CQ-DATV

dotMOBI

CUSTOMS DECLARATION

Complete in **BLOCK CAPITALS**.
Further guidance at royalmail.com/customs

CN 22

May be opened officially
Great Britain

Sender`s Name	dotMOBI Publications
Sender`s Address & Postcode	A sovereign UK

Contents Tick all that apply	X	Gift Documents Sale of Goods		Commercial Sample Returned Goods Other:

Description of contents		Quantity	Weight (kg)	Value (GBP)
Issue 91 January 2021		1	0gm	Priceless

Total £0.00

Commercial items only; if known enter HS tariff no. & origin

If applicable, VAT reg number

I, the undersigned, whose name and address are given on the item, certify that the particulars given in this declaration are correct and that this item does not contain any dangerous article or articles prohibited by legislation or by postal or customs regulations.

Sign & Date — The Editors - January 2021

https://cq-datv.mobi

ISSN 2059-2191

In this issue

Production Team

Contributing Authors

Editorial

Well, by the time that you read this, and after many years of procrastination, the UK has finally managed to extract itself from the bureaucratic nightmare that is the European Union! Hence the humorous (or not) customs form on the front cover.

Welcome to issue 91 of our electronic ATV magazine.

Happy New Year to all our readers from the production team at CQ-DATV and welcome to CQ-DATV 91

We are pleased to announce the editorial team are all still alive and manning their desks despite COVID.

What do we have for you in this issue? Let's start with Trevor who now has the joystick or positioner as Grass Valley call it on their panel working! This allows you to switch between any of the robot cameras and not disturb its present position unless you move the positioner. This fixes the outstanding complaint from GVG 16 and GVG 17 that is now on the download site includes this fix.

Mike G7GTN has taken delivery of the Grass Valley Mk2 PCB's and has supplied the beta group. This is a widespread group, ranging from Greece to New Zealand, and is, at the time of writing, still waiting anxiously for the postman to deliver. Mike still has two PCB's should you have a panel and want to join the group. You will have to pay for your PCB and postage, sorry we are a tight lot at CQ-DATV. The remaining 2 PCB's are £5 each and we do expect you to build it and report back for the next issue. Mike has also written a rather extensive help file which we have added to the GVG 17 download and will revise when feedback comes in.

Trevor has also written two stories, one on the lightweight revolution of broadcast equipment in the 80's which led to ENG (for the un-informed that is Electronic News Gathering) and a second on taking a VTR to IBC. This was definitely not a lightweight piece of kit, weighing nearly a ton. Both are amusing and informative stories; we have used one for our columns "From the Vault". The other we were going to save for the same column in 92 but have brought it forward to this issue.

Jim KH6HTV has been working on a VOX. No, this time VOX does not stand for Voice Operated Transmit, for ATV, it means Video Operated Transmit. The VOX circuit detects the presence of an incoming video signal and then in turn keys up the transmitter. Jim also received an order from a ham in New York for one of his model 7010 analogue TV transmitters. It was the first one he has sold since 2014. After building it, he thought it might be of interest to our readers.

Dave Crump G8GKQ put together a video source camera using a Raspberry Pi zero and has now put it in a very smart box and tripod mounted it ready for a possible 50MHz project, don't let Trevor see it Dave, it could end up on a SG90 servo.

Ian has burst into print and is unhappy about Brexit and Facebook and where it leaves us when we no long have the protection of Europe and its data protection act.

CQ-DATV does have a Facebook site and quite a large following, but alas Ian is not one of its members. Let's hope Boris can sort it (Oh look, some pigs flying overhead!) and we will soon be able to count Ian as one of our Facebook faithful.

CQ-DATV Production team

New Look for the BATC Website and Shop

Thanks to Frank, M0AEU, we have been able to upgrade the main BATC website and shop to look better on larger screens, and enable a better default view of the streamer.

So, please do not be alarmed if it looks different, the content is all the same and it is really us!

Dave, G8GKQ

Source: *https://tinyurl.com/y9zsl4cs*

airFiber 60 LR Featuring Wave Technology

airFiber 60 GHz Radio System Featuring Wave Technology with True Duplex Gigabit Performance for PtP Links over 12 km Distances.

AF60 LR is a 60GHz radio designed for high-throughput connectivity over an extended range. The airFiber 60 LR features the integrated high-gain dish antenna for high speed, long-range performance Point-to-Point (PtP) links. New WaveTechnology enables incredible long-range performance within the 60GHz spectrum.

Includes a built-in Bluetooth management radio for easy setup.

Features:
- Low-Interference 60 GHz Spectrum
- Integrated GPS
- Long Range, Up to 12 km
- Precision Alignment Mount Included
- link.ui.com Planning Support
- Quick Setup Using the *UISP™ App via Bluetooth

*UNMS Controller will change to UISP™ Controller from version 1.3.0 onward.

Source: *https://tinyurl.com/y73u9h4z*

LARNMERN Video capture card, Grabber Game capture card HDMI to USB 3.0

Based on high-speed USB 3.0 technology, a high-definition HDMI video signal of one signal channel can be captured. The game capture card is suitable for devices with HDMI output,

such as devices for PS4, Xbox One, Wii U and Switch. This capture card does not need to install a driver, so you can use the built-in functions of the current software for a seamless experience. Since the device is compatible with most third-party software, it can be plug-and-play for Windows, for Ma OS X, and for Linux. The USB 3.0 high-speed transmission port makes it easy for you to stream real-time for Twitch, Youtube, OBS, Potplayer and VLC.

No external driver or power supply, the game capture card is suitable for low-latency games, which can meet the needs of the meeting. The small capture card carries the USB cable directly to avoid unnecessary connection interruptions.

The capture card is a quick, familiar, and affordable way to share content in online conference and meeting rooms. Connect to presentations without software, just connect to a laptop or tablet via HDMI to start sharing.

USB capture connects to the video source and computer and captures high definition video up to 1080p 60fps. The capture card does not support i-format HDMI signal input.

Price: € 22.99

Source: *https://tinyurl.com/y7hvur62*

Cycle racks in Lanzarote. Innovative use of old Radio Spain International tuning coils

The Lightweight Revolution

Written by Trevor Brown

The early 80's brought in three words that changed the Broadcast Industry, ENG (Electronic News Gathering) out of this sprang so many commutations of those three words from EFP (Electronic Field Production or Electronic Film Production) followed by the lightweight revolution.

ENG started in the States where the cost and limitations of film inserts into the news kick-started ENG. Film was replaced by portable video recorders, usually U-matic format, along with hand-held electronic cameras. The journalists liked the late deadlines that the removal of film processing delivered. The companies were delighted by the cost savings that were inevitable when you came up with re-usable stock based on rust (iron oxide) verses non reusable stock based on silver (film) and needing no film processing labs and their associated costs.

In the UK, there were picture quality issues. The U-matic format (popular in the USA) was not considered broadcast quality, mainly due to the poor chroma performance of the colour under system. Sony came up with a two-part solution, which was the introduction of the high band U-matic format recorders. These machines still used the colour under system, but with an increase in the frequency of the colour under subcarrier to improve chroma bandwidth. The second part of the solution was a component recorder called Betacam and although these machines did not officially exist, they came up with a buy Hi-band U-matic now solution and we will replace

it with a Betacam when it is available. Not the first time Sony had come up with financial schemes, C format was sold in a similar way only the other way round, get the machine now pay later. The Hi-band U-matic while not fully accepted as broadcast was now a stop gap measure and it was only intended to replace fast processed positive film, the staple diet of TV news which was also not renowned for quality. Remember that we are talking analogue tape technology, so if you look at the first-generation pictures and say not too bad. It then needs editing e.g. all the wanted clips get copied to another tape and degrade by a generation. Stock shots might get copied further in the library to reels that may get used in future edits producing third and fourth generation results when edited. The camera tapes might not turn up for the edit they might get played out from a regional office down a PAL link and are then re-recorded in base before being used in the edit where they would lose another two generations.

By comparison in the film world, what comes out of the camera is physically spliced into the transmission reel and if it is harvested by the library as a stock clip it is still what came out of the camera. If this is then spliced into a future item it is still the original clip that came out of the camera. Regional offices playing clips down the line did not exist in this world.

Looking at a camera tape and comparing it with a fast-processed positive film clip is not really a fair comparison, when you consider how much multi generational degradation might take place before the story reaches the viewer.

Another problem was stringers. This is the term for people who are not directly employed by the TV companies, but who often film non news events mostly at the weekend using their own equipment and are paid a daily rate as and when they are given work. Film cameras used by these people while not as lavish as those that the TV crews used, would produce usable results for garden parties, Lord Mayors parades etc. The events were often filmed mute as their kit often lacked blimps (sound proofing around the camera), but mute film made a good back drop to a studio commentary. Stringers may not have had the funds for replacement electronic kit.

There were some thoughts banded around as to if Hi-band VHS would be suitable for stringers. Less expensive and lower quality than Hi-band U-matic. These tapes also might be delivered to regional offices and again played out for re-recording in base which would add the same high level of multi generation degradation to picture which started off lower in quality.

Once you have bitten the tape bullet, there are the cameras to consider. We were still using tube technology and although the larger studio cameras were getting good results from this technology, we needed an electronic camera that was small and battery powered. The size we had in mind was the current film cameras.

The new cameras would need not only to be portable and battery powered, but to perform without the support of a racks engineer to register, colour balance and expose the pictures. Auto iris had made some appearances but was in its infancy. Colour balance by auto adjusting on a grey card was introduced. Registration was going to have to be set up in base and pray it coped with a day or a week's filming. The colour balance gave cause for concern, but on a single camera shoot all the pictures came from the same camera so, right or wrong, they matched.

The RCA TK76 was typical of the cameras around at the time it was rugged but heavy and the camera ops all preferred the Ikegami as it did not obscure as much of the camera ops vision, with a camera on your shoulder shots.

