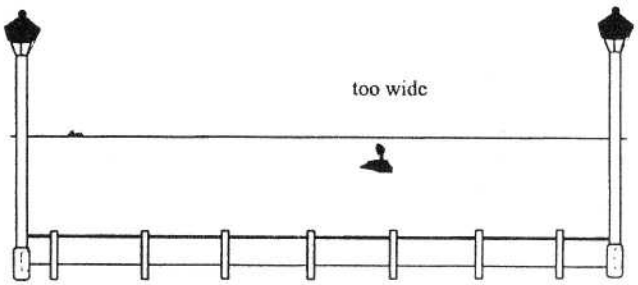


'Aspect Ratio'

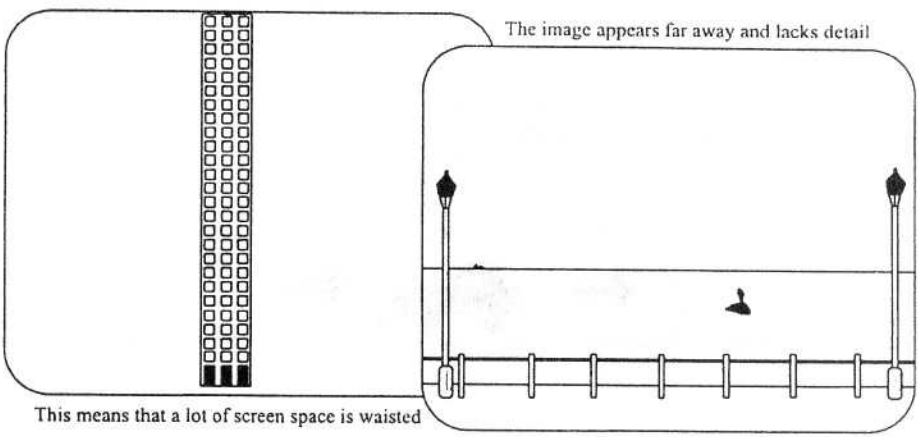
The shape of the screen image is fixed at 4 units of measurement across by 3 down. This is called the *'aspect ratio'* (some of you will know that the new high definition systems have a wider screen format).

too tall

The aspect ratio of many subjects may be the wrong shape for television.



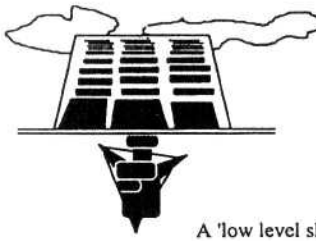
too wide

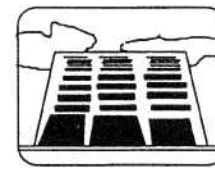


The image appears far away and lacks detail

This means that a lot of screen space is waisted

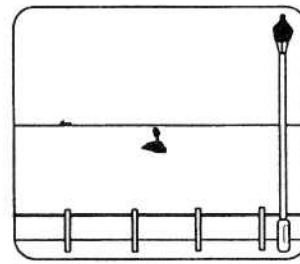
It is often better to think in terms of repositioning the camera to a position which is still appropriate to the context in which you are using it :





A 'low level shot' looking up at a tall object may work

The details of this street level frontage are clear enough to convey the function of the building, yet we see the whole building in this *establishing shot* (telling the viewer about its size, shape & location).

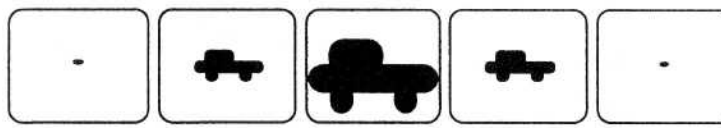


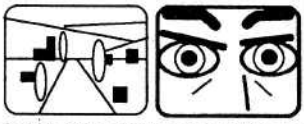
Repositioning the camera horizontally may make the *too wide* subject appear in the right *aspect ratio*. Here the camera has *crabbed right* to include foreground, middle distance and distant subjects, with less 'screen space' between them.

Framing Subject Size

There are few 'hard and fast' rules in television production, but there are accepted techniques for photo play treatment in general use :

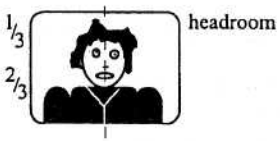
One of these is with the treatment of visual subject size on the screen normally you would...
.Establish the general view (called an ***Establishing Shot***)
.Next would be an intermediate sized view (***Middle Shot***)
.Then the close view showing the detail(***Close-Up***)
[The reverse happens when coming out from a close view]





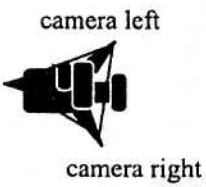
Deliberately disturbing the viewer by a sudden jump in the image size.

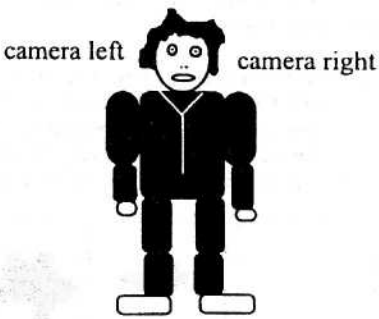
Framing People



Here is a person in *medium close-up* and she is framed equally either side because she is talking directly to the camera. Notice there is a gap above her head (called *headroom*) which helps her figure to stand out from the background.

A useful general rule : keep the eyes about two thirds the way up the screen when framing most image sizes.





By convention, the terms camera left and camera right describe the cameras image as seen looking from behind the camera.

Descriptions of framing a persons image

The terms commonly used in television are easy to remember and are often abbrieviated by their initial letters

This is a *medium close-up*

[MCU]

This is a *mid-shot*
(it starts from the persons middle)

[MS]

[MLS]

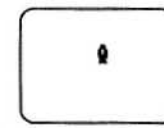
This *medium-long shot*
takes in the complete person

This is a
close-up

[CU]

and this an
extreme close-up

[ECU]



Here is the same person in
extreme long shot

[ELS]

I shall be continuing with this look at camerawork in part 4 and showing how you modify your camerawork to suit the context in which you are working.

MODIFYING THE BSB COMPACT LNB FOR 3cm

Bob Platts G8OZP

Identified by its black finned housing and circular probe antenna the BSB Compact can be converted for use on the 3cm band. Designed for the 12 GHz band the local oscillator runs at 10.7 GHz (ish). A printed circuit antenna feeds a three stage GaAsFET pre-amp followed by a bandpass filter and low noise mixer.

Whilst designed for 12 GHz. there is still some gain available at 10 GHz. This gain reduction is mainly due to the band pass filter, which is not tuneable (though I am looking into that). The input is via a circular wave guide, in which there is a dielectric probe to convert the incoming polarisation from circular to linear. The wave guide has a cut-off frequency just below 10 GHz.

Basic modification simply involves retuning the local oscillator to a higher frequency, such that it runs high side of the incoming 10 GHz input. This will invert the incoming video so the receiver will have to be switched for negative video. The local oscillator can be tuned up to a maximum0 of about 11.25 GHz. So for an input of 10.25 GHz the IF would be 11.25 GHz - 10.25 GHz = 1 GHz.

The tuning screw is located under the sealed hole between the antenna and the connector. Carefully excavate out as much sealant as possible then with a good fitting screwdriver, screw in to increase the local oscillator frequency. The screw can be tight at first, but frees of once moved. About 3 to 4 turns are required. The screw tightens at the end of its travel, further tightening will damage the oscillator puck. If the screw head should strip, tough!, you will have to dissemble the LNB and attack it from the inside. Obviously for more accurate setting use a signal of known frequency together with a receiver set to a known frequency.

The standard LNB is designed for circular polarisation. This is converted to linear polarisation by a dielectric block within the input guide. This means that when used to receive linear polarised as normally used on 3cm loss will occur. To enhance performance, or to enable the LNB to be used with larger dishes or other systems, the input wave guide could be converted to 22mm circular or WG16 wave guide.

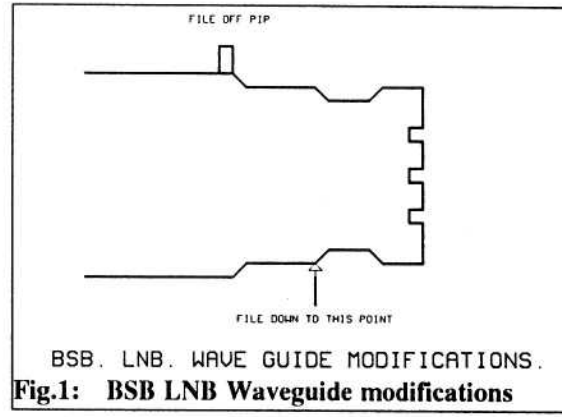


Fig.1: BSB LNB Waveguide modifications

First remove the antenna probe cover, it 'simply' pulls off. Immersing the probe in hot water can help. Then remove the white polarising probe. Again this 'simply' pulls out. It can be tight, so again hot water can help. As the polariser is not used, (on this mod), pliers may be used. Alternatively, drill a small hole and thread strong wire through it to get a good purchase. Remove any sealant from the end, then file off the small pip on the outside. Fill the inside of the wave guide with tissue paper or foam rubber to prevent metal filings getting into the electronics and file the guide down as shown on the drawing (Fig.1). A 22mm copper water pipe compression coupler can now be used to couple to 22mm copper pipe. The nut on the fitting will need to be opened out slightly with a half round file first. Most compression fittings have a shoulder within them, ideally this should be removed by machining or filing though it is not essential. The pipe can then go through and abut against the LNB guide. To obtain a smooth transition the LNB guide should be tapered to match the internal bore of the pipe. A cone cutter is best for this. Hold the LNB upside down to prevent the swarf getting inside.

For WG16 coupling a circular to rectangular transition is required. A design of such can be found in CQ-TV 155. This can be fitted directly to the LNB. A very short length of 22mm pipe within the transition is required to give a smooth bore.

When the LNB is vertical the input polarisation is horizontal, therefore the WG16 should be fitted with its broad face in line with the length of the LNB.

Circular guide can be used with scalar feeds for larger dishes. Fig.2 gives the dimensions of the authors. This was machined from aluminium bar stock. Try your local none ferrous stockist, they may sell you a short length. The feed should be positioned on the guide for best match (or signal). This feed will just fit to the BSB. dish and gives improved performance.

