

P5 NEWSLETTER

ATV INTERNATIONAL CONTEST



The international Television Contest will take place on Saturday 14th September 96 starting 7:00 PM local Time and finish 1:00 PM Sunday 15th. As usual, STG will be taking part using the callsign G7ATV/P. Check Text

service for possible updates on GB3ZZ. The venue should be the same field as last year near the Castle of Comfort Pub on the Mendips. Please try your best to make contact with us over the weekend so we can gain as many points to **Win** and enable us to try out a few developments to improve the repeaters. We will be operating on 70cm 23cm, and 3cm with talk back on 144.750 MHz.

The contest requires vast amounts of help so can you lend a hand? if you can, contact Phil (G1HIA), who will be co-ordinating the event or just simply turn up. We start erecting the site early Friday evening and then take a well earned rest in the Pub afterwards. I think this mode of operation is practised during the weekend !!

REPEATERS

Everything is working well with increased activity from new and old colleagues. We have several engineering plans for 96/97 yet to be finalised but we hope to increase the coverage and quality. Please keep up the activity, don't lose the bands.

GB3XG

Ivor G1IXF, has listed some simple facts about GB3XG to assist you in setting up your equipment:-

Input Freq 10.278 MHz
Output Freq 10.150 MHz

Aerials:- Slotted Wave Guide (Omidirectional)

Location:- Dundrey Hill, 233 M. A.S.L situated south of Bristol just off the A38 near Lulsgate (IO81QJ). OS Grid Ref 553667.

To help you line up your aerials on the GB3XG site it may be useful to find and receive the two beacons which are on the same site.

GB3BSL 432.934 MHz
GB3USK 1296.875 MHz

The longest contact so far into GB3XG is G4CBU from Newcastle-U-Lyne in Staffordshire.

P5 NEWSLETTER

If you have any articles for P5 please send them to me at the address below. Documents on disk, preferably in the format DOS Text please. All disks will be returned. I wonder if our readers in New Zealand, America, Ireland and Belgium have any interesting TV news / articles for the UK readers?

TV PRODUCTION



We hoped you enjoyed the Documentary shown on the 4th June about ATV. I was away at the time and therefore, recorded it. I think congratulations are in order to Bob GW8AGI and Brian GW6BWX for their enlightening and professional conduct during the program. The program produced an interesting response at our Longleat Radio Rally Stand from the people who watched the program. I look forward to the program being shown on other networks.

DAIRY 96

- Bristol Radio Rally, Temple Meads Railway Station, Brunel Sheds. Sunday 1st September 10:00 AM.
- BATC Conference (CAT 96) at the Post House. 31st Aug / Sept 1st. Tel 01522 703348.
- Severnside TV Christmas Social, Saturday 14th December 7:30 PM. Elm Park, Filton, Bristol. Family and friends welcome. Please bring along refreshments and goods for the Auction.

MEMBERSHIP

Nearly all the membership has been renewed, thank you. Those who are still outstanding will find reminders enclosed with P5.

*Please encourage membership
and support the group*

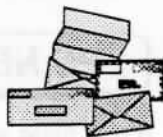
ADDRESS

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P5 NEWSLETTER

EDITORS MAIL BAG



Dear All

The Auckland ATV interest group (of the Auckland VHF Group inc., branch 66 of NZART) follows the STG activities via P5 with much interest. I take P5 to our monthly informal meetings, and loan copies out to the members.

We see STG, as a well organised group pursuing high quality ATV. The STG is no doubt, several years ahead in technical performance and has much to offer groups like ours in showing the way to better ATV rather than "that just works". The use of the Video Equaliser in GB3ZZ is just the sort of thing that needs to be implemented in Auckland.

The repeater system (70cm 443.25 AM) with channel 39 (619.25 MHz VSB) 50cm ham band output definitely rolls off the HF end of the video spectrum to some extent. Some stations, have difficulty in getting colour through the repeater. The local test cards from the site are much stronger in colour. In fact, one video generator had to be re-trimmed from 100% colour to 75% bars as it was glaring on some receiving stations.