The ITV approach was to train people and expose them to the technology. I was on-board, this one was the most enjoyable training courses I had attended. There were morning lectures mainly aimed at teaching film people basic television theory, these I could have perhaps done without. There was production training every afternoon and it was brilliant. We were given various scenarios for a news story, a quick lunch and planning meeting usually in the pub, followed by take the kit out and film your chosen story. This needed to be edited up for a showing at 6pm every day. Remember the teams were all a mix of film and TV engineers, usually having a go at something they did not normally do in their working day. Scripting and presenting being alien to all of us.

There were three teams filming and each team wanted to produce the best story. The camera was auto iris, best set on the subject and then turned off for any panning shots, particularly if they involved sky which might change the setting. Colour balance was point at a grey card for colour balance, but we devised a sunset look replacing the grey card with a green roadmap (all we had) this delivered some excellent daytime sunset pictures, otherwise known as a colour cast. It's one thing writing a script and another delivering it to camera. The course was a full week, but I think we all came away with an appreciation for each other's disciplines. Long time since I had worked a camera in anger. I had done some lighting but not with portable kit, and my presenting generated a lot of retakes, but I was not the only one. Single camera shooting was interesting particularly if you did retakes from different angles to edit up as a multi camera shoot.

The kit started to go together in base. The Hi-band U-matic recorder often being carried by the sound recordist may not have gone down well, perhaps a retrograde step on the well-loved Nagra audio recorder, but into everyone's life a little rain must fall.

The Betacams finally arrived in the shape of a camcorders and standalone machines for editing and transmission and did as promised deliver component recording. We all expected a U-matic cassette and an increased tape speed to spread the tracks out so that added heads on the drum could lay down component tracks. Sony surprised us in that the cassette was the Betamax cassette, run at an increased tape speed, but with only one head added to the drum. The second head recorded R-Y and B-Y and by compressing the duration using TDM (Time Domain Multiplexing). Goodbye to colour under, goodbye to PAL subcarriers, they had served us well, hello to component.
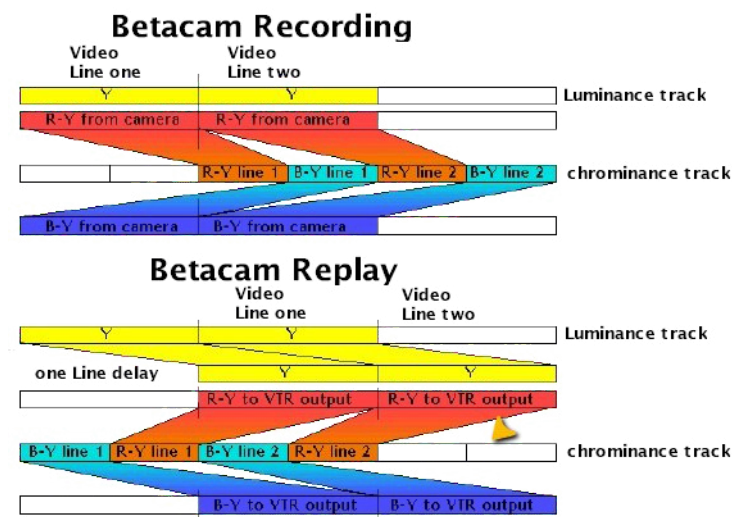
There were new problems including aliasing. If you filmed a parrot in a cage it was not easy to see the parrot because of the aliasing from the cage. The camcorders would not replay so the tapes could not easily be reviewed on site and there was no colour monitoring. The Betacams were changed to Betacam-SP. The tapes could be reviewed through the viewfinder, this was a big step forward to know you had something on the tape. The camcorder meant the sound recordist lost the big box to carry, initially all his PPM sound monitoring was on the camera ops shoulder, this was soon replaced by a SQN audio mixer carried by the sound engineer.

The component editing performed well and as predicted the component VTR did produce much better performance as it stepped down the generations, it was not lossless, but a big improvement over PAL. The links from the regional offices also improved with a coder that replaced PAL and produced two TDM pictures on the screen side by side, one being Luminance and the other Chrominance. Not quite component, but a step in the right direction given the Links only provided PAL bandwidth.

ENG transmission was a big step forward. The stories were delivered to the transmission suite as one story per cassette with two playout machines delivering A and B feeds to the vision mixer. This replicated the telecine it replaced, where stories were spliced in order, into two big reels for transmission spaced with film leaders. The only way to drop a story was to play through it in real time so you lost one telecine machine for the duration of the story. ENG enabled cassettes to be re-arranged with no penalties to the production, so live interview overruns could be more easily accommodated.

Late stories were often delivered and edited while the news programme was on air! Never popular with the editors. Any voice overs were usually recorded on site over colour bars. Edit them into the story and then find some relevant cutaway pictures to cover the bars. A hovering journalist would ask if the bars were covered and that meant the editing was finished like it or not, they would grab the tape and somebody would run it from the news area to the transmission suite and the next time you would see it was on air, often only minutes later, this left you praying you had provided the correct duration so it did not run off the end or that all the colour bars were indeed covered.

There were always the disasters in both the editing and transmission. In the transmission suite cassettes were stacked above the transmission machines e.g. an A pile and a

From the scene of the crime: a solitary police officer stands guard outside the ground floor flat in Bradford where a girl has just been murdered, as Yorkshire Television's Calendar reporter Robert Hall outlines the case for viewers.

Picture credit *https://tinyurl.com/ybyjcph3*

B pile. The running order would be an A pile story followed by a B pile story. This allowed the following story to be cued ready. One day studio dropped the first story, so instead of just starting with the B machine the operator re-jigged the tapes to start with A. This was a shooting offence if the vision mixer had marked up the script as to which story was coming from which machine. Every time ENG was rolled the wrong machine got cut up on air producing colour bars. When the programme finished a young lady from vision mixing was seen with steam coming out of her ears heading for the ENG transmission suite to perhaps progress a VTR operator up the learning curve of what not to do when playing ENG into the local news.

I used my key card to let her through the door but did not hang around for what would be an entertaining lesson.

I did get to edit stories for real. I remember a late story about a blind pianist, the tapes came in mid programme and the story really did not need the "hold the front page treatment". I cut it and used lots of pictures of his guide dog, white stick, and him in dark glasses, what would have helped was that the equally rushed introduction had mentioned the fact that he had learned to play the piano while being blind, it certainly was not in the video I had cut.

Its like the electric car, if you don't buy the cars the charging points they will not appear. The U-matic got us out of this chicken and egg situation. Sony came good with a component VTR machine. The camcorder was a major step over separate cameras and VTR and the kit continued to improve. Electronic miniaturisation helped and CCD arrays replacing tubes was a big step forward. This was not the end, later machines came with DT (Dynamic Tracking) this meant slow motion and freeze frame action was possible. P2 protocol so that (RS422 serial remote control over the decks) for serious editing. The Betacam-SP became the Digi-beta, same size cassette and even backwards compatibility on some decks all the way back to Betacam (helpful with archive tape replay). The chicken had laid an egg, or the chicken had hatched out of the egg, depends which way you look at it. The cassette which was once designed for a Betamax home video recorder had set the broadcast industry alight.

The CCD and Bayer array cameras have evolved and are often used on high end dramas that once would have been the exclusive domain of film cameras. The production techniques of single camera shooting across several takes that was developed by film long before the word television was ever thought of is still the preferred way of shooting these productions. I think it's fair to say this came out of the electronification of film which owes its roots to ENG.

The modern images are often recorded in a RAW format, so like RAW in the stills world, it enables extensive post-production. In this new world we now have colour graders to match scenes, turn day into night and everything else that was once the exclusive domain of film, in an electronic production.

Robert Hall reports back to base between stories; ENG vehicles are equipped with cellular phones, a radio talkback system and walkie-talkie handsets to ensure that there are no time-wasting breakdowns in communication.

Picture credit *https://tinyurl.com/ybyjcph3*

VOX for Analog ATV

Written by Jim Andrews, KH6HTV
Reproduced from Boulder Amateur Television Club TV Repeater's REPEATER December, 2020

I recently got an order to build one of my older designs. It was for my model 70-10, 70cm, 10 Watt, analog, TV transmitter. Included in my design was a VOX circuit. No, this time VOX does not stand for Voice Operated Transmit. For ATV, it means Video Operated Transmit. The VOX circuit detects the presence of an incoming video signal and then in turn keys up the transmitter. I decided that I would share my circuit with the readers of this newsletter. There are still lots of ATV hams out there using analog TV. I hope you find this circuit of interest.
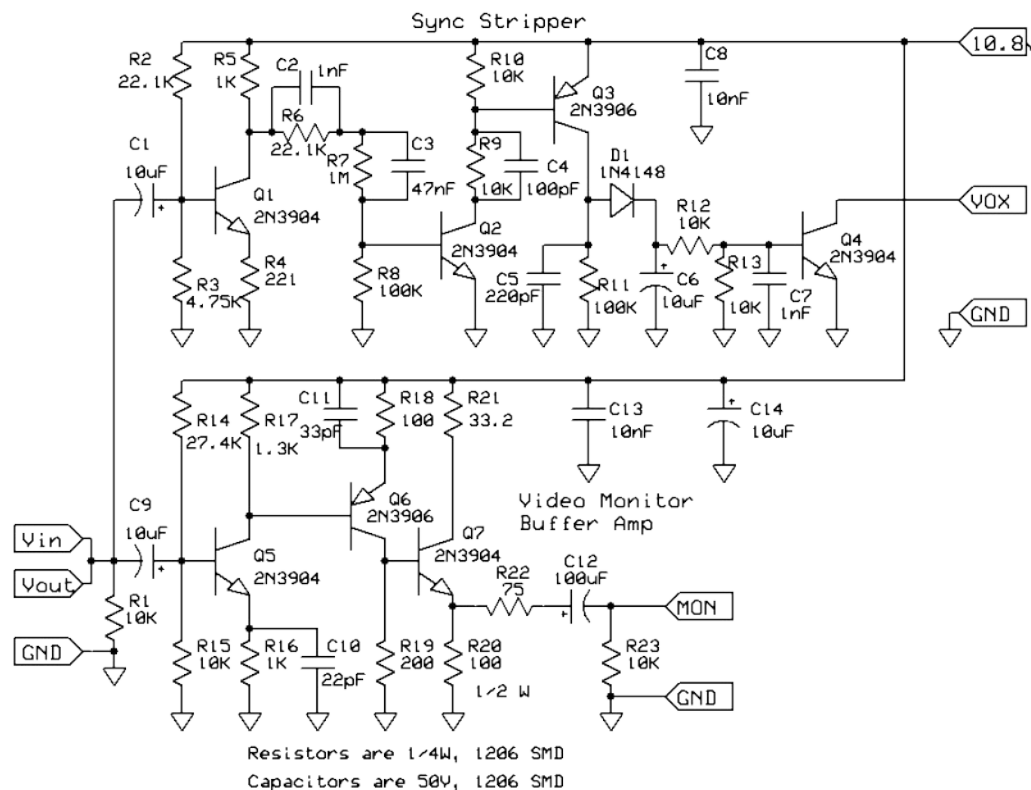
This is the actual schematic of my VOX circuit. It actually contains two independent circuits. The circuit on the top, Q1 - Q4 is a video sync stripper, while the circuit on the bottom, Q5 - Q7 is a unity gain video buffer amplifier.