Horns work well on circular guide and are worthy of further development. They are simple to construct and very forgiving dimensionally. The photograph shows the authors mark 1. This was simply formed from an old beer can (quick advert - Bass cans are best!) formed into a cone, held together with 8BA nuts and bolts, trimmed

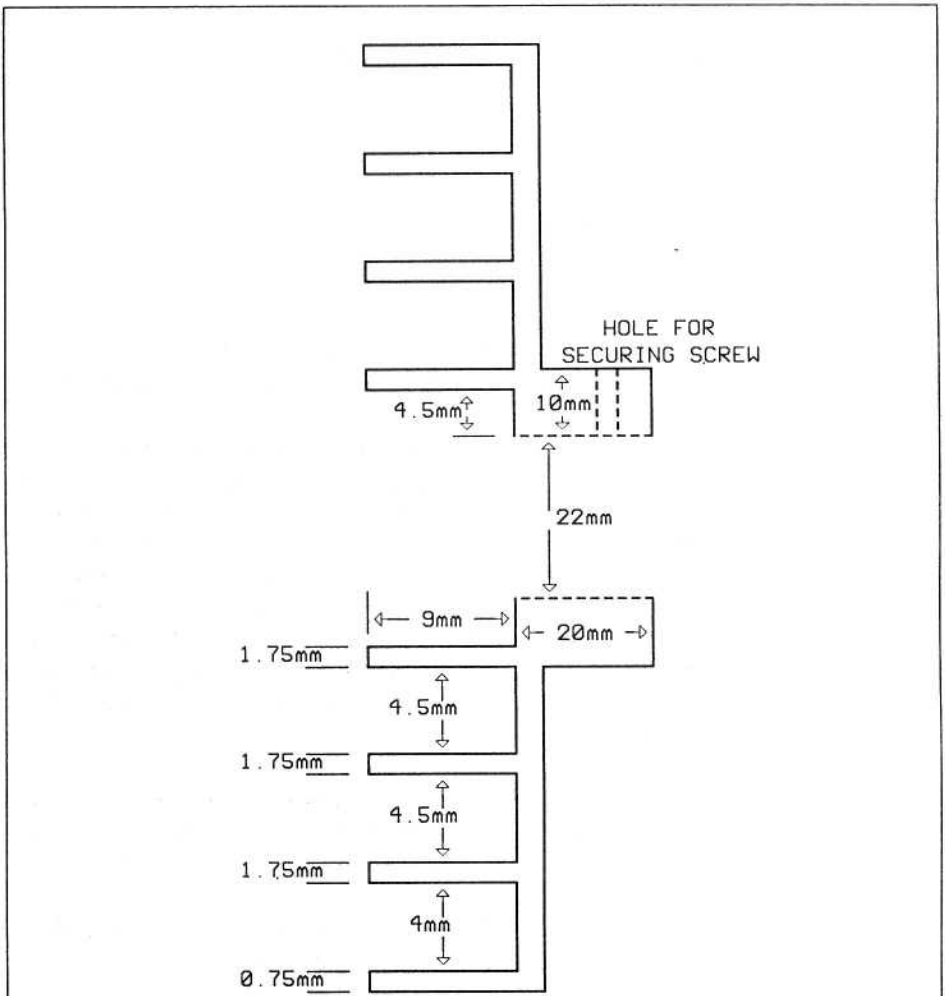


Fig.2: 3cm Scalar Feed

with sharp scissors or snips then pushed over the guide. Epoxy resin can be used to secure it. These are also fun to make as you have to drink the beer first, but don't try to make to many in one go.

3cm ATV SIMPLEX 10.250 GHz

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52	.....	Amateur television AM IF PCB	1.50	0.27	.....
53	.....	FM TV demodulator PCB	3.00	0.38	.....
54	.....	24cm GaAsFET converter PCB	3.50	0.38	.....
84	.....	24cm ATV receiver PCB	P.O.A	0.38	.....
87	.....	ASTEC AT2320V module	P.O.A	0.90	.....
88	.....	XR215 phase lock loop IC	3.00	0.27	.....
85	.....	24cm ATV transmitter PCB	15.00	0.38	.....
86	.....	24cm solid state amplifier PCB	8.00	0.38	.....
55	.....	Gunn diode modulator PCB	2.50	0.27	.....
56	.....	10GHz head unit PCB set	2.50	0.27	.....
57	.....	Tunable if PCB	2.50	0.27	.....
58	.....	6MHz audio subcarrier generator PCB	2.50	0.27	.....
59	.....	G3WCY SSTV scan converter PCB set	10.00	0.65	.....
60	.....	G4ENA colour etc. SSTV mods PCB set	5.00	0.38	.....
61	.....	G4ENA SSTV transmit mod to WCY PCB	6.00	0.38	.....
62	.....	G4ENA auxiliary PCB	2.00	0.27	.....
63	.....	SSTV sync and pattern gen PCB	3.00	0.38	.....
64	.....	SSTV spg/pattern 2732 EPROM	12.00	0.27	.....
65	.....	MC1445 gated video amplifier IC **	3.50	0.27	.....
66	.....	TEA2014 video switch IC	1.10	0.27	.....
67	.....	TEA5114 video switch IC	1.50	0.27	.....

TOTAL GOODS THIS PAGE £.....

	QTY	STATIONERY & STAT10N ACCESSORIES	EACH £	P&P £	TOT £
48	.....	13.14 MHz crystal	5.00	0.27	.....
68	.....	4.433618 MHz crystal	2.75	0.27	.....
69	.....	5.0 MHz crystal	2.75	0.27	.....
70	.....	6.0 MHz Teletext crystal	1.50	0.27	.....
71	.....	BATC diamond buttonhole badge	0.40	0.27	.....
72	.....	BATC round lapel badge	0.50	0.27	.....
73	.....	BATC blue diamond clutchpin badge	1.50	0.27	.....
74	.....	BATC cloth badge	3.50	0.27	.....
75	.....	BATC equipment label (6)	0.20	0.27	.....
76	.....	BATC square windscreen sticker	0.10	0.27	.....
77	.....	Set of ferrite cores for VSB TX	0.20	0.27	.....
		ZERO RATE VAT ITEMS			
78	.....	BATC test card	0.50	0.38	.....
79	.....	BATC reporting chart	0.12	0.38	.....

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MEMBERS SERVICES Items from these lists can **ONLY** be supplied to **CURRENT** members of the **BATC**. Please note that ***ONLY*** the items listed in the **CURRENT** ''Services for Members'' leaflet are available - a description of most the various PCBs and components can be found, in the ''What's What'' supplement sent with CQ-TV 149. Components for club projects are not available from Members Services unless contained within these lists. All Club crystals are HCLB/U (wire ended). Items marked thus: ** are available only until present stocks are exhausted. To avoid delay and inconvenience, please be careful to include the correct amount of VAT with your order, ie 17.5% of total goods **AND** postage, unless an overseas member. Payment should be by cheque or crossed postal order in favour of BATC - do NOT send cash or stamps please.

VIDICONS

1'' vidicon tubes are available in different heater ratings (95 and 300mA) - 6'' long; (EMI types 9677, 972B and EEV types P849). 2/3'' tubes have 95mA heaters (EEV type P8037). These tubes are all of separate mesh construction, with magnetic focus. Tubes available to special order include electrostatic focus or deflection, and low light types not previously available to club members. Prices vary depending on the size, type and grade of tube. A tube guide appears in CO TV 149 and 150. Please contact Members Services for further information. The stripe filter tubes used in domestic type colour cameras are not available through BATC, and normally must be ordered direct from equipment supplier. Members requesting information on prices or other types of tube or equivalents are asked to send a stamped, addressed envelope for their reply.

CIRCUIT DETAILS can be found as follows:

Revised ATV Handbok: PCBs 7, 17, 21, 22, 23, 24, 53, 63
Amateur TV Handbook (vol.2): PCBs 52
An Introduction to ATV: PCBs 10, 18, 25, 40, 41, 36, 47, 82, 83, 84, 85, 86
TV for Amateurs: PCBs 19, 49, 51
Slow Scan TV Explained: PCBs 59, 60, 61, 62
Amateur TV Compendium: PCBs 11, 12, 27, 28, 29, 30, 31, 54, 55, 56, 57
Micro and TV projects: PCBs 14, 33, 34
CQ-TV(xxx): PCBs 13(128), 16(134), 20(130), 26(142), 35(143), 58(139)
Item 46 is supplied with circuit details, etc.

WHO TO WRITE TO

Members of the BATC Committee are available to help and advise Club members on any ATV related subject. Please remember that all Club work is done in spare time, so please try to keep such queries to a minimum.

CQ-TV MAGAZINE - Anything destined for publication in CQ-TV or forthcoming publications; articles; review items; advertisements; other material. EDITOR: MIKE WOODING G6IQM, 5 Ware Orchard, Barby, Nr.Rugby, Warwickshire, CV23 8UF. Tel: 0788 890365 (Answerphone); Fax: 0788 891883.

CLUB AFFAIRS - Video tape library; technical queries, especially related to Handbook projects: TREVOR BROWN G8CJS, 14 Stairfoot Close, Adel, Leeds, LS16 8JR. Tel: 0532 670115.

MEMBERS' SERVICES - PCB's; components; camera tubes; accessories; etc., (other than publications). PETER DELANEY G8KZG, 6 East View Close, Wargrave, Berkshire, RG10 8BJ. Tel: 0734 403121.

MEMBERSHIP - Anything to do with membership, including new applications; queries and information about new and existing membership; non-receipt of CQ-TV; subscriptions; membership records; data protection. DAVE LAWTON G0ANO, 'Grenehurst', Pinewood Road, High Wycombe, Bucks., HP12 4DD. Tel: 0494 528899.

GENERAL CLUB CORRESPONDENCE & LIBRARY - Any general Club business. Queries relating to the borrowing or donation of written material. PAUL MARSHALL G8MJW, Fern House, Church Road, Harby, Nottinghamshire, NG23 7ED. Tel: 0522 703348.

PUBLICATIONS - Anything related to the supply of BATC publications. IAN PAWSON G8IQU, 14 lilac Avenue, Leicester, LE5 1FN. Tel: 0533 769425.

EXHIBITIONS & RALLIES - Also arrangements and information about lectures and talks to clubs; demonstrations, etc. PAUL MARSHALL G8MJW (address above).

CLUB LIAISON - And anything of a political nature; co-ordination of ATV repeater licences. GRAHAM SHIRVILLE G3VZV, The Hill farm, Potsgrove, Milton Keynes, Buckinghamshire., MK17 9HF. TEL: 0525 290 343.

CONTESTS - RICHARD GUTTRIDGE G4YTV, Ivy House, Rise Road, Skirlaugh, Hull, North Humberside, HU11 5BH. Tel: 0964 562498.

BATC TELEPHONE BBS SYSOP - CHRIS SMITH G1FEF, 19 Crabb Street, Rushden, Northamptonshire, NN10 0RH. Tel: 0933 58220.

CQ-TV AWARDS - BOB WEBB G8VBA, 78 Station Road, Rolleston-on-Dove, Burton-on-Trent, Staffordshire., DE13 9AB. Tel: 0283 814582

SATELLITE TV NEWS - PAUL HOLLAND G3TZO, Chatterton, Chapel Lane, Threapwoon, Nr.Malpas, Cheshire, SY14 7AX. Tel: 0948 81429.

TV ON THE AIR - ANDY EMMERSON G8PTH, 71 Falcutt Way, Northampton, NN2 8PH. Tel: 0604 844130.

Where possible, it is better to telephone your query rather than write. Please do not call at unsocial hours. As a guide, try to call between 1830 and 2130, and not before 1130 at weekends ... Thank you.

CONTEST NEWS

Richard Guttridge G4YTV

First an apology to all my contesting friends for the lack of reports in CQ-TV. This has been due to a very heavy work load at the salt mine, however I hope time will be a little more plentiful during the coming months.

OK on with the chat, let's start with the Spring Vision and while Des G3NNG was top of the pile with good scores on 70 and 24cm, John G4ZJY worked three bands from his home QTH with 3cm as well. Des's best DX was 408 km to PE1LZZ. John G8MNY commented that the contest clashed with Pickets Lock rally and that everyone had a good excuse not to be on the air. I think you can say that about any week-end now between March and November! There were two major rallies on during the International which left this end of the country a bit short on ATV activity. John went on to say he found conditions fair to poor for the week-end and that he had worked Paul G6MNJ who was back on the air with a home built 4CX250 linear. Paul it was also nice to get your log.