There is only a small amount of 23cm FM-TV in Auckland, but with the STG and BATC showing the way, I hope that more can be done in the way of ATV links between sites. Technically, better designs are now available, so the pitfalls of the old style gear can be avoided i.e. Varactors Multipliers.

10GHz TV, is very rare here. We are just in the "Gun" age still (like stone age?!), so your material on LNB receivers and transmitters is just what we need.

A couple of STG video tapes are played on air from time to time. A tape about the new 10 GHz system would be great !! All the best to Phill G1HIA, Ivor & VIV and all the STG members and friends I met a couple of years ago on a G-Land trip.

73 de

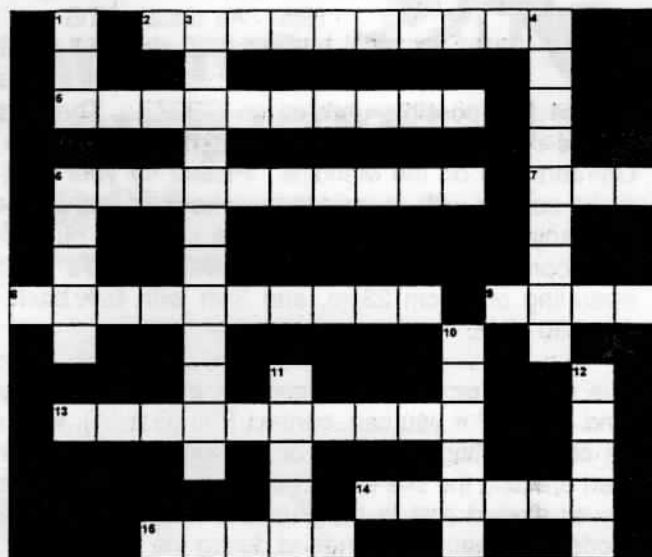
Michael Sheffield ZL1ABS

Editors Reply

Mike, thanks for letting the UK members know what is happening down under. I do recall your visit at the repeater site and the North Bristol Radio Club. If you have more interesting news please drop us a line. New tapes on their way.

X WORD

Have a go at the crossword below. In the interest of sanity, no conferring on the air !! Answers next month.



Across

2. High Freq
5. Stage Conversion
6. Electric and Cardiod
7. Down Converter
8. Group you Subscribe
9. USA TV Standard
13. Electronic picture
14. Washing powder
15. Select a station

Down

1. A well known meat
3. Mixed with Vision
4. Space craft
6. Fade and Wipe
10. Other site
11. Cats whisker
12. Twin Earth

USING THE AMSTRAD SATELLITE RECEIVER FOR ATV BY IAN F BENNETT G6TVJ

It was new years day 1992 when first received GB3ZZ and I remember seeing Brian Kelly GW6BWX holding up a LNB to the camera, at that time I was forced to lip read as I had no 6Mhz sound or in fact 2 Meter reception. I was using my original Amstrad satellite RX and at that time having to share it between the astra transmissions and GB3ZZ it actually worked well all I had for an antenna was a home-made 5 element yagi in an upstairs bedroom. Things have moved on from those early ATV days in the G6TVJ household but the trusty Amstrad SRX100 receiver lives on.

The SRX100 is not a bad receiver for ATV and with a few modifications it can be improved further, they are now available in large numbers from rallies at very cheap prices. The receiver is quite straight forward to use, they are digitally tuned which in my view makes them useful for ATV as station and repeater frequencies can be stored in non volatile memory. I use mine for portable operation but you do need an inverter to power them but it should be possible to modify them for DC operation, if anyone wants to do this I can supply a copy of the power supply circuit diagram.