An analog video signal is connected on the left to Vin and loops back out on Vout. The transistors Q1 & Q5 pick off the video, but present a high impedance to the looped thru video signal.

For the video buffer amplifier, Q5 & Q6 provide a voltage gain of 2 X. Q7 is an emitter follower with unity voltage gain, but very low output impedance. R22 provides a 75 Ω output impedance. The net result is a high input impedance, unity gain, buffer amplifier with back matching. A 1 V video signal input will result in a 1 V into 75 Ω load output signal. Caps, C10 & C11 provide high frequency compensation. The frequency response is very flat over the entire video band up to beyond 4.5 MHz.

For the sync stripper, Q1 provides a high input Z, and 5X voltage gain. The remaining R/C plus Q2 & Q3 networks serve to filter out the sync pulses on the video signal. The strong sync pulses on the collector of Q3 are then rectified by diode D1 and C6 which then turn on hard transistor, Q4. Q4 is an open collector and thus pulls any external circuit to ground whenever, TV sync is detected. In my 70-10 TV transmitter, I then use this logic to ground as the PTT to key on the final amplifier.
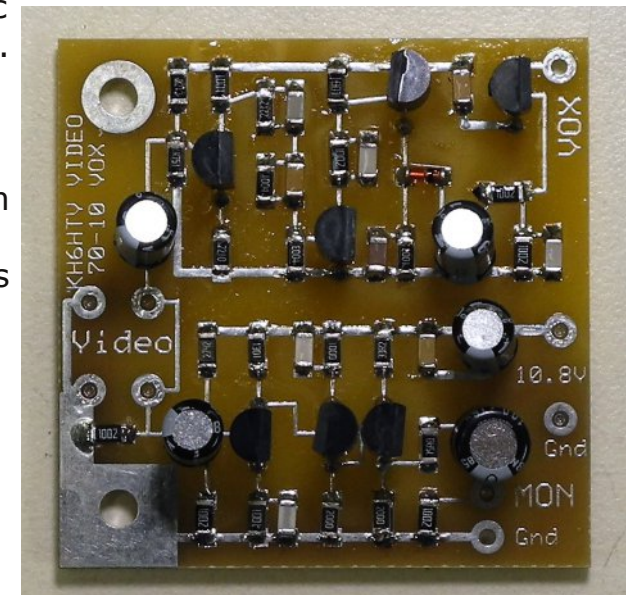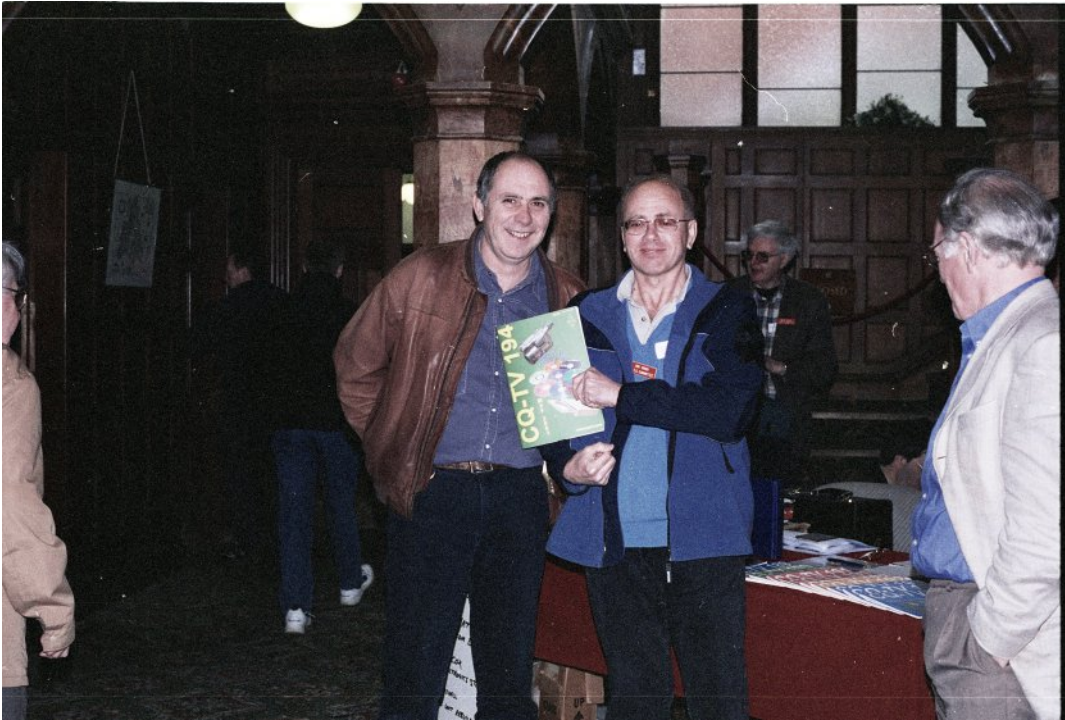
Photo credit: Trevor Brown

Ian: I have worked out how to produce the next issue in an electronic format, so all the http links are interactive, along with the contents page, so you can jump to any part of the magazine.

We can send this out at virtually, at no cost at all to our members, and software I have used is free, so no costs involved there either!

Trevor: That's sound like a win-win. Any problems?

Ian: Only a small one and he is standing behind us!
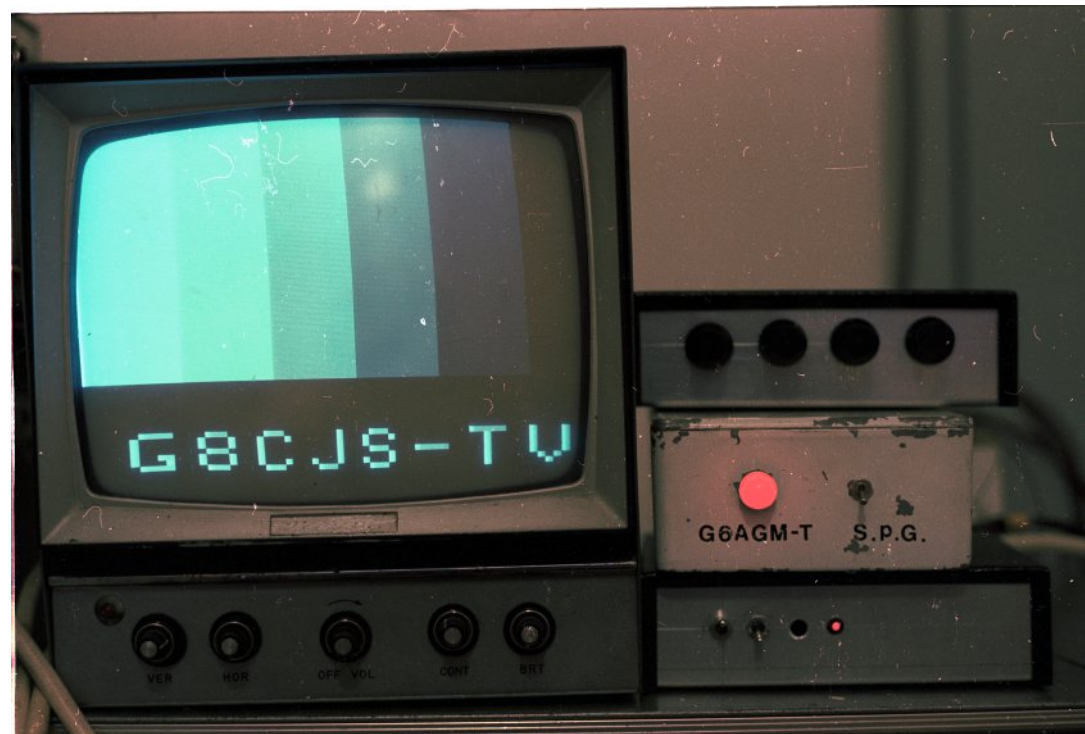
Remember the days when your ATV callsign ended in /T (in the UK)

All your ATV kit fitted on a book shelf

Pictures were AM modulated on 70cms which in the UK went up to 450MHz

Never mind the colour

Sound was sent on 2m

The 2m transmitters were xtal locked so CQ calls were followed by tuning high to low

Ok there was some RF stuff as well on another shelf

Grass Valley Mixer Conversions - Part 24

Written by Trevor Brown, G8CJS and Mike Stevens, G7GTN

Happy New Year everyone. It is 2021 and this column is still running! Could anybody stretch a simple panel to so much copy? Well we are remodelling it and giving it functions that were never envisaged when it was designed, so please cut me some slack.

In this issue I want to make the Robot Camera work with the Joystick, or its correct name "Positioner". The current software (GVG16) uses two of the GVG pots in the Matte Generator (lum and Chroma) to control two positional servo's, one for Tilt, one for Pan. Both pots rotate through 270° the GVG A to D delivers this pot position as a number between 0 and 255. This is converted in software to 0 to 512 and the camera Pans or Tilts as the numbers change. This sets the camera to a position proportional to the position of the pot. Speed of the camera movement is down to how fast you move the pot. This works well if you only have one Robot Camera. However, if you have multiple cameras, the pots are the memory for the position, so when you switch cameras the selected camera will jump to the position of the pots

To recap on how this was achieved, the numbers are received on one of the I2C ports and sent down the I2C bus to the PCA 9685 module. This delivers pulses to the SG90 servo modules and the width of these pulses is translated into a position by the SG90 servos. This happens for both the Tilt and Pan servos. The software also sends the identity of the push button and this is used by the PCA 9685 module to decide which camera the software is talking to. There are four banks of sockets on the module to support a multi camera operation, these in turn are selected on the GVG panel.