Now on to the Mayday Microwave, where Andy's callsign G4WGZ/P got an airing and although they worked twelve stations there was no real DX amongst them. He commented on the number of visitors they received (John G3MNY was aiding and abetting him), and how welcome it is to get people popping in to see you in action on your windswept hilltop.

That brings us to the Summer Fun contest where your contest manager got it right for once with some good conditions. Viv and Co. with the Sevenside Group G7ATV/P entered a log on 3cm with three QSO's which was very welcome. I hear a lot of chat going on about 3cm on 144.750 MHz. It would appear that a fair amount effort is being put into this band and I look forward to getting a few more entries!!!

Clive G8EQZ and I hope to get on in the next twelve months. Barry G6LIC at Wakefield, Peter G4RNA Nr. Sheffield, Dave G3ZTR at Bridlington, Dave G8KBC and three other mates down the Lincs. coast are all active on 3cm. Lets see some of you on during the contests. Remember contests mean activity. This was the first contest this year where Clive and I managed to get on the air. There were very few locals on, dare I say it, they were all at a local rally! This left us with some hard work to do with a late start from a duff 70cm mast head preamp and a 70cm power amp that wouldn't. We repaired both of them and caught up with the other stations.

All the contacts we had were good ones, with F6IFR at 481km the best on 70cm and PE1LZZ at 414km the best on 24cm. Viv and Co. G7ATV/P had a very good contact at 638km with PE1HDX. I heard from F6IFR during the International that he hopes to be on 24cm in '94.

The Summer Cumulatives were very quiet. I'm going to run it for one more year and then decide whether to drop it out of the Contest Calendar. I think there are too many of you on holiday during July to make it a goer. Your comments about contest activity generally and what we can do about it, if anything, would be most welcome. The one notable feature of the Summer Cumulatives was the log from John using the callsign EI/G7ATG/P. He worked GW4CBW/P across the Irish Sea at 122km He is claiming this as an official first, any other claimants?

First reports back on the International were that conditions were on the whole poor. There was a little bit of DX around 0900 to 1000 GMT on the Sunday morning on 70cm, 24cm was very flat. A fuller report on the UK entries in CQ-TV 165. That's all folks, keep the logs coming in please.

73's Richard G4YTV

RESULTS

3cm SPRING VISION 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G4ZJY	86	1	G4CBW	43

24cm SPRING VISION 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G3NNG	93½	6	G4ZJY	129
2	G4ZJY	530	5	G3NNG	129
3	G8MNY	381	6	G3NNG	114
4	G4WGZ	161	4	G0HAT	37

70cm SPRING VISION 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G3NNG	1687	11	PE1LZZ	408
2	G8MNY	938	10	G4ZJY	222
3	G6MNJ	722	8	G1DVG	83
4	G4ZJY	613	6	G8MNY	222
5	G4WGZ	541	8	G3NNG	119

24cm MAYDAY MICROWAVE 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G4WGZ/P	871	12	G8LES	71
2	G7KAO	244	6	G3WFM	36
3	G6WLM	10	1	G8ONX	5

3cm SUMMER FUN 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G7ATV/P	128	3	GW6BWX	39

24cm SUMMER FUN 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G8EQZ/P	2836	9	PE1LZZ	41
2	G7ATV/P	2269	26	G8EQZ/P	319
3	G4WGZ/P	951	10	G8EQZ/P	295
4	G7KAO	735	6	G8EQZ/P	280

70cm SUMMER FUN 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	G8EQZ/P	6148	11	F6IFR	481
2	G7ATV/P	4285	12	PE1HDX	638
3	G8MNY/P	2678	13	ON6AJ	355

3cm SUMMER CUMULATIVES 1993

Place	Callsign	Points	QSO	Best DX	@Km
1	EI/G7ATG/P	244	1	GW4CBW/P	122

24cm SUMMER CUMULATIVES '93

Place	Callsign	Points	QSO	Best DX	@Km
1	G4XMQ	708	9	G4RNA	68
2	G7ATG	512	6	G3SMU	102
			&	G7GFK	102
3	G8MNY	270	7	G8VMP	30
4	G6WLM	70	5	G0GIL	28

70cm SUMMER CUMULATIVES '93

Place	Callsign	Points	QSO	Best DX	@Km
1	G4XMQ	1066	14	G4RNA	68
2	G8MNY	766	9	G7ATG	222
3	G7ATG	394	3	G8MNY	222
4	G6WLM	69	3	G1TBL	35

Contest rules, log and entry forms from: ***Richard Guttridge, G4YTV, BATC Contest Manager, Ivy House, Rise Road, Skirlaugh, Hull, North Humberside. HU11 5BH, U.K. Tel: 0964 562498.***

***** NBTV EXPERIMENT *****

Will any member with 70cm TX/RX gear within 20 miles of Nottingham willing to take part in a simple NBTV experiment please contact Doug Pitt. Tel: 0602 282896

CONTEST CALENDAR

AUTUMN VISION

Sunday 15th November 1992 0001 GMT to 2359 GMT
Slow Scan & Fast Scan all bands
Entries to be received by Monday 23rd November 1992

WINTER ATV

Saturday 12th to Sunday 13th December 1992
1800 GMT Saturday to 1200 GMT Sunday
Fast Scan all bands
Entries to be received by 28th December 1992

WINTER CUMULATIVES 1993

Thursday 7th., Friday 15th., Saturday 23rd. and Sunday 31st January 1993
1900 GMT to 2359 GMT each session
Slow Scan & Fast Scan ATV all bands
Your three best logs out of the four sessions to be entered please

SPRING VISION 1993

Saturday 13th March to Sunday 14th March 1993
1800 GMT Sat to 1200 GMT Sun
Fast Scan ATV all bands

Please refer to CQ-TV 157 February 1992 for the BATC rules or send a SAE A4 size to Richard Guttridge G4YTV, Ivy House, Rise Road, Skirlaugh, HULL. HU11 5BH. England.

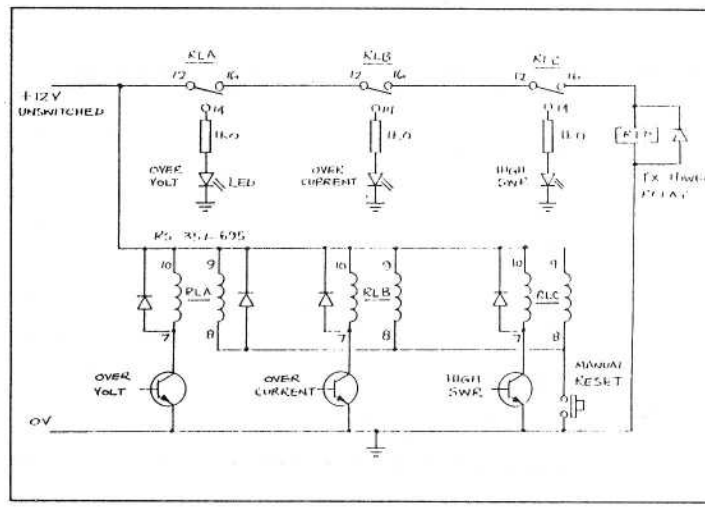
Circuit Notebook No.50
Latching Relays

John Lawrence GW3JGA

Latching relays, relays where the switching action is 'set' and remains that way until 'reset' date from the earliest days of electro-mechanical relay technology. The RS (Electromail) catalogue gives details of a range of Omron miniature DIL latching relays, which have useful applications. One I have use is stock number 351-695 (Double-pole Changeover 12V DC coils).

The relay is fitted with two coils, one to 'set' the relay and the other to 'reset' it. Once one coil has been energised and the relay has operated (typically 6ms) the power can be removed and the relay remains in that state indefinitely until the other coil is energised to change the state.

One feature of the latching relay is that if the system in which it is used is powered down, the relay 'remembers' that state for when the system is powered up again. For example, a TV repeater may require various trip circuits; over voltage, over current, high SWR, etc. If there is an internal technical fault the repeater must shut down completely and the fault information stored until reset. But, should there be a temporary failure or dip of the mains supply, but no technical fault, the repeater needs to return to the same operating conditions as before. A simplified circuit is shown in Fig.1



NOTE: Circuit Notebook 46, CQ-TV 160: C2 is 220nF not 220pF as shown.

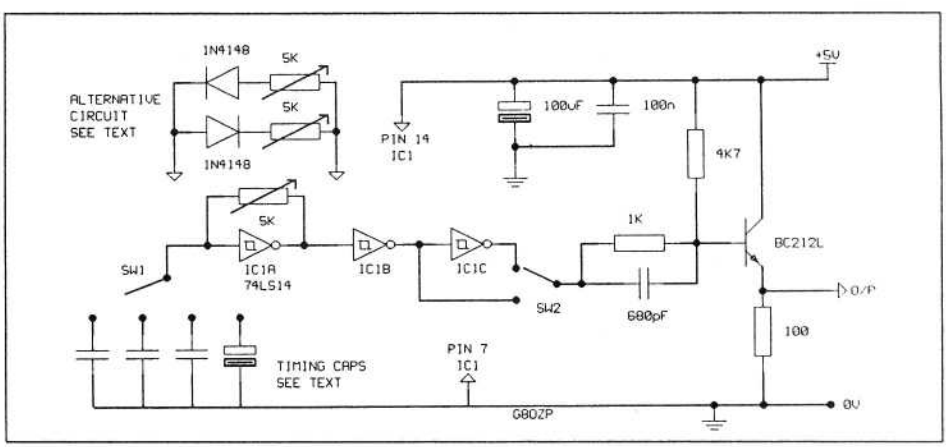
SIMPLE UNIVERSAL PULSE GENERATOR

Bob Platts G8OZP

This simple circuit was produced to provide a train of fast rise and fall time pulses of 5V pk-pk at low impedance for testing some equipment under development. It will provide pulses from less than 100nS to many seconds. The circuit can be easily adapted for a range of uses, for example, to provide frame sync pulses, etc., for cameras which require external drive.

Vero board is simplest for construction, but for maximum performance keep the layout compact. IC1A forms a simple astable oscillator. The 5K potentiometer controls the frequency and switched caps the range. These should be chosen to suit application. 100pF will give less than 100nS (40nS is possible but this depends on device and layout). The mark space ratio is approx. 2.5 - 1. By using the alternative circuit, in place of the potentiometer, the mark space ratio can be varied over a wide range. IC1B and C act as buffers. SW2 allows the pulse polarity to be selected.

The remaining circuit provides a low impedance output. There is no current limit on the output so this must not be shorted to ground. If required the output could be AC coupled by a capacitor or limited with a resistor though this may alter the pulse shape. The spare gates on IC1 could be used to provide TTL outputs.



TELETRON WATCH DOG

Bob Platts G8OZP

The Teletron micro controller board (Micro and Television Projects) makes an ideal unit for controlling repeaters, beacons, etc., but has one minor drawback for unattended operation. Should it crash through interference or a hiccup in hardware or software the unit will lock up and refuse to function until reset.