Video Mods

There are a number of resistors and electrolytic capacitors which need replacing to improve the video low frequency performance and increase the gain to compensate for the lower video deviations used in ATV. The amstrad uses a video clamp/anti dispersal circuit which fails at reduced deviations causing severe line tearing so the video level does have to be watched. Replace the following to bring up the video LF-

C704,C707,C730 become 1000uf 16V C701,C703 become 470uf
C706,C733 becomes 100uf

Change R706 from 1K to 330R and wind up VR701 to max to bring up the video level while watching GB3ZZ (see tuning guide).

Audio Mods

The Amstrad SRX100 does not normally tune 6 Mhz sound however there are a couple of solutions to this. The receiver uses a 15w subminiature "D" type to connect to an external decoder, this socket can be used to extract the baseband signal and feed an external 6 Mhz demodulator. I used a TBA120 circuit supplied by Elector magazine to demodulate the sound and then feed it back into the receiver. A 6Mhz sound board is also available from Cirkit Electronics which would possibly fit inside the case.

Another solution is to replace a crystal in the receiver which then retunes its own internal sound circuitry to 6Mhz. October 94 Radcom details how to do

this, a kit of parts is also available and advertised in CQTV, I have tried this kit and it works well. It basically revolves around replacing one of the sound local oscillator crystals to convert the 6Mhz to the 10.7 sound IF. X302 becomes 16.7 Mhz also change C303 to 390pf C301 to 22pf and C304 to 22pf. At about £10 this is probably the simplest solution contact Tom G3LMX for further details (QTHR).

LNB power mod.

Like all satellite receivers the amstrad supplies volts up the coax to the LNB. If you are using the unit for 24cm ATV then you will need to disable this. Unfortunately the power is not separately fused so a track on the PCB will have to be cut. If you are going to use the RX for 3cm 10Ghz ie GB3XG then the supply will need to remain. I put a switch on the back to turn it on and off, its worth remembering that shorting the LNB supply will blow a fuse which takes out part off the receiver as well. Figure 1 shows which track to cut on the PCB. I used a twist drill and cut it like veroboard. The LNB supply voltage changes according to the required satellite polarisation between 13V and 17V .The H/V switching is not used for ATV so its best left with the H/V LED extinguished . VR504 can be turned fully clockwise to bring the volts up to about 18, most LNBs should work ok at this level.

Operation

The Amstrad is quite simple to operate and has the advantage that settings can be stored for later retrieval. To tune the receiver to an ATV signal eg GB3ZZ simply repeatedly depress the tune up or down buttons, the LED display will show the input frequency ie for 1.316 Ghz the display will show 1316. The receiver tunes in about 12 Mhz steps so you need to look for a signal around the required frequency. The receiver also has a slightly strange AFC action which causes the unit to drift into and sometimes out of tune. When looking for a signal allow the receiver to settle before stepping it on in frequency, the display is only a guide and will be a few megs out, my receiver tunes GB3ZZ at about 1325. Strong signals may appear across several tuning steps so find the best one. When stepping the receiver up and down the polarisation voltage on the LNB will alternately change between the H and V levels, this should not be a problem but it is best switched so that the H/V LED extinguishes, before storing a signal. Once a signal has been found the location can be stored. Press the preset button on the receiver and the display will change to a flashing number between 1 and 16 press preset again and the frequency will be stored at that channel number. To change the channel number press preset again and press the required channel button while the display is flashing press preset again to store the change. To recall the frequency stored press recall. The audio is selected by pressing the audio button, the unit will cycle around six different audio modes, for the audio mods described earlier select audio 5, it can then be stored to the selected channel number by pressing preset. The 6Mhz audio subcarrier should now be audible on the UHF output, on the LH phono and scart

outputs. Useful frequencies can be stored in the RX like repeater input and output frequencies and also frequencies for 10 Ghz operation.

The frequency display refers to the tuner input frequency so for 10Ghz operation the local oscillator frequency needs to be taken into account. The displayed frequency is the difference between the LNB LO or puck frequency and the wanted receive frequency. For example - for a LNB with a 9.1 Ghz LO receiving GB3XG on 10.15 Ghz the displayed frequency on the front of the amstrad is 1050. If the receiver is used as I do for 13cm operation with a "s" band LNB then the LO frequency is 3650 Ghz giving a reading of 1320 for the 2.330 Ghz TV simplex frequency.