Values delivered by the positioner
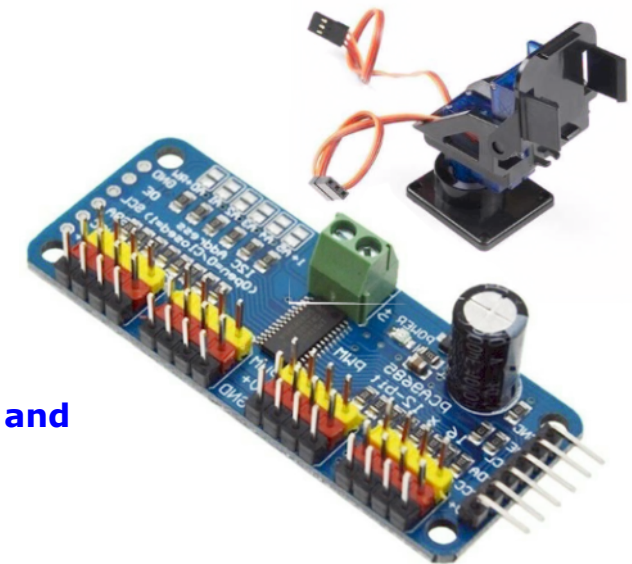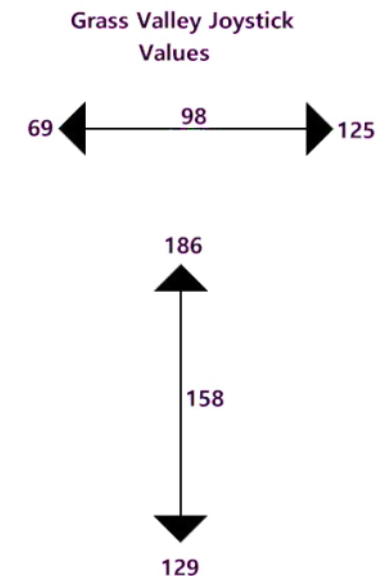
PCA 9685 Module and Robot Camera

The positioner cannot work this way. The positioner pots have limited travel so the range of numbers coming out of the A to D is reduced and when you let go of the positioner it is spring loaded to the centre.

What we can do with the positioner is create a velocity servo. The width of the pulse is locked to a variable in the software and the positioner can increase or decrease this variable. The positioner value sets the speed or velocity and the direction of travel. I have written a routine which limits the positioner to a two-speed device. Push it a little and the camera moves slowly, push it hard over and the camera moves faster.
The positioner is only active when you hold down the selected camera button - Boarder, Drop Shadow, Extrud, Outline, (Notation for GVG 1000) in the Borderline section.
The button will flash while depressed and the mixer is still operational should you need to cut a different camera to line while setting up your next shot. This is actually a share. When the depressed button light is out the mixer is active and when it is lit the Robot Camera is active. I put some code together so I could experiment with this and the results were encouraging.

The Robot Camera selector panel

'Analog' is a subroutine to read the value of the positioner. Latches is a routine to update the GVG read only lamp latches from the soft copy we keep in memory so we can read the status of the latches. If we update these soft copies, we use latches sub-routine to sync up the GVG lamps. The software numbers control the speed and direction of this Tilt and Pan servo. I have added a lot comments to explain each line of the code.

```
panJ:
'you have pressed one of four buttons to get here
if B=5 and e = 253 then let u=u+2        'border  on   "
if B=5 and e = 251 then let u=u+64       'shadow   on   "
if B=7 and e = 254 then let u=u+16       'Extrude  on   "
if B=7 and e = 253 then let u=u+4        'outline  on   "
gosub latches ' update the read only lamp latches

if (u and 2)    <>   0 then let xx = 0        'Border "
if (u and 64)   <>   0 then let xx = 4        'shadow "
If (u and 16)   <>   0 then let xx = 8        'extrude "
if (u and 4)    <>   0 then let xx = 12       'outline "
' select the Robot camera you want to move

let x=joystickv            'vertical Joystick
gosub analog               ' routine to make yy is the
selected knob value from the A to D
if yy>182 goto fastv       ' Make sense of the odd Joystick
values from the A to D
if yy<133 goto fastv       'let x=Analog device, read Y
position
if yy<  154  let tilt=tilt -2      'tilt down
if yy>  162  let tilt=tilt +2      'tilt up
fastv:                              'select fast joystick
movement
if yy>  182  let tilt=tilt+15
if YY<  133  let tilt=tilt-15
if tilt>500 let tilt=500           'end stop
if tilt<1   let tilt=1             'end stop
PCA9685.PWM xx,510-tilt            'pan command 'pan
```

```
command to module at i2c 40hex
let x=joystickh              'horizontal Joystick
gosub analog                 'let x=Analog device, read Y
position
if yy>122 goto fasth
if yy<73 goto fasth
if yy  >=100  let pann=pann+2    'slow speed
if yy  <=96   let pann=pann-2    'slow Speed
fasth:                           'select fast joystick movement
if yy>  122   let pann=pann+15   'fast speed
if yy<  73    let pann=pann-15   'fast speed
if pann>500  let pann=500        'end stop
if pann<1    let pann=1          'end stop
PCA9685.PWM xx+1,500-pann        'pan command to module
at i2c 40hex
'turn lights off so button will flash when it goes to panJ again
if (u and 2)   <>   0 then let u=u-2       'boarder turn off
if (u and 64)  <>   0 then let u=u-64      'shadow turn off
If (u and 16)  <>   0 then let u=u-16      'extrude turn of
if (u and 4)   <>   0 then let u=u-4       'outline turn off
gosub latches
return
```

The problem with a single variable for both Tilt and Pan is that when you change to another Robot Camera these positions are transferred, just the same as using the pots, and the Robot Camera will jump to the stored positions. Using the positioner opens the door to a solution to the problem of carrying previous setting to the next selected camera. We do this by assigning two memory stores to each camera selector, one for tilt and one for pan. Positioner movements then update this store from its parked position which will be the position each camera was left in.

This then escalates the number of variables to eight, four Tilt and four Pan. Two pairs for each of the four Robot Cameras. I have declared the eight memories in software as rcmem 1 to 8 (short for Robot Camera Memory) the tilt and positions are

stored in these variables.

```
panJ:
'you have pressed one of four buttons to get here
if B=5 and e = 253 then let u=u+2        'Border  on   "
if B=5 and e = 251 then let u=u+64       'shadow   on   "
if B=7 and e = 254 then let u=u+16       'Extrude  on   "
if B=7 and e = 253 then let u=u+4        'outline  on   "
gosub latches        ' update the read only lamp latches

if (u and 2)    <>   0 then let xx = 0        'Border "
if (u and 64)   <>   0 then let xx = 4        'shadow "
If (u and 16)   <>   0 then let xx = 8        'extrude "
if (u and 4)    <>   0 then let xx = 12       'outline "
' select the Robot camera you want to move

if xx=0  then let tilt = rcmem1     ' tilt position of camera 1
recalled
if xx=4  then let tilt = rcmem2     ' tilt position of camera 2
recalled
if xx=8  then let tilt = rcmem3     ' tilt position of camera 3
recalled
if xx=12 then let tilt = rcmem4     ' tilt position of camera 4
recalled


let x=joystickv                     'vertical Joystick
gosub analog                        ' routine to make yy is the
selected knob value from the A to D
if yy>182 goto fastv                ' Make sense of the odd
Joystick values from the A to D
if yy<133 goto fastv                'let x=Analog device, read Y
position
if yy<  154  let tilt=tilt -2       'tilt down
if yy>  162  let tilt=tilt +2       'tilt up
fastv:                              'select fast joystick movement
if yy>  182  let tilt=tilt+15
if YY<  133  let tilt=tilt-15
if tilt>500 let tilt=500            'end stop
if tilt<1   let tilt=1              'end stop
```

```
if xx=0  then let rcmem1 =tilt      'tilt position of camera 1
stored
if xx=4  then let rcmem2 =tilt      'tilt position of camera 2
stored
if xx=8  then let rcmem3 =tilt      'tilt position of camera 3
stored
if xx=12 then let rcmem4 =tilt  'tilt position of camera 4
stored

PCA9685.PWM xx,510-tilt          'pan command 'pan
command to module at i2c 40hex

if xx=0  then let pann = rcmem5     ' pan position of camera
1 recalled
if xx=4  then let pann = rcmem6     ' pan position of camera
2 recalled
if xx=8  then let pann = rcmem7     ' pan position of camera
3 recalled
if xx=12 then let pann = rcmem8     ' pan position of camera
4 recalled

let x=joystickh              'horizontal Joystick
gosub analog                 'let x=Analog device, read Y
position
if yy>122 goto fasth
if yy<73 goto fasth
if yy  >=100  let pann=pann+2     'slow speed
if yy  <=96   let pann=pann-2   'slow Speed
fasth:                       'select fast joystick movement
if yy>  122   let pann=pann+15    'fast speed
if yy<  73    let pann=pann-15    'fast speed
if pann>500  let pann=500         'end stop
if pann<1    let pann=1           'end stop

if xx=0  then let rcmem5 =pann   'pan position of camera 1
stored
if xx=4  then let rcmem6 =pann   'pan position of camera 2
stored
```

```
if xx=8  then let rcmem7 =pann      'pan position of camera 3
stored
if xx=12 then let rcmem8 =pann   'pan position of camera 4
stored

PCA9685.PWM xx+1,500-pann         'pan command to module
at i2c 40hex

'turn lights off so button will flash when it goes to panJ again
if (u and 2)   <>   0 then let u=u-2        'border turn off
if (u and 64)  <>   0 then let u=u-64       'shadow turn off
If (u and 16)  <>   0 then let u=u-16       'extrude turn of
if (u and 4)   <>   0 then let u=u-4        'outline turn off
gosub latches
return
```

Adding the stores makes the software a little more complex
and because it is a velocity servo, the panel does not know if
the camera has reached the end of its travel, so I have added
end stops to the software so the numbers limit at 510 and 2.
So when you move the positioner in the other direction it will
have to decrease this number to within the required range
before it can move the camera which is a delay we can well
do without.