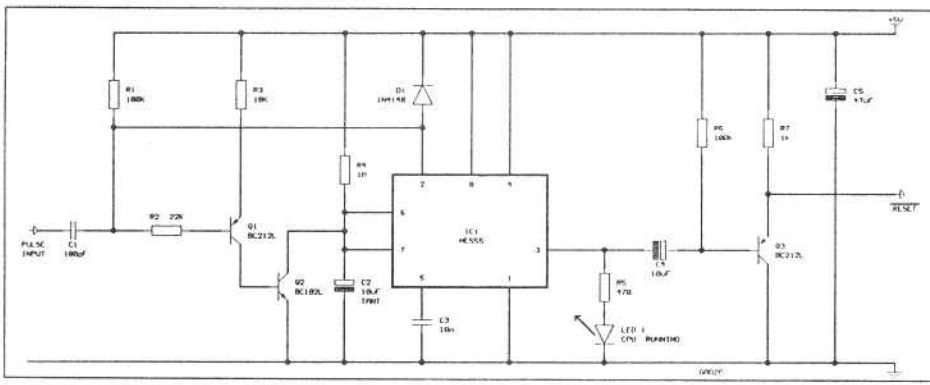
A Teletron is used to control the 3cm repeater GB3XT at Burton and to prevent this happening I developed this simple watch dog circuit, which, should the CPU stop running, automatically resets it.

The circuit could be used with many other micro computers. It could also find applications in systems where an indication of loss of pulses is require, i.e. loss of sync, or loss of mains, etc. Input pulses should be of TTL level.

As designed the unit will operate with pulse rates of about 1ms to 0.5s. With minor component changes operation over a wider range is possible.

The circuit action is...

When power is applied pin-3 of IC1 is low. C4 charges via R6, Q3 and R7 holding the reset low as it charges. This provides the CPU with it's initial reset. The pulse input is connected to the EPROM chip enable (other data address or control lines could be used depending on hardware and software). As the CPU runs these pulses trigger IC1 via pin-2, causing the output pin-3 to go high. This illuminates the CPU running LED



and discharges C4 via R6. Each input pulse also turns on Q1, which turns on Q2, which discharges the timing capacitor C2. So long as pulses are present this capacitor is unable to charge up and pin-3 stays high. Should the pulse train cease (CPU crashes), C2 charges to about 4 volts and pin-3 goes low, C4 now charges turning on Q3, as it does so generating a reset pulse resetting the CPU.

The values of C2 and R2 give a delay of 10 seconds between loss of pulses and generation of a reset. Reduce C2 if a shorter delay is required and vice versa. Avoid large values for C2 as its discharge current could destroy Q2. For input pulses with a slow rise time or of greater than about 0.5s duration C1 should be increased in value.

The reset output should be connected to pin-13 of the 74LS04 on the Teletron. The associated 22k, 1k, 10uF cap and 100Ω resistor should be removed.

The NKM-Electronic *MobilRec* Mobile Satellite Receiver *Review*

Mike Wooding G6IQM

In the early days of home satellite reception there was always one common problem to overcome - the reception of the relatively weak signals with small dishes. To overcome this problem low-noise converters and sensitive demodulators were needed. Then came the advent of broadcast satellites with, by satellite standards, very high ERPs - the Astra and Eutelsat birds amongst others.

However, there are still many lower power satellites and for their reception generally bigger dishes are required in order to provide good signal strengths for the first stage converter blocks to overcome the system noise factors. A big step forward in resolving this problem has been the introduction of the HEMT technology, which has made LNBs with very, very low noise figure available, thus enabling good satellite reception with much smaller dishes.

The receivers which were used in the early days of TVRO reception had three common characteristics:

- user friendly
- classic styling
- low threshold.

The change from the low power satellite generation to the more powerful medium power class led also to a change in the attributes for the receiving equipment. The new satellites could be received in good quality with less effort. These lower technical requirements and also the need for low-cost mass production changed the attributes of the components used.

The result of all this technological effort by the major manufacturers is an optimised system for the reception of a certain satellite, or family of satellites. Weak satellites with "exotic" programmes were not considered. Only a few satellite enthusiasts, for which satellite reception is more than only watching TV, are not a target group for a mass market. They will rarely find new products which are helpful in the reception of weak satellite signals.

However, that is not strictly true, for NKM-Electronic in Germany have developed a range of equipment specifically designed for the satellite DXer. One item in the range is the MobilRec.

MobilRec

The MobilRec was originally designed for mobile applications where, as with satellite DXing, a very sensitlve demodulator unit is required, which has the additional facility to reduce the static threshold.

This is realised on the MobilRec by the so-called TEV (Threshold Extension Volume) control, which allows the user to vary the bandwidth of the receiver from around 27 MHz to 0. This facility is extremely useful for the reception of weak satellite signals, for by reducing the receiver bandwidth you effectively increase the sensitivity of the system, and thus improve the resolved picture many-fold.

Specifications

- Continuous bandwidth control
- Scan mode with acoustic signal
- Low power consumption
- Frequency range 950 to 175O MHz
- Tuneable Audio Subcarrier frequency 5.5 to 8 MHz
- Bandwidth variation(TEV) 0 to 27 MHz
- Polarity control 12 or 18V switched by LNB voltage

- Video output 1 volt p-p into 75Ω
- Video polarity internally switchable
- Audio output 6OOmV into 1kΩ
- Modulator output UHF channel 36 (65dBuV)
- Power supply 12 to 15V DC, 0.6 to 0.8A
- Dimensions/weight, 6Oxl6Oxl8omm, 600g

As can be seen from the above specifications, the MobilRec is a very versatile and compact unit. Also, it should now be evident, not only from its name, that this unit is ideal for mobile and portable use. Also, and this is the main reason for my personal interest in the receiver, it could be an ideal 24cm FM ATV receiver, for both portable and fixed station use, and it is using it as my base station 24cm receiver that I conducted this review.

Back to the unit itself, the controls functions are as follows:

SWITCH "POWER": This on/off switch controls the DC input power and the 12/18V DC feed to the LNB (in my case the mast-head 24cm preamp - very useful!). A green LED is illuminated in the ON position.

SWITCH "POLARITY": This switch controls polarity if a switching LNB is used (e.g. Marconi). Switching is accomplished by selecting either 12 or 18V feed to LNB. In the vertical mode the supply voltage is about 12 volts, for horizontal polarisation the supply voltage is about 18 volts. In my case as the mast-head preamp takes up to 20 volts then there is no problem with the position of this switch. However, in some instances it may be necessary when feeding a preamp to limit the available feed voltage.

Note: An internal DC/DC converter generates the 18 volts supply voltage. The maximum current in this mode is of the order of O.8 amperes, for vertical polarisation the current is about 0.5 amperes. Thus it is useful to select vertical polarisation when feeding a preamp.

CONTROL "AUDIO": This control is used for tuning the audio subcarrier frequency, the tuning range is between 5 to 8 MHz. In the case of ASTRA satellite reception the main audio subcarrier is fixed to 6.5 MHz for all programs, so that this control could be tuned to this frequency for all programs. Again, very useful for 24cm ATV, as I have found lots of stations whose 5.9996 MHz is anything but!

CONTROL "TEV": This control gives MobilRec the advantage over most other satellite receivers, It allows continuous tuning of the receiver's IF bandwidth. In the

case of poor signal reception 'sparklies' appear on the screen. The picture can be improved by reducing the bandwidth and tuning this control clockwise reduces the bandwidth from 27 MHz to 0 MHz. Best sensitivity is achieved close to the point before the picture becomes black.

CONTROL "TUNING": This control has a double function. 1. Continuous frequency tuning from about 880 to 1750 MHz. 2. In the position "SCAN" the receiver is continuously tuned over the mid-band every two seconds. Simultaneously an audible tone is emitted, which changes frequency when a signal is received. This allows for remote adjustment of dishes. I only tried it once when tuning for ATV, mostly all I tuned into was Radar!

On Air Tests

On air I found the MobilRec to be quite useful for ATV work. The tuning control has, of course, a much wider tuning range than is required for the 23/24cm band, and the consequence of this is that the entire band is covered by only about 10 degrees of rotation. However, I have not yet found this to be a problem, as most of us use either 1249 or 1256 MHz as our transmit frequencies, and just about all of the repeaters are of 1318 MHz or so. Although the position of the tuning control for the top of the band is not much different to that for the bottom, I found it quite easy to tune to either.

Luckily I receive GB3RT at P5, and also all of the local group, so I had the opportunity to have very strong signals available simultaneously at both ends of the band. I had no problems identifying and tuning in both signals, without there being any mutual interference. Also, when taking full colour P5 pictures from my good friend George G4EUF, the Coventry repeater GB3RT is 90 degrees off beam and thus the signals are around P1, and I still managed to lock the repeater whilst George was transmitting, again without any apparent mutual interference in the receiver.

When receiving strong interference-free pictures using the TEV control made no improvement. However, when receiving GB3RT, although I get good P5 pictures from the box I also get P5+ Radar pulses from my mob at Clee Hill! Under these conditions careful adjustment of the TEV control all but removed the Radar pulses and their interference - as if by magic!

When receiving weak pictures reducing the bandwidth with the TEV control made an immense difference. In one instance a virtually unlockable P0 to P1 picture became a quite readable P2+, thus making the unit ideal for contest working - and portable working at that!

Conclusions

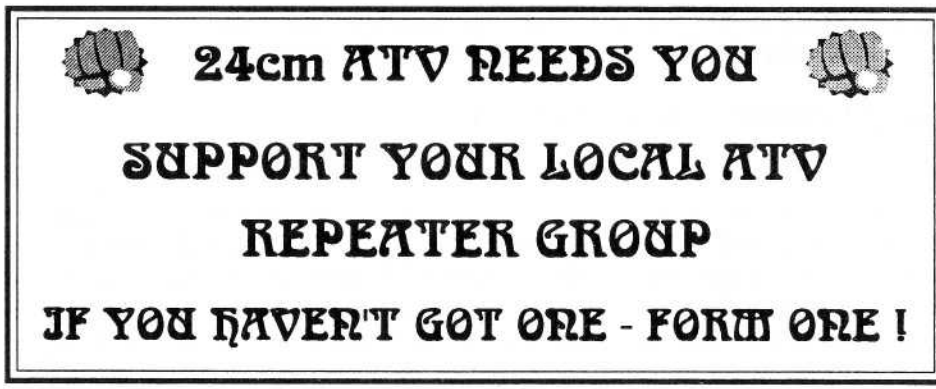
I found the MobilRec to be a very nice unit to use for ATV. Yes, I must admit that the tuning control with its very large range makes tuning the 23cm band 'interesting', but it does not detract from its usefulness as an FM ATV receiver for 23cm.

A useful feature of this unit is its dual outputs. The received demodulated signal is available as baseband Video (CVBS) and Audio via separate sockets, or a as remodulated RF signal at approximately 700 MHz for display on a standard 625-line TV receiver at around channel 36.

Essentially, I wholly recommend this receiver for 23cm use, especially if it is intended to go portable, as its size and power requirements are ideal. And if you also want to do a spot of satellite DXing, then of course the MobilRec couldn't be better - two systems for the price of one?

The price of the MobilRec is DM 481.85 inc. VAT (German rate VAT at 15% - UK cost of unit approximately £200) plus shipping, and is available from: ***NKM-Electronic GmbH, P.O. Box 1705, D-7850 Loerrach, Germany.***

STOP PRESS: *(well it's what you're supposed to print!)* With the advice of our friends at NKM-Electronic I carried out a simple modification, consisting of changing one resistor and one diode and adding two resistors, which reduced the tuning range of the MobilRec to approximately 1200 MHz to 1350 MHz, thus making it ideal for use as a 24cm ATV receiver. I am sure that if this requirement is specified when ordering that NKM-Electronic will supply the unit fully modified.