RF Adjustments

I have found with two examples that they may benefit from tweaking the tuner module itself. There are two trimmer caps marked C70 and C69 inside the tuner unit. The lid can be removed and the trimmers adjusted on a weak GB3ZZ signal for best picture. C69 effects the deviation and C70 effects the tuning, be careful to adjust them slowly as it is possible to loose the signal. It is possible to tweak the AFC system, VR101 can be adjusted which effects the AFC drift and where the receiver finally settles. It can be useful if the receiver is caught between two tuning steps.

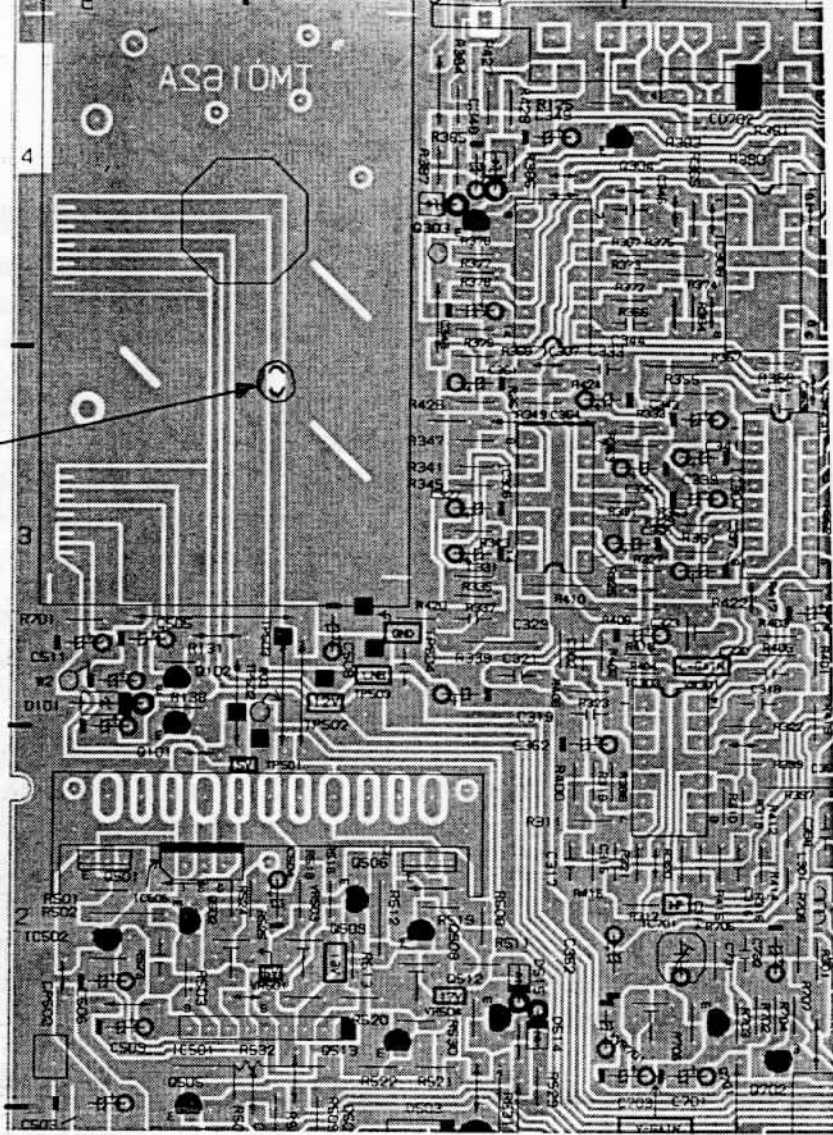
Results

I have used this receiver for a number of years now with good results, the unit gives sharp pictures and normally stable pictures. Like many satellite receivers it is really designed to operate with signals containing a dispersal signal. A dispersal or energy dispersal signal is a frame rate triangular waveform which is added to an analogue satellite signal in order to spread out its