The two speeds are commented in the software so you can
experiment with your own positioner. I have set them at 2
and 15, but should your positioner have different ballistics to
mine you might want to change them. Your feedback is
always welcome. I will add this Positioner control to GVG 17
software release.

The first batch of MK2 PCBs has also arrived in the UK and
Mike has been busy populating a board and has sent me part
of the batch so I can do the same and distribute them to
those of you who are part of our beta testing circle. We have
a couple of spares so if you have a panel and want to join the
beta testing group let me know.
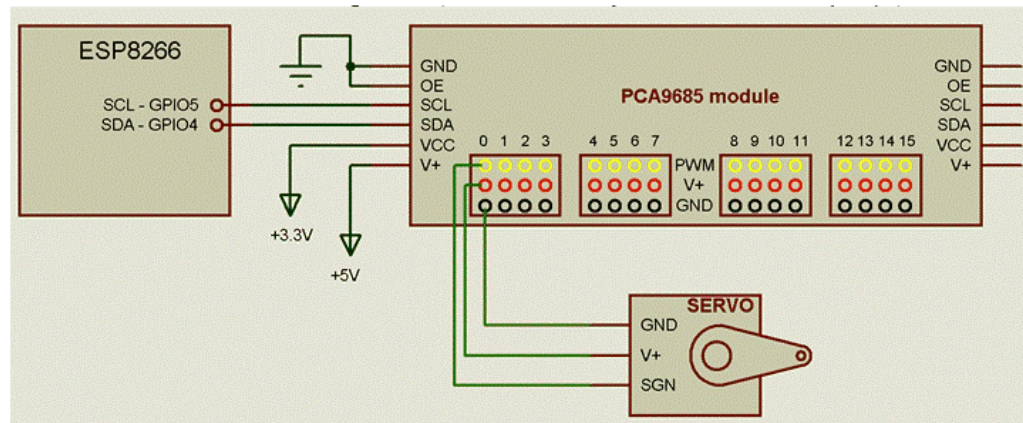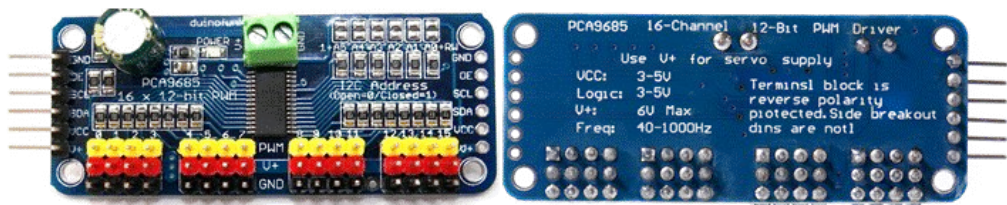
We are charging £5 per PCB+ postage to cover the development of the MK1 PCB and the first batch of the MK2 PCB's that went astray. This is not a buy one and keep it for a rainy day, it is a buy it, build it, test it and feed back the problems (if there are any). Please do not buy one if you are not able to populate, install, and program it into a panel on a reasonable timescale. We only have a small batch of PCBs for this beta test and they need to go to people with the skill and drive to put them to good use.

Mike has also put together and extensive help file on the construction and installation of the improved module. Both the new help file and the GVG 17 software will be on the download site early in the new year, if not sooner. Any other requests for features you would like to see added to this project please send them to *editor@cq-datv.mobi*.
Please limit these requests to the present hardware. Grass Valley will not be adding to their panel and I doubt Mike has the appetite for a MK3 PCB.
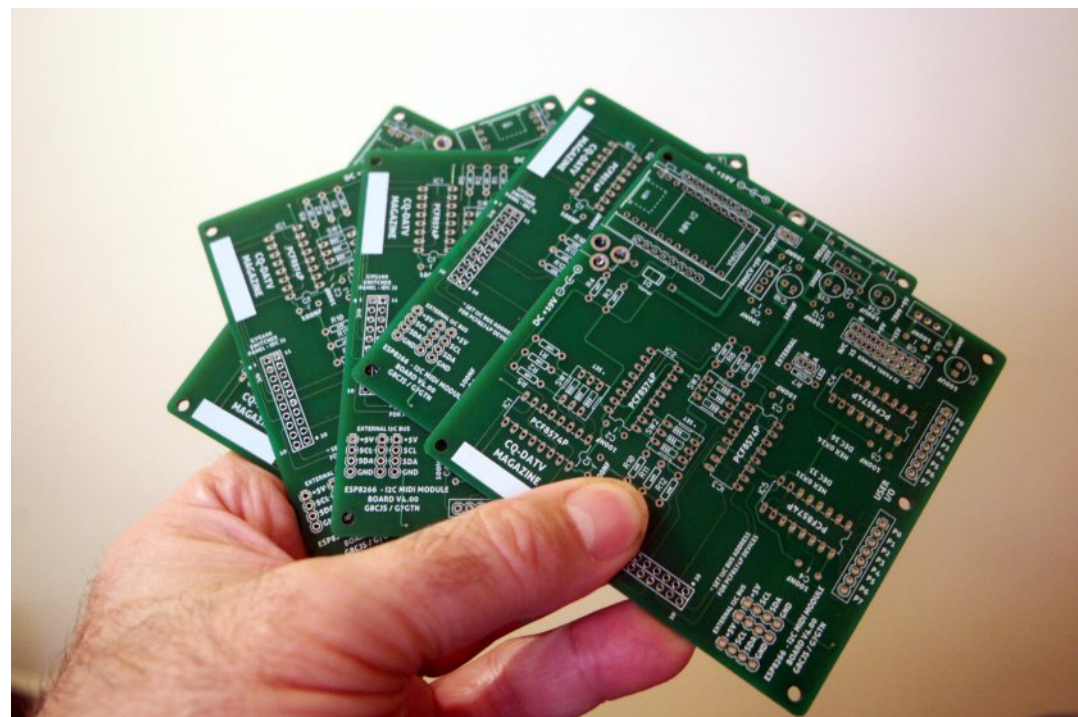
(Editor note - The standard SG90 servo can be damaged if you overdrive the position, they do not have any 'end stops', the motor is forced into a high current stall condition and can overheat. The nylon gears can also be stripped.)

WELL READ THE WORLD OVER
CQ-DATV

70cm Vestigial Sideband TV Transmitter

Written by Jim Andrews, KH6HTV
Reproduced from Boulder Amateur Television Club TV Repeater's REPEATER December, 2020

I used to build and sell analog TV transmitters, prior to the current digital TV craze. I recently got an order from a ham in New York for one of my model 70-10 analog TV transmitters. It was the first one I have sold since 2014. After building it, I thought it might be of interest to readers of this ATV newsletter.

Back in my pre digital TV days dating from the mid 70s, I have designed and built several TV transmitters. The first were AM-TV. But, early on here in Boulder, Colorado, we realized the importance of spectrum conservation and the need to confine our TV spectrums to the FCC standard channel width of 6 MHz. The AM-TV transmitters easily consumed 20 MHz of bandwidth. This meant adopting the commercial broadcast system of using Vestigial Upper Side-Band (VUSB). In the 1990s, we accomplished this by using 6 MHz channel filters made by Spectrum International on the output of our AM-TV transmitters to filter off the unwanted lower sideband.

By 2007, I decided to do a major redesign of our Boulder ATV repeater. I felt there must be a better way to come up with a quality VUSB-TV transmitter than starting with an AM transmitter. I knew the cable TV folks used VUSB so, it was an obvious step to adopt a cable TV, VUSB modulator to generate a truly clean TV spectrum that occupied only 6 MHz of bandwidth. I thus purchased a CATV modulator from Macom and proceeded to design an RF linear power amplifier to boost the 0dBm level available from the modulator. The amplifier I came up with used a Toshiba S-AU4 brick module as the final amplifier. With this module, I was able to achieve a linear 10 watts (PEP), NTSC output. However, the S-AU4 only had 20dB gain. To achieve +40dBm output required +20dBm of rf drive power. This was 20dB greater than what was coming out of the modulator. As the driver amplifier, I then settled upon a very linear amplifier from RFHIC which was designed for use as a cable TV line amplifier. It was an RFC-041 which had 20dB of gain, and capable of +30dBm output.

This VUSB-TV transmitter was then installed in our ATV repeater. I then built about a dozen more of them for other Boulder ATV hams. In 2011, I wrote a paper for QST advocating VUSB-TV vs. AM-TV and the concept of using a CATV modulator along with a linear rf power amplifier. The paper was finally published in the Feb. 2013 issue of QST. The QST article also included the schematic diagram of my rf linear amplifier using the S-AU4 brick module. Unfortunately, by the time the QST article finally appeared in print, Toshiba had discontinued the S-AU4.

In 2011, as I started experimenting with DATV, I realized I needed a more linear amplifier than was possible with the S-AU4. I thus switched from using bipolar transistors to MOSFETs. I soon developed several 70cm linear amplifiers using MOSFET modules with various RF output powers. The most significant were my models 70-7 and 70-9 which were capable of producing linear 10 Watts and 25 Watts (PEP) in analog, NTSC, VUSB-TV service.