SATELLITE TV NEWS

Paul Holland G3TZO

Welcome to another edition of Satellite TV News. This edition commenced preparation back in late August and as a result will no doubt provide further opportunities for events to overtake predictions. As usual I will try and highlight the more long term trends in Satellite TV broadcasting rather than simply providing a news service on transponder activity. I was not alone back in August in predicting the demise of MCM and France 2 from TDF 1A at 19. 0 deg W. No sooner had the September issue of "What Satellite" confirmed the termination of MCM's D2Mac service than up it popped again in the clear. However on 18th October the channel encrypted its service using Eurocrypt - c'est la vie !

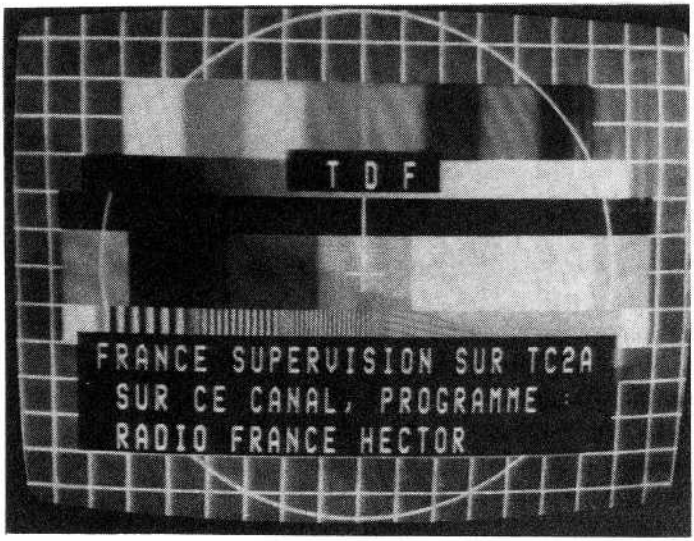
CORRESPONDENCE

MCM - Coming or going ?

Thanks to Paul Godfrey, G8JBD, of Lowestoft for the photos of the captions being carried on TDF before MCM reappeared on 18th August. Paul received the captions on a converted Philips BSB receiver using Chris Smith's (G1FEF) software. Paul also makes mention of surplus BSB SMATV gear being sold by, amongst others, Satellite Surplus of Telford. The units in question are apparently intended for rack mounting with all user controls and connectors on the front panel. The main difference from the domestic version is that they only have video and audio outputs. Channel selection utilises a 10 way switch. As Paul says the release of so much ex BSB onto the market has provided amateurs with an excellent opportunity to experiment. Paul uses another PAL converted Philips BSB receiver to monitor the GB3LO 24cm TV repeater.

TDF / EUROPESAT / HOT BIRD PLUS

Peter Grannel, G4TQB, was one of a number of readers who wrote in to query the long term plans for TDF1/2 at 19.0 deg W. These two satellites are now operated by France Telecom and have been beset by both technical and commercial problems since launch. Early failure of some of the high power 230 watt TWTA's and the protracted debate on introduction of D2Mac across Europe has resulted in less than 35,000 homes taking the TDF delivered services. The plan by a number of European countries, including both France and Germany, for a new satellite project at 19.0 deg



W called Europesat has been shelved. The plan was to take over and expand services from both TDF 1/2 and TV SAT at this orbital position using D2Mac and provide a show case for European widescreen and HDTV developments. With the demise of Europesat it would appear that Eutelsat have taken the opportunity to use the first planned Pre Europesat satellite vehicle, to be called HOT BIRD PLUS, as a third

satellite at 13.0 Deg E . HOT BIRD PLUS will be launched in early 1996 and will join Eutelsat II F5 which will have been launched in late 1994. This will effectively concentrate the majority of European DTH Television transmissions at 19.0 E and 13.0 Deg E. Using 110 watt TWTA's HOT BIRD PLUS will enable reception on a Pan European basis using 40cm antenna. The satellite will accommodate either Analogue or Digital services and be equipped with either 14 or 20 transponders.

NEWS FROM HERE AND THERE

The world of satellite delivered TV must qualify as one of the most volatile and unpredictable areas of commercial endeavour. Channels disappear and new channels arrive almost every month. The following notes summarise some of the possible developments that you can expect to see over the next few months.

New Services from SKY

At a speech at the Edinburgh TV Festival in September David Elstein the Head of Programming at SKY indicated SKY's intention to launch new services including a second sports channel (see transponder report) and channels themed on Soaps and Culture. It remains to be seen how these services are introduced and whether they will be in addition to or instead of existing services.

French News

French broadcaster TF1 plans to launch a French language, all news service next year possibly backed by Canal Plus. The network will carry news updates as well as "talk shows" similar to those on Sky News and CNN.

Pan European subscription services.

At the launch of the Sky Multi-Channel package Rupert Murdoch announced plans for a subscription management service based in Germany to handle European subscriptions to services such as Discovery, The Adult Channel and the Childrens Channel. At the same time an American company called Graff Pay-per-View were reported to be planning a European service in conjunction with Philips Electronics. The development of PPV and encryption technology together with digital compression will provide both European and US service providers with considerable scope for expansion of paid for services in the very near future. This could mean that, with suitable copyright arrangements, UK viewers would be able to subscribe to both UK, European and US channels at some point in the future.

The Chinese Channel

The Chinese channel has been granted an ITC licence to uplink programming from the UK. The channel could well be launched in time for the Chinese New Year in February 1994. The channel will be subscription based with a similar price tag to JSTV. The channel may broadcast overnight from ASTRA if a suitable transponder can be found. Eastern European services

Antenna Hungaria, the Hungarian telecommunications company, says that it plans to launch a 16 channel European satellite with the very catchy name of "Domestic" sometime in 1996. The project will provide eastern Europe with its first dedicated commercial satellite service.

TRANSPONDER REPORT

Eutelsat II F5 36.0 Deg E

The launch of this satellite by Arianespace is planned to take place possibly as soon as December. Although no actual launch date is currently known Arianespace completed construction during the summer and the satellite will be launched into an inclined orbit before taking up station at 36.0 Deg E. The satellite will have 16 Ku band transponders with 50 watt output power. Like Eutelsat II F4 at 7.0 Deg E, it will provide specially enhanced widebeam coverage taking in the entire European continent as far as Moscow and the Mediterranean basin. Eutelsat II F5 will carry Eurovision, VSAT, Business Television and Telephony services with currently no planned DTH or Cable TV services.

Eutelsat I F1 25.5 Deg E.

Eutelsat has decided to move this satellite to a more easterly orbital location to favour Russia and the CIS Republics. The press release from Eutelsat gave no details of the new position however you might check 36 or 50 Deg E as possible locations.

Eutelsat I F4 25.5 Deg E

This satellite continues to carry occasional OB's, including SIS horse racing feeds. TP 3 11.135 GHz (V) and TP 6 11.658 (H) are worth a look.

ASTRA 1A , 1B & 1C 19.2 Deg E

There were early reports of poor service quality on some of the new UK targeted services from Astra 1C. Initial uplinking of services that had chosen NTL as the carrier had to be uplinked direct from SES at Betzdorf as NTL had not completed the uplinking facilities at Crawley in time for the September 1st launch. As a result Intelsat 601 was used as a UK feed to Betzdorf for some of the channels. In some cases, such as with Nickelodeon, it is likely that picture quality is occasionally substandard as a result of the NTSC to PAL conversion taking place on much of the US originated programming.

News emerged in September of plans for a second Sky Sports Channel on ASTRA. No details of a transponder were made available with the announcement however TP 47 11.171 GHz (H) looks most likely. Launch will coincide with the England Cricket tour of the West Indies early in the new year.

A tip for those wishing to see RTL 5 and Filmnet which both operate below 10.950 GHz - it may be possible, using the LNB offset facility found on some receivers, to drag the actual receive frequency low enough to receive at least RTL 5. The LNB offset is used to correct for inaccuracies in LNB local oscillator frequency. RTL 5 operates at 10.935 GHz (V) and was due to launch on 2nd October.

Eutelsat II F3 16.0 Deg E.

Red Hot TV reappeared in September on TP 20 10.987 GHz (H) initially in the clear and then using a combination of SAVE and ENIGMA encryption on alternate nights. Plans were announced for distribution of smart cards in October.

Eutelsat II F1 13.0 Deg E.

MTV appeared on Widebeam TP 39 11.658 GHz (V) in September extending coverage to the former Soviet Union and the Middle East. The uplink is being provided by France Telecom. This appears to be in preparation for encryption on ASTRA as part of the UK's Sky Multi-Channel package whilst staying in the clear from Eutelsat for European cable and DTH viewers. It is likely now MTV covers the Scandinavian service area from THOR at 0.8 Deg W that it will cease using ASTRA TP 15 to be replaced by its sister Channel VH1 due to launch as part of the SKY Multi Channel package early in 1994. MTV will remain on Astra TP 22 and will then probably encrypt later in the year as part of the same SKY package. MTV will ultimately transfer from Eutelsat II F1 to Eutelsat II F 6 when it launches next year to enable reception across Europe on 60cm antenna.

The launch of the long planned German music channel VIVA was planned for October/November. No transponder details are available.

Eutelsat II F2 10.0 Deg E

RTP International the Portuguese service previously found on Eutelsat II F3 commenced using TP 39 11.658 GHz (V).

Eutelsat II F3 7.0 Deg E

Kanal Market has now moved from Intelsat 601 at 27.5 Deg W to TP 37 11.575 GHz (V) to improve its coverage into Turkey.

Telecom 1C 3.0 Deg E

Setanta Sport has moved from the defunct Olympus to Telecom 1C. Transmissions are originated from RTE and can be found on a Sunday evening on TP 3 12.606 GHz (V) at about 19.15 hrs. The channel also carries special events such as the World Cup qualifier between the Republic of Ireland and Lithuania which took place in mid week. THOR (Marco Polo 2) 0.8 Deg W. All five transponders are now taken on THOR with MTV taking TP 20 12.092 GHz (RHC).

Telecom 2A 8 Deg W.

For those capable of viewing the Canalsatellite "bouquet" of services a new channel launched in September called Paris Premiere. This service was previously only available to about 360,000 subscribers on French cable networks and brings the number of channels to seven in the Canal Plus owned package. Paris Premiere has taken TP R2 12.564 GHz (V) previously occupied by the D2Mac service of Cine Cinefils. This latter channel is carried now only in Nagravision on TP R9.

Olympus 19 Deg W.

Olympus has now officially been confirmed as abandoned by the European Space Agency. The satellite experienced major problems on August 12th of this year and lost station keeping ability. Although the ESA managed to locate and stabilise the spacecraft again there was insufficient station keeping fuel to enable relocation at its designated orbital position. This lack of fuel was as a result of the ESA's previous rescue attempt last year when Olympus was lost for several weeks due to incorrect ground control signals being sent to the spacecraft.

Intelsat K 21.5 Deg W

Intelsat has now optimised the coverage of Intelsat K for North Eastern Europe by altering the bias from .06 Deg E to 0.11 Deg E. Signals appear to have improved at this QTH on all active transponders.

Intelsat 601 27.5 Deg W

With the launch of Discovery & Bravo on ASTRA there has been much movement of services on this satellite. The Learning Channel now shares with Wire TV on TP 64U 11.502 GHz (H). Both these channels are due to encrypt their video using SAVE during December.

Plans were announced for The Travel Channel to take a transponder on a temporary basis until transponder capacity could be obtained on ASTRA and/or Eutelsat. No launch date or details are available at the time of writing however Landmark Communication Inc the owner of the Travel Channel have indicated a possible November Launch. The Channel will probably be called Travel 1 and will carry a teletext service.