spectrum and reduce interference to terrestrial radio links. This signal is removed in the receiver by a video clamp circuit, because of the clamp circuit the LF response of the baseband signal emerging from the tuner often lacks LF which is then aggravated by already distorted ATV signals, the clamp circuit then misclamps the video and you end up in a bit of a mess. The receiver is OK with GB3ZZ and GB3XG but there are better tuners about if you want the best. I have built a receiver using an old aztec tuner unit which gives particularly flat undistorted video without clamping. I use it for assessing the LF performance of ATV transmitters.

The amstrad seems as sensitive as any other sat receiver but does benefit from an external preamp, I use a unit made by LNW which works OK.

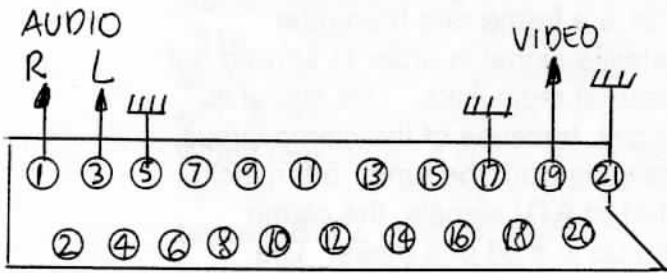
Thats all for this P5 happy ATV!

FIG 1

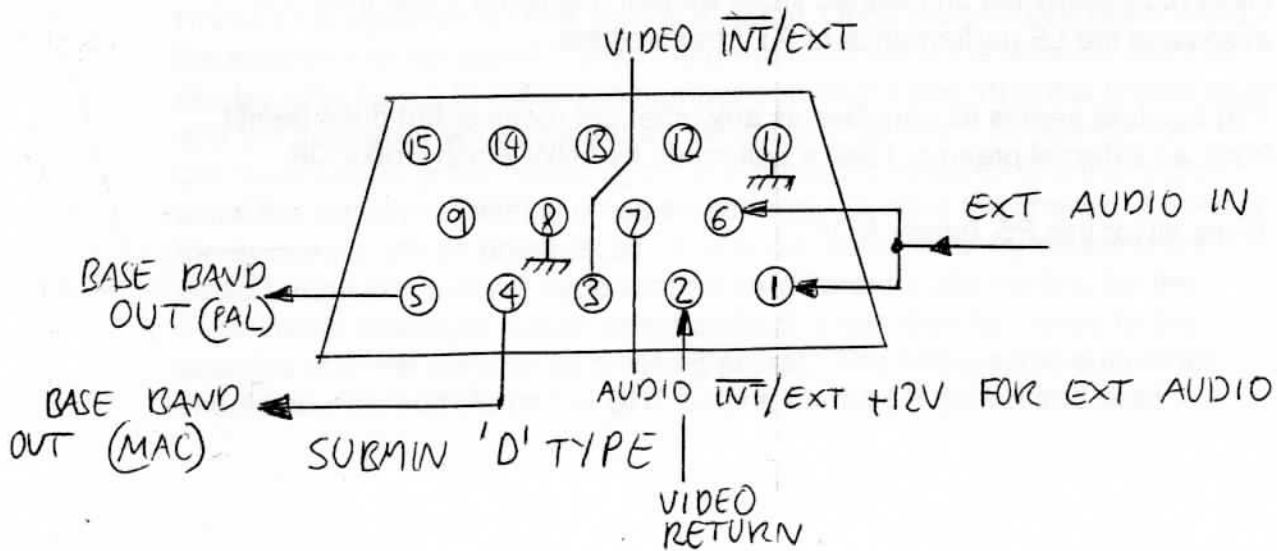


CUT PCB TRACK HERE TO REMOVE LNB VOLTS

AMSTRAD SRX100/200 PCB



AMSTRAD SCART SOCKET



THOSE WERE THE DAYS ...