The next obvious step was to incorporate a CATV modulator with the 70-7 amplifier. The result was my model 70-10 developed in the spring of 2012. This time, I decided to package it in a much more attractive (but considerably more expensive) enclosure. I selected the Hammond model 1402F clam shell enclosure. I researched several CATV modulators from various companies and decided the best one was the model MPCMA from Pico-Macom. I then mounted it into the front panel of the clam shell enclosure. I installed my model 70-7, 10 watt amplifier on the rear panel. Other features I added included adjustable RF power levels of 1 W, 3 W & 10 W. This was accomplished by adjusting the bias voltage on the 1st MOSFET gate in the power module. Another feature I added was a VOX circuit. In this case VOX stands for Video Operated Xmit. Also as part of the VOX circuit was a video buffer amplifier to provide a video output which could be viewed on a monitor. I discussed this VOX circuit in the previous newsletter. (Dec. 2020, issue # 64 pp. 6-7). The block diagram, schematic of the 70-10 is shown below along with photos of the interior.

Rear Panel

Top View with cover removed and rear panel laid flat
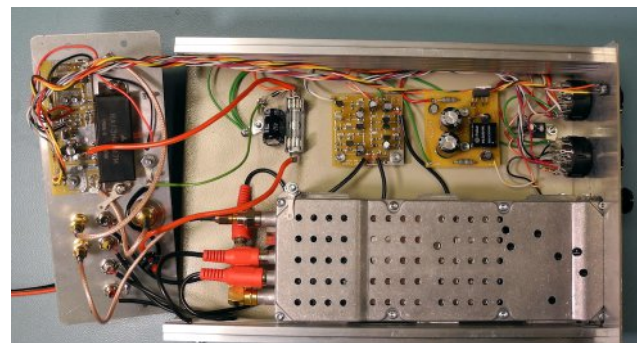
Rear panel with the 70-7, 10 Watt amplifier

Left: Front panel

Right: VOX pc board (left), +5V switcher (center), 10.8V regulator and front panel controls
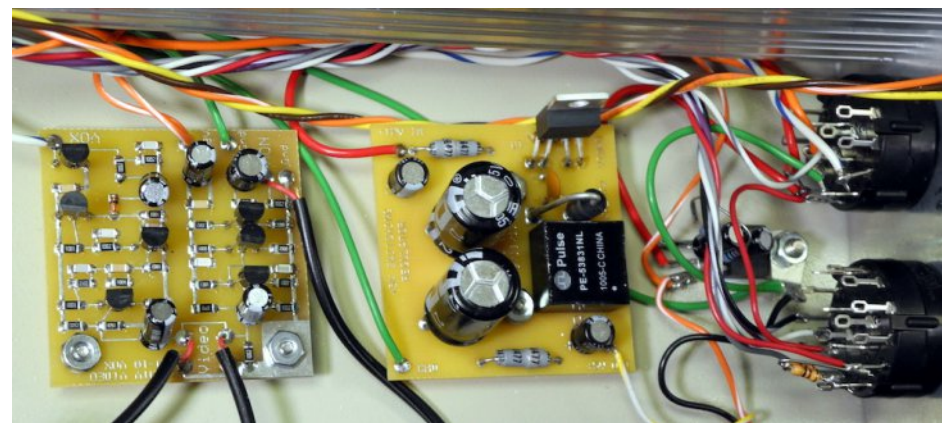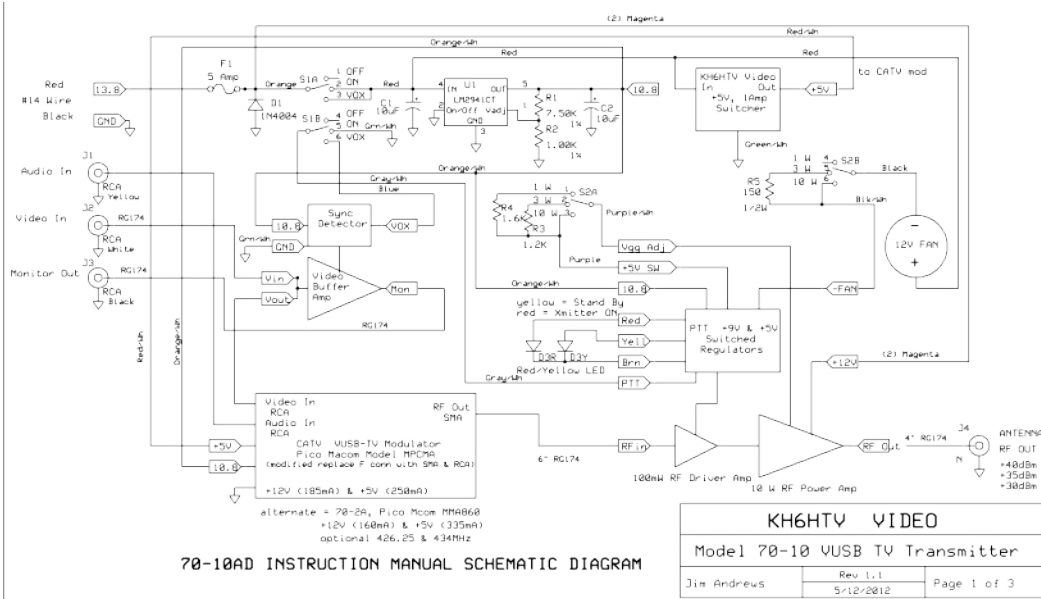
The spike 3.58MHz above the video carrier is the color sub carrier. The mirror image spikes below the video carrier are the undesired lower sideband -CSC & -SSC. They are the result of amplifier non-linearities which cause regrowth of the lower sideband. The rf drive was adjusted to limit them to -20dB below the upper sideband +SSC & +CSC. At this level of rf drive, the rf output power was +40dBm (i.e. 10 watts). This is the Peak Envelope Power (PEP) as measured on the TV signal sync tips.
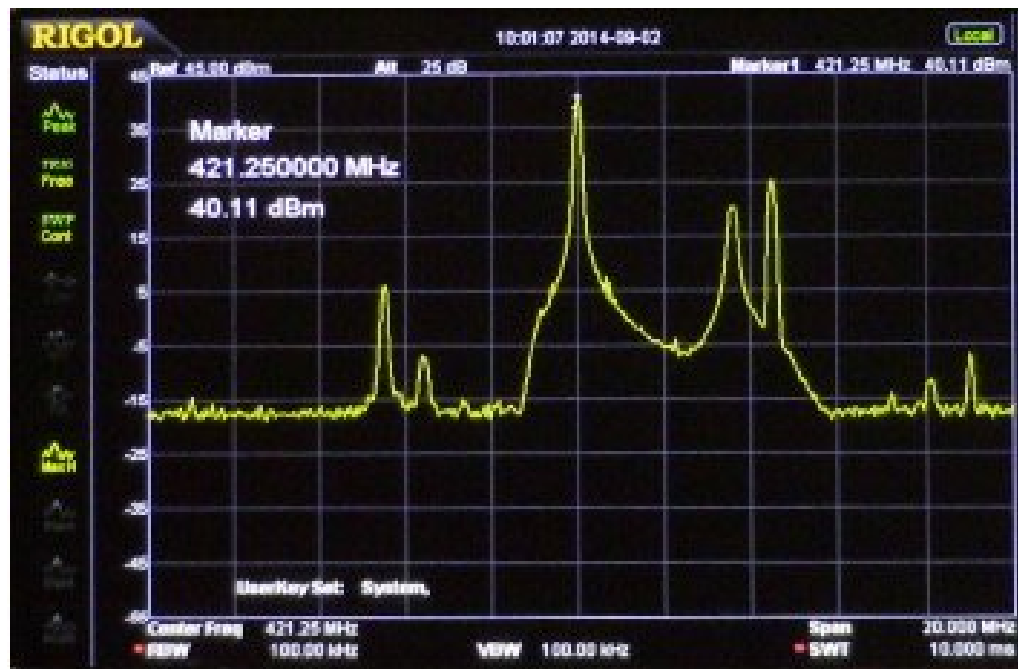
Model 70-10 RF Spectrum when tested with NTSC color bars. 10dB/div & 2MHz/div. The center spike is the video carrier. The spike 4.5MHz above the video carrier is the sound sub-carrier.

BATC Video Source Construction Details

Written by Dave Crump G8GKQ

I have just finished boxing up my BATC Video Source as described in CQ-TV 270 (currently only available to BATC members).

This is one of the many projects that the BATC is driving at the moment: from beginners' projects like this, to future single-board multi-stream DATV receivers, and research into home-build DVB-T for possible use on 50 MHz.

The card selection button and camera switch were mounted in the body of the box, with the camera module looking out of a hole in the "bottom". I used a salvaged flying lead to bring power in from a 2.1 mm barrel connector and take video out to a BNC socket. I tapped a think piece of thick aluminium for the tripod thread and fixed this to the end of the box, and added stick-on rubber feet to the lid so that the unit does not scratch the bench when used off a tripod.

Source: *https://tinyurl.com/yxtwartp*

I used a second-hand Eddystone Die Cast Box type 7969 (the smallest in their range) measuring externally 92x28x32mm. I fixed a 7805 regulator to the lid, and mounted the Raspberry Pi Zero above it on spacers. This enables easy access to change the SD Card.

Facebook, your antisocial friend?

Complied by Ian Pawson G8IQU

As UK breaks away from Europe, Facebook tells Brits: You'll all be Californians soon.

Boris can't manage a US trade deal, so the antisocial media giant has done it for him

As Brits wake up to Brexit next month, most will no longer find themselves stuck on an island in the Atlantic but ensconced in sunny California, courtesy of Facebook. The social media giant has decided that, legally speaking, it makes much more sense for UK residents to stop officially residing in Europe and will pile all British Facebook souls onto a boat and ship 'em to the Golden State, as it has with others in the world.

Why? Privacy, of course. European citizens are covered by the General Data Protection Regulation (GDPR), which prevents Facebook from gathering and selling their personal information without explicit permission. But Facebook loves selling people's personal data – so much in fact it has built the entire company's business model around it. And so, you leave Europe, you end up in California.

Of course California has its own privacy laws these days that are much stronger than the rest of the US, however, until CEO Mark Zuckerberg is ready to leave his many houses in the state, Golden State laws will do. Besides, Facebook is among those tech giants pushing for federal privacy legislation that will undercut California's so, you know, you may not have to worry for long about the tricky business of approving the sale of your most personal details to random advertisers.