Hispasat 1A & 1 B 31 Deg W

An Arianespace Ariane 44L rocket successfully launched Spain's second telecommunications satellite Hispasat 1B into orbit on 22 July. Hispasat 1B is the second first generation Hispasat satellite and was manufactured by Matra Marconi Space at Toulouse in France. To date there has been no transponder activity noted .

NEW PRODUCTS

Enhanced "Astra" Band LNB's

With the introduction of services of ASTRA 1C below 10.950 GHz there are now a number of Manufacturers introducing LNB's for what is being called the Enhanced Astra Band. In effect SES are expanding into the Fixed Satellite Service FSS band which was previously recognised as being between 10.950 GHz and 11.7 GHz.

LNB's covering the new frequencies include California Amplifier with their LNB 313933 voltage switching Model which goes down to 10.70 GHz with a NF of 0.7 dB and Continental Microwave who have announced a new range of LNB's for the Extended FSS, FSS and BSS bands.

Synchron Processor

For those interested in weak signal reception or investigating the EBU feeds on Eutelsat II F3 it might be worth considering the Synchron Processor advertised by NKM from Germany in CQ-TV. The Synchron Processor effectively regenerates clean line and frame synch pulses from the incoming signal permitting reception of low level unlocked incoming signals and Sound in Synch transmissions. The price is advertised at 781 DM plus VAT.

Videocrypt Card Readers

For those with one Videocrypt smart card and two Videocrypt Decoders or IRD's look out for a device (as yet not formally launched) which is reputed to allow simultaneous reception of different VideoCrypt encrypted channels. From the advance information given so far it would appear that the device allows sharing of a single smart card. This is as opposed to the now commonly available devices which connect to a single receiver which allow switching between different smart cards I will pass on further information as it becomes available.

New receiver from Echosphere

The Echosphere Corporation has introduced its new LT-730 satellite receiver billed as the "ultimate satellite receiver for low signal strength areas". The new receiver has a threshold of less than 4.0 dB and is reportedly capable of transforming unviewable pictures into clear watchable pictures. The receiver is capable of motorised operation through the addition of an AP-800 antenna positioner.

DIGITAL TELEVISION

As mentioned in a previous issue of "Satellite News" the pace towards establishing digital TV signals both Terestially and via satellite is gathering pace. At about the time you are reading this it is expected that the working drafts of the International MPEG 2 (Motion Picture Expert Group) digital compression TV standard will have been frozen. Draft European digital TV standards based on MPEG 2 are due to be out by the end of the year. Already we can see some early implementation of the emerging MPEG standard in NTL's System 2000 which will be used by Filmnet from Intelsat 601 at 27. 5 Deg W to carry 4 Filmnet services via one transponder. These services occupy 8 Mbit/s slots in an overall 34 Mbit/s channel. Higher numbers of channels can be carried if lower resolution is acceptable.

IN CONCLUSION

That's it again for another edition. Please do write in and let me know what you has interested you or what would interest you in "Satellite News". Any "off air" photographs or pictures of your installation are always welcomed. In the next edition I will cover im more detail the developments in Digital TV compression in anticipation of the launch of ASTRA 1D in the new year and as usual will be reporting on all thats new in the Satellite TV world.

Second Thoughts on Trevor's Sync Normaliser

John Tournant G0DEU

Trevor's article, in the last issue, could not have come at a more propitious time! I had been struggling for quite some time to adapt a HI-RES Video Monitor to the VGA standard of my 386 PC. The monitor had the correct scan frequency of 31.5kHz and had separate inputs for RGB and H & V sync. The first problem encountered was that while it displayed a very good picture on DOS and XTREE, it would roll uncontrollably on WINDOWS.

This fact was new to me and a scope connected to the output of the PC revealed that the frame sync signal changed both its polarity and repetition frequency according to the display mode selected, selection that is software-controlled and normally transparent to the user, as a VGA monitor is designed to cope with these changes automatically.

My first attempt at using Trevor's circuit was not encouraging, as no improvement was noted ... however, it turned out to be due to a faulty chip! Ah well... After this minor contretemps, the design worked fine, even without changing anything - not that there was much that could be changed, since it comprised of only one TTL IC, one resistor and one capacitor ... KISS enough for you ?

The next two problems to be resolved were to compensate for the difference in frame repetition frequency and frame scan amplitude. These were solved quite simply, using the remaining gate and adding a relay with two separate contacts to pad the vertical hold and height controls.

This works very well and I am indebted to Trevor for sharing his circuit with us. I would be very interested to know more about the VGA standard and how a typical VGA monitor copes, automatically, with these requirements. If you have further ideas on this subject, perhaps you would like to get in touch with me, or even write a follow-up.

Come on then Trevor - looks like you're landed with the job! ... Mike

Fun and Games with a Prescaler

John Brown G0PIA

Having had a problem with getting into a 24cm ATV repeater, because I never knew my exact transmit frequency, I decided to take the advice of a certain G4 and build a 1.3GHz Prescaler to an Elektor design. As I believe in an easy life, I wrote to Holland enquiring about a kit of parts, enclosing two IRC's, and received a blank silence!!

However, I decided to go ahead and bought various items from three sources. I couldn't get some of the chip capacitors (the sort that fly away when one breathes, coughs or has an occasional laugh) but not to be deterred I went ahead and built the unit using miniature ceramic capacitors. All went well until I switched on and to my dismay the prescaler failed to divide by a thousand (1000:1). I found the last divider was dividing by two instead of 2.5.

I checked and double checked and slept on it!

I changed the last two IC's, but alas this simple circuit just would not work as it should. Nobody could come up with an answer so I wrote to those boffins in Holland who replied (!) that it was a complete mystery to them.

I thought of a reply but decided against it!

I dusted off my oscilloscope and checked the waveforms for a bit of fun while having a QSO with another G4 bemoaning the fact my prescaler was causing my hair to fall out and the colour to change from grey to white. Suddenly, out of the corner of my eye I noticed that the prescaler was dividing by a thousand as it should!

I nearly fell out of my chair with disbelief!

I discovered that the scope probe was working the oracle, or should I say a miracle? The probe was replaced by a 470 ohm resistor in series with a 100pF capacitor across the output socket. A 0.1uF capacitor was also connected to the output to block the DC voltage from my Microwave Modules Digital Frequency Meter (DFM), which feeds the DC voltage to its preamp which is not required.

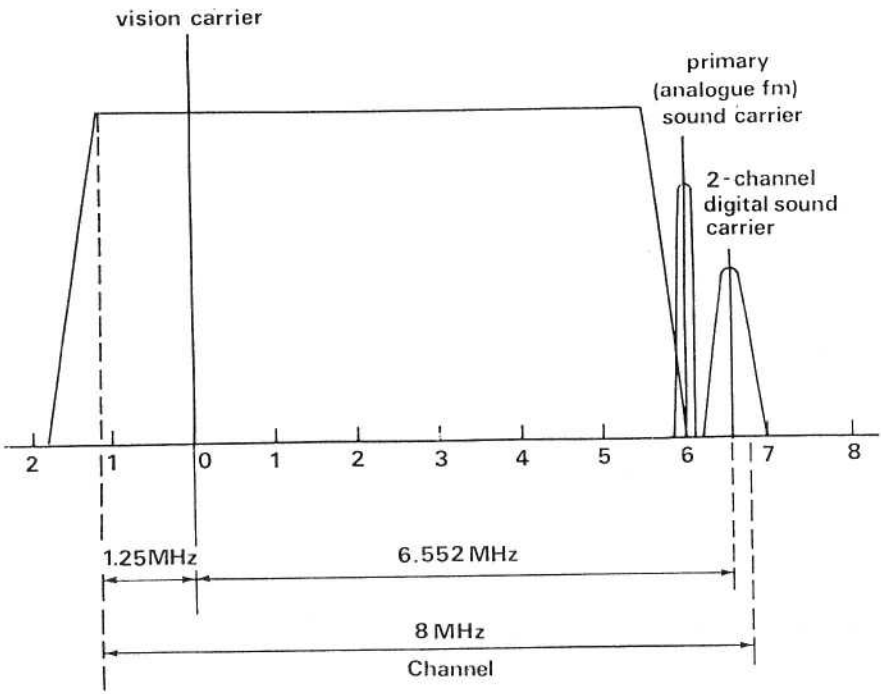
On test, using a 70cm 'rubber duck' the unit was checked on 145 MHz, 434 MHz and

from 1248 MHz to 1300 MHz with very good results. In fact, the prescaler is more sensitive at 434 MHz than the DFM with its preamp. It can 'sniff' a 0.5W Pye PF2 within a few inches. At 1249 MHz it works well with the 'rubber duck' situated by the connecting lead from the Solent TX to the 20W PA.

I have built a second unit with identical results. A Thandor DFM (200 MHz) was also tested with good results. The total cost was around £30, which means that many of us limited means can check our frequencies up to 1.3 GHz with confidence.

Incidentally, I can now sleep with a smile on my face and still have some hair on top!

It may be worth noting that our Microwave Expert Bob 'Gun Diode' Platts had similar problems with the Elektor design and came up with the unit described on page-29 of this issue ... Mike



8 MHz PAL System I channel with additional NICAM 728 2-channel digital sound: diagrammatic representation of the frequency bands occupied by the vision and sound signals.

THE BRITISH AMATEUR TELEVISION CLUB

BALANCE SHEET AT 31 DECEMBER 1992

	1992		1991	
FIXED ASSETS				
Office Equipment				
Additions	780		625	
less- Depreciation	780	-	625	-
CURRENT ASSETS				
Stocks- members services	5,473		4,106	
publications	8,923		4,161	
Nationwide Building Society	24,065		-	
Midshires Building Society- deposit account	-		12,161	
Lloyds Bank plc- current account	-		6,333	
investment account	-		22,000	
Girobank account	119		80	
Bank of Scotland- current account	5,392		-	
investment account	9,000		-	
less-				
CURRENT LIABILITIES				
Creditors and accruals	959		1,087	
Subscriptions received in advance	17,379		18,280	
		18,338		19,367
		£34,634		£29,474
Represented by-				
ACCUMULATED FUND				
Balance brought forward		29,474		25,647
add-				
Surplus of income over expenditure		5,160		3,827
		£34,634		£29,474

In accordance with instructions given to us, we have prepared these accounts from the accounting records of The British Amateur Television Club and from information and explanations supplied to us.

R N Stone & Co

Chartered Accountants
Gainsborough
20 July 1993

THE BRITISH AMATEUR TELEVISION CLUB

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1992

	1992	1991
INCOME		
Subscriptions	17,602	17,317
Members services	1,223	873
Publications	990	781
Advertising	587	475
Building society interest	1,104	481
Bank interest	880	1,714
Exhibitions	2,713	1,912
Donations	122	107
Postages	309	265
Donated equipment sales	2,581	364
	28,111	24,289
less-		
EXPENDITURE		
CQ TV printing	8,638	8,955
CQ TV postage	4,159	4,179
CQ TV production	1,679	1,149
General office expenses	671	924
General postages	974	1,068
RSGB affiliation fee	15	18
Committee members' expenses	88	139
Exhibitions	2,146	1,789
Advertising	-	14
Insurance and legal	133	55
Miscellaneous expenses	129	314
Members' benefits	665	1,177
Accountancy	255	245
Rally attendance	434	436
Recruitment	1,535	-
Project development	1,160	-
Bank charges	270	-
	22,951	20,462
SURPLUS OF INCOME OVER EXPENDITURE	£5,160	£3,827

TV on the AIR

Andy Emmerson G8PTH

Procrastination is the thief of time, or so the old saying goes. At least I think it does, I haven't had time to look it up and check it. You may be surprised (or not so surprised) that I don't always have time to check these pieces before I send them off to the editor Ä after all, what are editors for if not to edit (and find fault and change things, etc., etc.)? But on re-reading these articles I occasionally find mistakes. Yes, it's terrible but even I make mistakes, especially when I'm writing in a hurry to meet a deadline. And because this CQ-TV column also appears in Practical Wireless, it does occasionally happen that references to PW appear in CQ-TV. I don't think it has happened the other way round yet, but now you know why the letters PW can crop up in this column.