Some ramblings from the beginning of our Group by Shaun O'Sullivan G8VPG

Having been put out to grass a year or so back, I spent quite a while recovering from the rigours of helping to run a Repeater Group for nearly nine years. After I was released, I started to reminisce like most old buffers do about some of the antics we got up to in the early days of the Group. Some of you might be amused by what follows : some of our more recent members might even learn a thing or two!

When we first used the GB3ZZ site at Filton, it was rather different from what we are now all so familiar with. The Repeater was housed on a high shelf in the corner of the Caretakers storage cupboard, alongside a large quantity of toilets rolls, assorted mops and brushes and boxes full of lavatory cleaning fluid. At least, it smelt fresh and clean ! Being such a small room, it was extremely awkward to reach the hardware located on a high shelf. We used to balance on whatever chairs or benches we could drag into the room, and on more than a few occasions fell off, accompanied by much bad language and taking of oaths ! The aerial cables to outside were run through the void between the ceiling and the roof joists. If you look carefully, you still see the joins where Roger G4ZQF brought down the ceiling.

The Parish Pavilion building was originally constructed with a flat roof. Shortly after the Repeater was switched on, the Council told us that they were planning to replace the roof with the new profiled steel one which you see today. This created a lot of work for us, or rather for Ivor G1IXF who from day one has done most of the site installation work. The original aerial had to be removed and we were off air for a short period. We had to devise a means of supporting the aerals without putting holes through the Councils rather expensive, brand new roof. Luckily the Architect running the job was an old pal of mine, and he sent me a copy of the design drawings. These showed that the existing roof top tank room would still protrude above the line of the new roof. Ivor devised a

structural steel support that was bolted to the walls of the tankroom. The new roof was fitted around this, and a pipe duct was installed through the roof to enable our cables to exit the building.

This duct was in the corner of the tankroom, opposite the access doors. There was a gap of just over a foot between the top of the water tank and the underside of the roof. Pulling cables through was a difficult and very dirty task, since the lid of the tank had many years accumulation of dust on it. I seem to remember that Viv & Ivors (then much younger and smaller) son John was persuaded or bribed to wriggle into this gap, and emerged looking like one of those Victorian children sent up chimneys to brush them !

The aerals were re-erected after a couple of months, and the new steel support installed then is still in use today.

Another big change at the site was the construction of the new flats by the tennis courts. In the words of the TV character, we can legitimately claim that "we used to come here when it was just grass" ! This did concern us since the buildings are three storeys high, and we were worried that they might block our signals in that direction. Luckily this was avoided by slight upward adjustments to the aerals, of the kind that most Radio Amateurs are familiar with ! Eventually our ever sympathetic landlords suggested that the limit had been reached, and we should not water it any more. The aerial cleared the flats and was fully installed long before the first residents moved in, not that we have ever had any complaints. May be they think that the mast is connected to the nearby Police Station, in which case please do not disappoint them with the actuality ! A further refinement of the new aerial system was the tilt-over base and winch. This allowed the aerial system to be lowered for maintenance work quite simply.

There are many other tales that I could tell : for example, every Saturday the cricket club would trip the mains power supply by plugging in too many kettles in the kitchen, resulting in the Repeater going off air (and another call out for Ivor). Perhaps you would let the Editor know if you would like to see more and I will try to oblige.

P5 NEWSLETTER

**DON'T FORGET !!
SUPPORT US TO WIN THE
INTERNATIONAL ATV COMPETITION
14TH SEPT 7:00 PM**

STOP PRESS

**THE ATV DOCUMENTARY SHOWN
4TH JUNE HTV WALES
WILL BE RE-BROADCAST
11TH SEPT 7:00 PM HTV WALES**

**SEE YOU AT THE BRISTOL RALLY
CAN YOU LEND A HAND ?**

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