"Like other companies, Facebook has had to make changes to respond to Brexit and will be transferring legal responsibilities and obligations for UK users from Facebook Ireland to Facebook Inc, there will be no change to the privacy controls or the services Facebook offers to people in the UK, and the protections of UK GDPR will also apply."

You probably didn't miss the "like other companies" part right up front. That's because Google – that other privacy-loving mega-corporation – has already decided that it's best for Brits to be legally flown over the Atlantic come January 1, 2021.

And the "UK GDPR" part? Well, let's see just how G and P that is once Britain tries to get a bilateral trade agreement with America and has to start putting things on the table.

Even if you don't get to physically escape the British winter for sunnier climes, there is another plus to this move: everything you say and do with either Google or Facebook will become subject to US spying laws. So if you were worried that the NSA or FBI didn't know enough about you, worry no more, you'll be best friends. Well, so long as you don't do anything they don't approve of.

While Europe continues to struggle to figure out how to reform the transatlantic data sharing agreement Privacy Shield that was struck down not once but twice by the European Court of Justice, the UK won't have to worry: the US Cloud Act is already there.

If in the rare likelihood that you don't like the idea of Facebook shifting your legal rights around the world according to the lowest possible privacy protections, however, don't worry: Facebook is a big believer in choice.

And so you will get to choose: use Facebook, WhatsApp and Instagram and have your data pored over and sold, or elect not to follow social media giant's decision by, um, never using those services again.

Say it once, say it all: thank you Santa Zuck!

Facebook runs full-page newspaper ads to attack iOS 14 privacy changes

Facebook is using full-page newspaper ads to criticize an upcoming Apple policy that will give iPhone and iPad customer the choice over whether advertisers can track them. The company claims in its advertisement that it's "standing up to Apple for small businesses everywhere." If the policy change goes ahead, it argues, these sorts of companies will be unable to find and target customers with personalised ads. If they can't do that, their sales will plummet, "adding to the many challenges they face right now," the company argues in the ad, which Bloomberg reports will be running in the New York Times, Wall Street Journal and Washington Post papers.

Facebook's gripe is with a change in iOS 14 that requires developers to ask for permission before tracking them. "Tracking refers to the act of linking user or device data collected from your app with user or device data collected from other companies' apps, websites, or offline properties for targeted advertising or advertising measurement purposes," the company explains in a developer-focused support page. It was announced in June and originally meant to roll out with the launch of iOS 14 in the fall. Two months later, Facebook warned in a blog post that the change would "hurt many of our developers and publishers at an already difficult time."

In September, Apple decided to push the policy change to next year. The company then attacked Facebook in a letter sent to several human rights and privacy organizations. "Facebook executives have made clear their intent is to collect as much data as possible across both first and third

party products to develop and monetize detailed profiles of their users, and this disregard for user privacy continues to expand to include more of their products," Apple reportedly wrote. Facebook quickly hit back, arguing that Apple was using its "dominant market position to self-preference their own data collection while making it nearly impossible for their competitors to use the same data. They claim it's about privacy, but it's about profit."

For now, Apple still plans to go ahead with the change.

and there is more..

Facebook isn't done attacking the iOS 14 privacy changes Apple is rolling out next year. The social network has taken out another full-page newspaper ad slated to run in The Wall Street Journal, New York Times and the Washington Post today. This time, the company is focusing on how it believes the upcoming policy change will impact users everywhere. It explains that if small websites, such as cooking blogs, can't make ends meet with ads, creators will be forced to start charging subscription or in-app fees. That development will make "the internet much more expensive" and reduce "high-quality free content," the ad reads.

The company, which says it's "standing up to Apple for small businesses everywhere," took out a full-page ad yesterday to argue that small businesses won't be able to find and target customers with personalized ads if the iOS 14 changes are implemented. In particular, it's taking issue with the rule that would require developers to ask users for permission before tracking them.

Facebook has been critical of the upcoming policy update since Apple announced it in June and previously said that it would hurt its developers and publishers "at an already

difficult time for businesses." The new privacy policy was supposed to roll out with iOS 14, but Apple decided to delay its implementation until next year to give developers more time to make necessary changes.

Apple is showing no signs of backing down. Bloomberg reported in November that it sent a letter to human rights and privacy organizations in response to Facebook's initial criticism, slamming the social network's practices. "Facebook executives have made clear their intent is to collect as much data as possible across both first and third party products to develop and monetize detailed profiles of their users, and this disregard for user privacy continues to expand to include more of their products," it reportedly wrote. It also defended the policy change in a new statement sent to MacRumors responding to the first ad Facebook ran:

"We believe that this is a simple matter of standing up for our users. Users should know when their data is being collected and shared across other apps and websites — and they should have the choice to allow that or not. App Tracking Transparency in iOS 14 does not require Facebook to change its approach to tracking users and creating targeted advertising, it simply requires they give users a choice."

Normally I am not a fan of Apples 'walled garden' practices, but in this case I fully support their actions!

You are perhaps wondering what the above has to do with ATV? Well the answer is 'not a lot' except that Trevor runs a DATV forum on Facebook.

But I think that people should be aware of the power the big tech companies like Facebook wield. By using them, you are only increasing their worldwide influence.

From the Vault - Five go to Amsterdam

Written by Trevor Brown G8CJS

In CQ-DATV 85 Jeffrey Borinsky said "Television is far too easy. Anyone with a smartphone can shoot footage of high technical quality and send it, live or recorded, anywhere in the world".

Jeffrey goes on to explain the work of the newly formed BECG (Broadcast Engineering Conservation Group). We now have a professional home for everybody interested in conserving broadcast equipment. Before we formed this group, broadcast equipment conservation was still happening just we were a little less organised and perhaps smaller in numbers and certainly less informed of each other's work. Now our numbers, presence, and the work we do grows every month, so does our collection of broadcast television equipment.

Back in 1997, Paul Marshall, our group chair, had the opportunity to put on a historic engineering exhibit at IBC (International Broadcast Convention). This takes place at the RAI centre in Amsterdam every September. The exhibition started in Brighton using all the hotels along the seafront for exhibition space to show all the latest broadcast equipment. It was held every two years as there was another exhibition held in Montreux every two years interleaving with IBC. IBC grew and ran out of space it moved to the Netherlands and continued expanding, the venue stopped being every two years and became every year and the Montreux exhibition ceased.

The exhibition has crowds in the 50,000 and runs for about 5 days, with a static exhibition that takes more than two days to do justice to a visit and that is excluding the lecture programme which runs alongside. There is no other way to say it than to describe it as Europe's premium broadcast TV equipment show, rivalled only by NAB which is in April and in Las Vegas. Fortunately, the world is big enough for both events and helped by IBC being held in September.

Paul secured funding from IBC and put a team together to build and man a display. We were probably the only team to build man and disassemble our own stand. The likes of Sony would have a rig team, a de-rig team of techies, a sales team to man the stand when the exhibition is open to the public and an equipment haulage contractor to get all the kit there and back.

I was fortunate enough to be asked to be part of the team, the IBC funding only covered transport accommodation and food, so it was a labour of love. We supplied and ran the stand for three years 1997, 1998 and 1999 in different

The Team (L to R Grant Dixon, Jill Marshall, Paul Marshall, Pauline Brown, and yours Truly missing is the photographer Dave Hill)

locations within the exhibition centre, becoming a more prominent display as our efforts became more appreciated. The equipment displays changed, evolved and grew. I have to say it was hard work but satisfying. The interest in our stands also grew and grew, we made a lot of friends and I hope answered a lot of questions about the kit that many of those new to television had never seen before.

The Third year was the most interesting, and our most ambitious, we took along a 2" VTR and a Marconi MKVII camera channel. The kit filled a 3-ton tail lift truck that we hired. I am sure we overloaded the truck and certainly the tail gate refused to lift the 2" Quadruplex VTR which weighs in at just under ¾ of a ton. Once you know where the tail lift adjustments are which were deliberately set on the punitive side, everything becomes possible.

Marconi MKVII camera

I drew the short straw and drove the truck there and back with a little help from North Seas Ferries and Pauline my wife who supplied the navigation, translation and life support I so often need. At times this was down to getting the sun to shine on the correct side window. I would expect nothing less from someone related to Captain Cook. We did make it without incident although we both felt sure that somebody in authority was going to appear, stop us and direct us onto a weighbridge as the truck suspension was permanently on its bump stops.

We arrived and unloaded, the scary bit was when we pushed the VT onto the tail lift, (it's on wheels) and either the truck reared up or the tail gate drooped, or both I'm not sure, but the truck assumed something other than a level playing field providing a definite advantage to the pushers and a huge disadvantage to me the only member of the braking team.

The RAI centre

The VTR machine in its working life is used to responding to the command "Run VT", for once it took it literally and really did run, it was alarming, I feared for my life playing King Canute trying to hold back the machine, which was heading for the tail gate exit, and using me as a landing pad. It stopped and I was thankful not to have TR70 crush injuries on any ensuing medical paperwork. The tail lift brought it down to ground (this was never in doubt it was the reverse direction we worried about). We were able to push it along the corridors to our stand, it raised quite a stir as it travelled past the stands along the way.

Our stand that year was just outside the main exhibition bar, what a place for a stand, you were guaranteed the foot fall of foot falls by the superb location, but perhaps just the odd jibe about cutting edge technology from those leaving the bar. They should have seen the Iconoscope camera we took the previous year even I was not around when they were the main source of studio pictures. The late Grant Dixon also came to join us and brought his 30 line mechanically scanned TV. Now the revellers in the bar really did think they were in a time warp.

I will not say the exhibition went without a hitch there were several, the first being compressed air which Quadruplex machines require for the head wheel air bearing, and on some versions tape guides too.