Apologies over, so let's dip into a brimming mailbag.

SECRETS!

Here's a welcome letter from Mike Edwards G8CPF, who signs himself Technical Dogsbody for GB3UT. "In response to your plea for updated info on the 'secret' repeaters, I am pleased to inform you that GB3UT (Bath) is also alive and well(ish!), having undergone major surgery and much tender loving care for many months, nay years! It seems we are not quite alone in having to wrestle with the problems of an AM allocation (RMT1 1276.5MHz in, 1311.5MHz out) with its ridiculous 35MHz split (lovely for an IF, isn't it?) and all the attendant problems of keeping Tx out of Rx. Please extend our sympathies to Keith G8HGM and company (GB3VI).

"We too are running about 6 watts, into a phased colinear array from out 700ft ASL site at Bath University (co-sited with GB3UB and GB3UX), most contributors using GB3UB for talkback so as to avoid cluttering 144.750 (in view of our proximity to 'ZZ country). "GB3UT has two receivers, one for AM and one for FM Ä the AM one has gone a bit blind lately. Hoping that will be fixed soon. The transmitter uses a Mitsubishi M57762 brick, amplitude modulated on its bias pin, with envelope negative feedback to improve linearity. In beacon mode it emits a sequence of eight test patterns from an EPROM-type test card generator. "Current work in hand is to implement multi-source switching, using a MAX456 eight-by-eight crosspoint switch (courtesy of Maxim Integrated Products), a frame store and to improve the intercarrier sound.

"Don't forget if you are looking for either 'UT or 'VI we are amplitude modulated, which means your normal satellite receiver will probably clip the syncs unless you can nobble the limiter. All you really need is a downconverter into the back of your domestic AM television, plus a good antenna. 73 from GB3UT." Good stuff, nice to hear from you, Mike.

A phone call was received from William G8CMK, who has been working on the Mk III version of GB3VI, the Hastings repeater. He says it is an AM transmitter producing 10 watts peak sync power into a G3JVL Alford Slot antenna. This signal reaches Eastbourne very satisfactorily in colour. Apparently many users transmit into the repeater using FM for convenience, the repeater having twin AM and FM receivers. William's current tour-de-force is a filter having just 1.6dB insertion loss and 20MHz passband. The stopband is 80 or 90dB at 35MHz off and the filter is made of 15mm diameter copper pipe enclosed in printed circuit board material. The whole affair is 2 feet long.

IRISH AFFAIR

Here's a letter, or rather a report, from Dave G8VZT. The title is 'EI Expedition 22.7.93 - 27.7.93, located on hill top Kippure, locator IO73SG'. "Present were G8VZT, G4ZJY, G3UKV, G8PAW, G7BWQ, 2E1AEC, Kerry and Anita alias Fred. The main reason for the expedition was to work the 3cm narrowband cumulative session on 24.7.93 and of course to enjoy the local brew and surroundings. We arrived on site (2,470ft ASL) on 22nd July and had rain and rain and rain etc. until we left on the morning of 27th July. Total sunshine amounted to about 4 to 5 hours. We operated on the Saturday 24.7.93 in the low-power contest on two metres as EI/G8PAW. Sunday 25th July was the 3cm narrowband contest: some 14.5 contacts took place, the best DX being G3JVL on Hayling Island at 454km.

"Enough of that, now down to more serious matters. Having got my 3cm ATV system finished in time for the expedition thanks to the help and advice of Tony G4CBW, I took it with me. Having made a sked with Tony G4CBW and friend Tony GW4VEQ, they went portable to Anglesey. I transmitted first to them. Within seconds came the reply 'P5, full colour'. He then proceeded to take off his dish and waggle the LNB only at me, still taking a P5 picture. When Tony G4CBW transmitted to me I also went through the same procedure, with the same results. The contact was GW4CBW/P to EI/G8VZT/P, with FM television. The date was 22.7.93 and distance was 122km. We had a 1-watt transmitter and LNB receiver at each end. Is this a first between EI and GW?"

Well, Dave, it's difficult to say. Technically this is not the first ATV contact between EI and GW but you may well find yourself the first person to claim the contact across the Irish Sea! I shall return to this point but first let's take up your letter again. Dave continues:

"Also on 24.7.93 we made a 172km contact between GW3FYX/P and EI/G8VZT/P; is this considered DX on FM-TV? My thanks go to the Department of Transport, Energy and Communications in Dublin for giving permission to operate FSTV portable on 23cm and 3cm. Thanks also to the EI television lads who visited us over the period. And where was everybody on the Cumulatives evening of the 22nd? We were looking and listening but had no takers for EI/GW7ATG Ä the only result was one contact, on 3cm."

This point which Dave makes important is because without special permission, portable microwave ATV operation is illegal in the Irish Republic and an illegal transmission could not be entered in the record books. That's why I say you're definitely not the first to span the Irish Sea, but as you had a permit for that operation you might well be the first to claim the path legitimately. I'll say no more about this except remind all members operating abroad to check the licence conditions in force there.

NEWS FROM CENTRAL EUROPE...

Our regular correspondent in Poland, Stanlislaw Pazur writes: The most recent congress of the Polish ATV club, RVG, was held in late May in Chodziez. The management of the club changed slightly. Wojciech Cwojdzinski SP2JPG has remained the president. The members of the club preferring techniques RTTY, SSTV and Packet Radio. However, there are some facts that indicate possible changes in that situation. In previous years, attempts at connecting with ATV technique was made. On 12 and 13 June a mutual connection (i.e. both-way hook-up) between stations SP2JPG/M, SP3CAI and SP3CMX on the frequency 432.25MHZ/PAL was recorded in Gorsow Wkp. Reports 595 and 585 were exchanged. SP3 DFR, SP3FLR, SP3WAR and SP3NYZ were 'listeners'. I do not know what kind of technical equipment the stations used, since this information has not arrived, despite my expectations."

Thanks Stan for your report and for demonstrating that ATVers in all countries seem to be the worst communications by the written word!

From Hungary Janos Koreny writes. He is a retired electrical engineer and the curator of the MTV (Magyar TV) technical collection. "If you have an hour of spare time in Budapest, you are welcome to see the collection of vintage TV equipment dating back

to and displaying 36 years in the history of Hungarian television (MTV). The museum is at 35 Lenhossek utca IX. District, Budapest. It is close to the Klinikak station on line 3 of the Budapest underground railway. Open Tuesdays 2 to 6pm and Saturdays 10am - 2pm. Admittance free, titles in English."

... AND OTHER EUROPEAN COUNTRIES

Jonathan Gudgeon G4MDU was a keen ATVer until he left these shores to work in Vienna. He kindly sent a map and frequency allocation sheet of repeaters in Austria, which shows no less than nine ATV repeaters there. Kris Partridge G8AUU (he used to publish the European VHF/UHF Repeater Guide with Julian Baldwin) has extracted nine pages showing frequencies and locations of ATV repeaters in Denmark, France, Germany, Luxembourg, the Netherlands and Switzerland. If anyone wants photocopies, I'll be happy to oblige (11 pages at 10p = £1.10 plus 24p postage).

REPEATER NEWS

Here's a letter from Paul Godfrey G8JBD in Lowestoft, Suffolk.

"Just a few lines to update you and your readers with the progress of GB3LO, the Lowestoft 24cm ATV repeater. Our repeater builder Ray G4RKP has been busy improving the box in stages; it now runs the full output power of 25 watts ERP (courtesy of a Mitsubishi brick PA) from an Alford Slot .This has greatly improved the coverage in the North and South directions over the original set-up of bow tie aerials that only favoured the westward direction.

"Lowestoft is the most easterly town in the UK and therefore to see the repeater's potential to the east needed a lift in conditions to get signals across the North Sea. On the 30th June 1993 a local QSO between Dick G4RRX in Norwich, Mike G4PFG in Harleston and Tony G4AXN near Norwich had a breaker on frequency, Walt ON5NY in Passendale who was P5 into the box. Between breaks in transmission the PE1LRS call sign appeared and Walt tried to called him via via LO but did not make contact. After working our local trio Walt then worked via LO Tony G4UAM at Lingwood near Norwich. Later that evening Ray G4RKP in Lowestoft did work PE1LRS who reported that he could see Ray's signals via the box and direct.

"I have taken some photos of a video tape made by G4RKP of some of the events of that evening with the hope that these may be of interest (*inside rear cover ... Mike*). Thanks for all your columns that appear in the various mags, I feel this really helps to keep interest in ATV alive."

Thanks also to the Severnside, Kent and Birmingham ATV Repeater Groups for their newsletters. We'll dip into these next time if there's room. Also by then we hope to hear that the Birmingham group have been successful in their search for an aerial site.

MORE FOREIGN NEWS

Jose Robat ON7TP writes from Liege. "Concerning radio and ATV, since September 92 I don't work any more with the Liege ATV Group as I did not agree with the way the group is making their weekly transmission. This is the main reason. The other reason is that I try to make small video tapes with technical stuff, such as constructions (home-made material, etc.), technical lectures about radio, TV, antennas ,etc.

"Jacky, ON5EE, who also left the ATV Group, now has a contact (QSO) with me four or five times a week on the 10 metre band as ON5EE made two 10 metre transceivers from old CB boxes. But we continue to work on these 'boxes', adding a frequency meter (better to have a full frequency read-out than just two figures (channels). We also have in mind other changes, such as a new frontplate, additional FM and CW as these 27MHz transceivers only have AM and SSB in most cases. When it will be finished, we will have enough material to produce a video tape with all the work we did. A copy of this tape will go to our local ATV group allowing the group to present something valuable.

"Another video tape I have started concerns "A New TVRO RX" (CQ-TV 135). But I miss time to finish it. I am building the power supply currently so I can test it. The S-meter is already built. Now, you know everything."

EX-Gs' CORNER

Ron Vansittart G6GHP has moved to Los Angeles, California, where he has set up a video facilities company called RTV Video. "ATV activity here is similar to home, but vertical and AM," he writes. "I've been watching off and on and I plan to get into transmit mode soon. That means recrystalling the transmitter, though."

And from Templeogue, Dublin Dave Hooper EI2HR dropped us a line saying that ATV is going well there with four Dublin stations now on 24cm. Dave is still on 70cm only as yet but the Sunday net normally has EI6AS relaying his 24cm signals on 70cm so everyone can share the increased activity.

That's all for this time, so please send in your letters (or material on disk) ready for next time round.

VHF COMMUNICATIONS

VHF COMMUNICATIONS magazine is published four times per year and is available from **KM Publications**, 5 Ware Orchard, Barby, Nr.Rugby, CV23 8UF, Warks. U.K. Tel: 0788 890365; Fax: 0788 891833. The yearly subscription is **£13.00** for 1993 and **£14.00** for 1994 - ***both years for £25.00*** - which is payable by credit card (+ a surcharge of 70p), personal cheque (drawn on a UK bank or bearing the name of a UK banking agent), postal orders or bankers draft made payable to VHF Communications. This subscription includes surface mail charges, air mail is extra. The magazine is a **MUST** for the radio amateur interested in VHF, UHF and Microwave working, containing, as it does, detailed constructional articles for equipment operating in these bands.