The Late Great Grant Dixon and myself. Far Right Mechanical TV with 30-line disc

The machines are equipped with an internal compressor, but the noise these generate can successfully compete with a small jack hammer. We took along an external compressor and a long pipe, so we could put the compressor behind the exhibition wall in the indoor carpark and connect the two, passing the pipe through via a small air grate. External air is common on these machines, the internal compressor only kicks in during an emergency. The external flexible pipe work, connecting the machine and compressor is normally very substantial. We tried to make do with garden hosepipe, this got warm particularly at the compressor end where there were some diameter changes in the mechanical fit. The pipe would then soften and part company with the compressor. Simple fix, cut the deformed end off and refit, yes the pipe got shorter by the day by about 12" but the mathematics were on our side the hose was long enough, but the geography certainly was not, to get to the other side of the
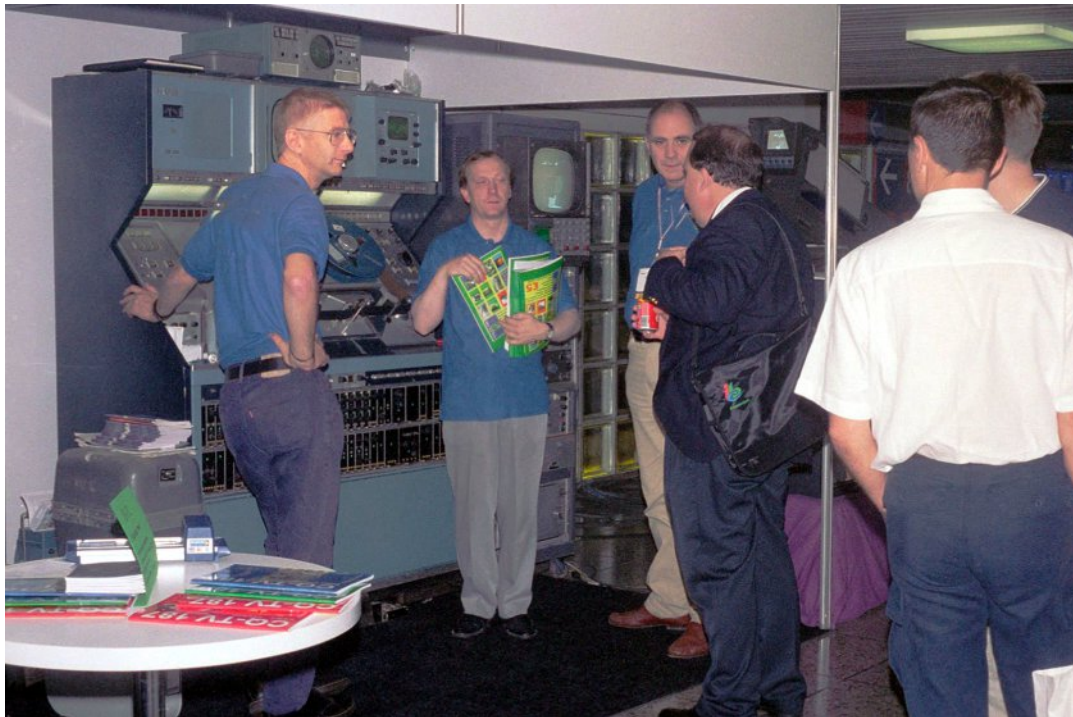
wall was a 20min round trip including stairs escalators and several corridors, so we drew up a short straw list to take turns to trim and refit the pipe end every 3 hours.

The technology held together, the RCA TR70B is built of germanium transistors which are renowned for having a finite life, one or two did choose this visit to Amsterdam to expire, but between them and the hosepipe trimming I suspect we ran the machine on demand for all the exhibition without any serious down time. This included some considerable overheating from the unseasonable warm weather. Jill and Pauline went shopping for a fan and returned with something that could only be equalled by a small hovercraft. It worked and I suspect it has now become a permanent resident in the BECG equipment store.

On my return from an air hose refit I found quite a gathering of people and questions being fended by the team.

The Stand up and running
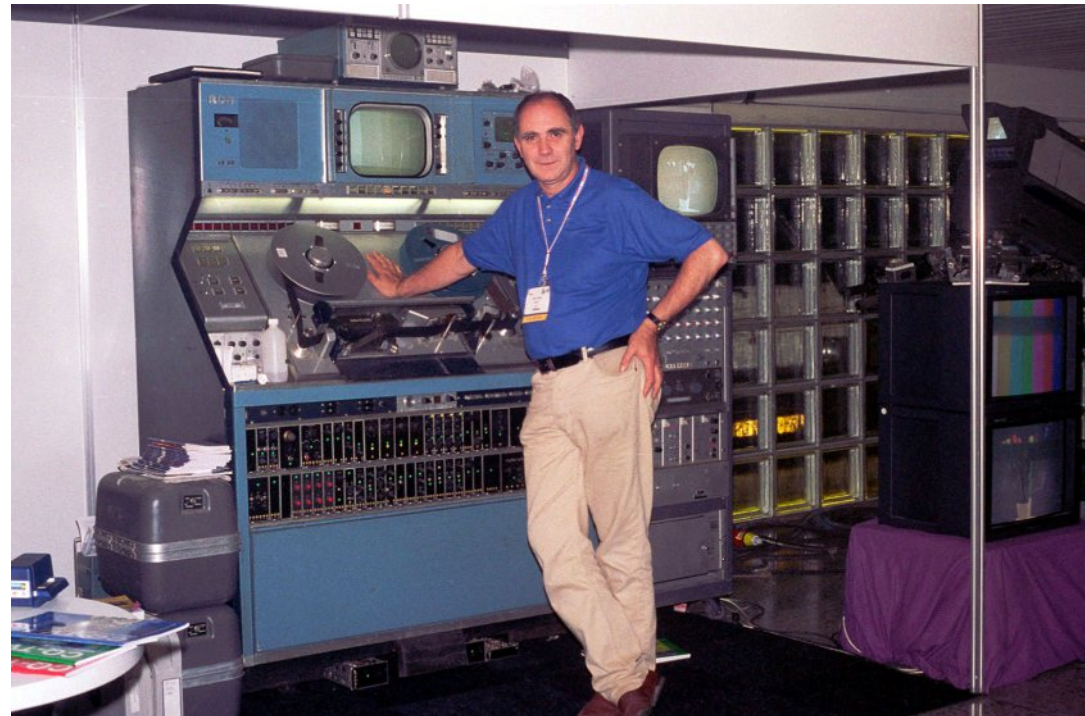
TR 70 up and running at IBC 1999

One was from an ex colleague who identified the machine as ex YTV, by the unique black pushbutton just above the module bay, no its not in the manual and it's exact function is a secret known only to members of YTV VTR department and must remain that way.

YTV disposed of Six TR70 machines, one TR50 and one TR61. One TR70B is part of the BECG collection, one went to the Bradford Museum and the TR50 went to Becketts University. The TR61 ex OB's is also whereabout's unknown. I have no idea where all the other machines went to, or if they still exist.

Everything changed in the 80's when the company re equipped with helical scan machines, which were cheap and purported to be reliable.

The Quads cost 70k in their 60's heyday (by comparison a semi-detached house in Leeds would cost 3 to £4k.) The heads last around 300 to 500 hours before an expensive rework (often around £2k), to run one of these machines, it needs to seriously earn its keep. I think we used up two spare heads during the exhibition (VTR machines should only be run in a clean air area and this location was anything but).

My thanks to the team it was hard work, both the transporting of the equipment there and back, the setting up and on-site running repairs which were frequent, but nothing that was unsurmountable.

There was considerable interest in both the camera and the VTR, it is a pity we did not have the BECG up and running then we would have recruited a lot of members.

L to R Myself Paul and Dave Hill at the close of IBC 1999

Read CQ-DATV

For all the missing Pieces of Television

External links

If you have an eBook reader that does not have WiFi then you will not be able to use the hyper-links in this publication. If you have an eBook reader that has WiFi then you will be able to providing you are in a WiFi zone.

But if you have a Kindle 3G then yes, but only to Amazon, and there is not a lot of ATV material on their site.
Smart phone reading apps are ok providing that you have a 3G data connection.

Note: These links will fire up your devices browser and if you are using 3G/4G then you will incur data usages charges.

Legal Niceties (the small print)

E&OE. Whilst every care is taken in the production of this publication, dotMOBI accepts no legal responsibility for the advice, data and opinions expressed. dotMOBI neither endorses nor is it responsible for the content of advertisements or the activities of those advertisers. No guarantee of accuracy is implied or given for the material herein. dotMOBI expressly disclaims all liability to any person in respect of anything and in respect of the consequences of anything done or omitted to be done wholly or partly in reliance upon the whole or any part of this publication.
As the regulations for the operation of radio frequency equipment vary in different countries, readers are advised to check that building or operating any piece of equipment described in dotMOBI will not contravene the rules that apply in their own country.
All copyrights and trademarks mentioned in this publication are acknowledged and no infringement of the intellectual copyright of others is intended.

Copyright

The articles contained in this publication remain the copyright of their respective authors and NOT dotMOBI. Any reproduction of such articles must be approved by the author of that article.

Notice to Contributors

Authors are alone responsible for the content of their articles, including factual and legal accuracy, and opinions expressed by them may not reflect the editorial stance of the publication. Material submitted to dotMOBI should not infringe the copyright of other writers or bodies. Contributions are accepted for publication on this basis alone. dotMOBI publications - *https://cq-datv.mobi*

Author Guidelines

CQ-DATV welcomes contributions from our readers. It does not necessarily have to be on ATV, as long as it is of interest to our readers.

Although a formatted article showing the layout can be sent, we prefer an unformatted text file of the script, along with annotations of where important images should be placed. All images should be identified as Fig 1 etc and sent seperately.

Images should be in PNG format if possible and the best quality available. Do not resize or compress images, we will do all the rework necessary to publish them.

If you are sending a construction project, please include the dimensions of any pcb's and make the pcb image black and white, not greyscale.

CQ-DATV reserves the right to redraw any schematics and pcb layouts to meet our standards.

CQ-DATV is published on the last day of the month. The cut-off day for submissions/corrections/alterations is 5 days before the day of publication.

Please note that this mailing list is only used to advise interested people about the availability of new issues of CQ-DATV magazine. The list is not, and never will be, shared with any other organisations.

Want to be notified when issues of CQ-DATV are published? Join our *mailing list*.

LEAD ME NOT INTO TEMPTATION. OH WHO AM I KIDDING, FOLLOW ME, I KNOW A SHORTCUT

CQ-DATV

Followed all over the world