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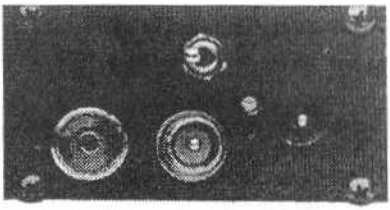

The world's smallest satellite receiver with modulated output on 48.25 MHz and audio on 53.75 MHz. (European use only). **SEK 1.300**

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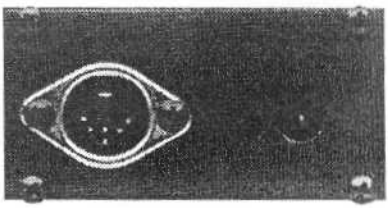

Same receiver with Video and Audio outputs. Will tune approx. 1200 to 1500 MHz. Both receivers deliver voltage for a preamp through the coax cable. **SEK 1.300**

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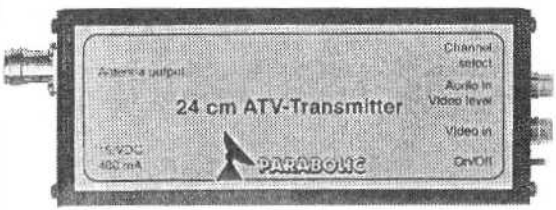

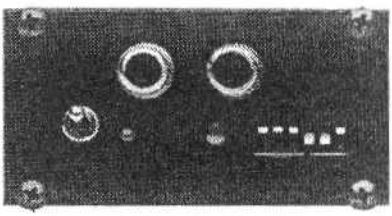

200 mW FM-transmitter that tunes between 1240 and 1279 MHz in 1 MHz steps. Will drive the M57762 to about 10W. **SEK 1.750**

All modules use 15VDC max 400mA (incl. preamp) but 13.8VDC is OK. The transmitter will work as low as 10VDC. A preamp with 1,0dB NF and 40dB gain is also available. One year guarantee. **P&P SEK 200**

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Electronic Designs Right First Time?

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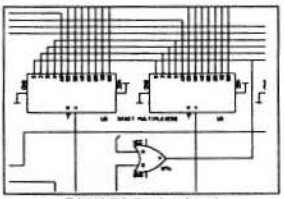

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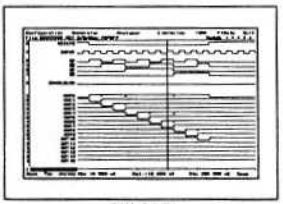
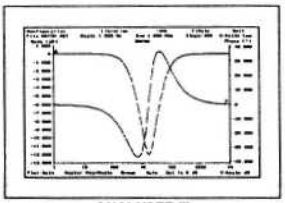
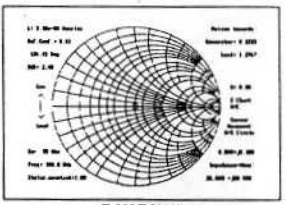


PULSAR



ANALYSER III



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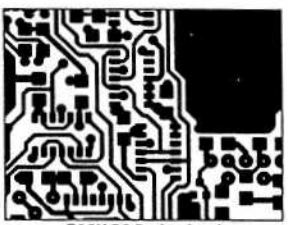

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AMIGA ATV PROGRAM

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1W FM-TV 24cm TRANSMITTER

This transmitter generates its singnal directly at the wanted frequency which may be set anywhere in the band colour or B/W. On-board intercarrier sound and fixed pre-emphasis are standard features. The kit includes diecast box and cost £80.00

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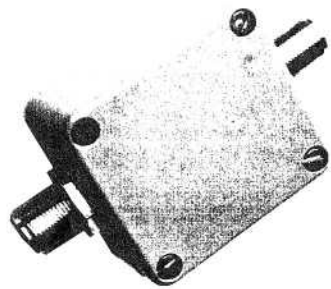

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CQ-TV MAGAZINES 148 (Nov 89) to 162 (May 93), mint condition ... offers + postage or collect. G4IOF. Tel: 071 722 7040 (N.W.London)

ROBOT 400c SSTV COLOUR SCAN CONVERTER, in working order with manual etc. ... £250. Solartron CD814.2 OSCILLOSCOPE, working with manual ... £30. Rank Xerox RX400 TELECOPIER with paper and manual ... £15. All carriage extra or buyer collect. Tony G4LLQ. Tel: 0608 811102 (QTHR)

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Prime focus 1.6m SOLID ALUMINIUM DISH with heavy duty mount and ground pole assembly, unused ... £100. Decca CS2640 26" working solid state professional RECEIVER/MONITOR, with some spares ... £30. BRC 26" 3500 chassis Marconiphone model 4711 RECEIVER, little used since tube replacement ... £30. Linnet intelligent V21/23 MODEM, as new in original packing ... £50. Geoff Turner. Tel: 0684 566979.

VALVES: collection of new, boxed TV and audio valves for sale. SAE for list to Chris Ashby G4AYT, 5 Lambs Walk, Whitstable, Kent, CT5 4PJ

PAL to SECAM TRANSCODER, consumer product bought in France, boxed as new ... £100 post paid. The CAT-70 SOUVENIR TAPE is still available ... £5 post paid. Andy Emmerson, 71 Falcutt Way, Northampton, NN2 8PH. Tel: 0604 844130.

NEW TAPE! ATV USA-STYLE. Yes, now you can see for yourself what's happening over there, converted to PAL from NTSC. Watch KB9FO put up a *real* man's antenna, ATV balloon transmitter and loads more too fabulous to describe. Two hours's entertainment on a quality E-180 tape, just £15 post-free. Price includes donation to the G8PTH standards converter fund - I had to buy one (gulp!) as I could no longer scrounge time on broadcast station converters! Andy Emmerson, 71 Falcutt Way, Northampton, NN2 8PH. (Please allow three weeks for delivery in case I am swamped).

EXCHANGE & WANTED

WANTED: Pre-war television; pre-war CRT of EMI (Marconi or HMV); cabinet for Ekco TA201; pre-war television brochures. I can collect. Does anyone know of the existence of a Philips TV (with radio) type 663A (c.1949) and of a Philips experimental projection TV (with radio) type SG860 (c.1947-1948)? Thank you for your help. Jac Janssen, Hoge Ham 117D, NL-5104, JD, Dongen, The Netherlands. Tel: (from UK, evenings) 010 31 1623 18158; Fax: (at the office, from the UK) 010 31 13 624427. OFFERED: help with documentation of Dutch (mainly Philips) TVs from 1930s to approximately 1960.

WANTED: Can anybody help with the playback of a 20 year old HALF INCH 525/60 Black & White video tape? I am looking for an old AV3600 reel-to-reel machine, I have tried the CV series machines on 50 Hz and 60 Hz mains, but I think that the drum diameter is wrong. Julian Vincent. Tel/Fax: 0734 414468

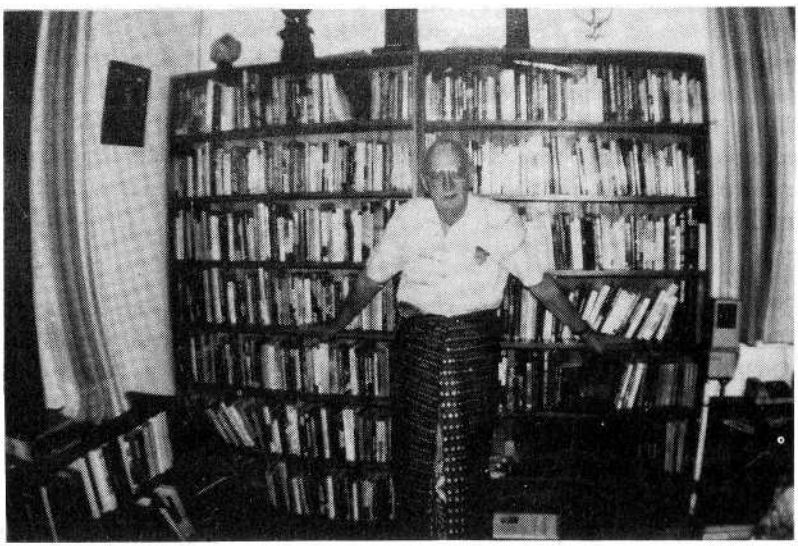
WANTED: BVU 800 Edit Suite with time code. Also wanted a BVU 200. Peter Snell. Tel: 0634 723838

WANTED: Taylor Hobson or Dallmeyer Image Orthicon camera lenses, 5 inch and 8 inch to complete a set, TV 88 fitting. Also, Image Orthicon camera channel, MUST be ex-broadcast with a history. Wanted also, ancient PEDESTALS, mounts, handbooks, brochures, catalogues, etc. Am willing to swap or pay cash. In fact, for the right stuff I am willing to swap my immaculate VINTEN lightweight OB tripod (^(&) and wheeled skid topped with a superb Vinten Mk.5 pan-and-tilt head. For this I would require something really special. If you've got what it takes contact Dicky Howett now on 0245 441 811

WANTED: Cable with 12-way connector to connect Marconi studio sync generator type BD636B to power supply type BD654D. Also, test oscillograph BD803B to fit into BD636B, condition not too important. Service information to buy or borrow for Marconi power supply BD654D (technical handbook T.2349), Philips TVT5M solid state 405/625 monochrome pattern generator and Telequipment WG/44 valve 405 waveform generator. Geoff Turner. Tel: 0684 566979

WANTED: User instruction manuals for Sinclair QL computer and information on connecting peripherals to its sockets. Also programs to run or program codes, etc. Information and user instruction manuals for Future Computers series FX dual 5.25" disc drive with on-board computer, 8088 micro + 128k RAM, and keyboard. Believed to be IBM compatible. Information and user instruction manual for ICL 9" green monitor/computer with keyboard. Cat serial no: 6402/00. It has a Centronics socket for keyboard and two 25-way D sockets for printer and host. Can anyone help with information or manuals. This would be gratefully received and cash paid. Also wanted a BBC B (Version 1.2) for cash or would exchange the above dual disc drive/monitor and two keyboards + a book "Programming the Z80" by Rodney Zacs (Maplin XW72P). Cyril Stanners, Fersfield, 19A College Road, Newton Abbot, Devon, TQ12 1EG.

WANTED: I am still looking for most 405 Studio Gear (not TV's or workshop pattern generators thank you) and will pay money for what most people treat as old junk, even come and pick it up! That's not because it's worth mega-fortunes now, but simply because someone ought to be saving it for future generations. So clear out your garage and make some money as well, without having to wait until the next rally! I am happy to collect from you, generous prices paid for any of these, also a late model valve tester that handles Nuvistors as well as everything else. Andy Emmerson, 71 Falcutt Way, Northampton, NN2 8PH. Tel: 0604 844130



Arthur C.Clarke, President BATC - at home in Sri Lanka


Stafford 24cm ATV Repeater
as seen at G8MNYs South Croydon
GB3UD
Derby 24cm ATV Repeater
as seen at G8MNYs South Croydon
GB3TT
Norfolk 24cm repeaters IDENT
seen at Croydon by G8MNY on 2/1/93
GB3TN


DE