ATCO NEWSLETTER

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ATCO HAM IN THE SPOTLIGHT

This time the camera focuses on Frank Amore, WA8HFK. Frank has the same situation, as does N8NT, which permits no outside antennas. As a result, I've seen some really creative antenna work. I don't want to say too much because the Hilliard City officials might read this but I'm sure Frank will stay one step ahead of the situation. Keep us posted, Frank!

Besides the ham equipment, I think I've never seen so many computers in one house before. Frank describes each one as having a special purpose so there's no need to share resources between them. I stopped counting at five upstairs then was led downstairs to two more. Frank's house could appropriately be renamed as "computers-R-us".

ACTIVITIES ... from my “workbench”

Well, here I am again and it's Newsletter time! Since I can't think of something cute to say this time, I might as well get right into the meat of our hobby. However, as I punch away at the keyboard, from time to time I may let my mind stray so I've got to concentrate. Ready? Let's go!

Well, the first thing that comes to mind is the never ending, troublesome "auto hiccups" mode the repeater gets into on occasion. To be quite honest, Dale, WB8CJW, and myself have been trying to find out what is causing it for quite a while. The problem, as most of you know, is on the trailing edge of the repeater identification cycle, it shuts down then apparently sees some signal appear at the 439.25 MHz input so it brings the ID back on for another timeout cycle. This repeats for as long as 20 minutes before it shuts down. We know the signal is coming in through the 439 input for when it's disabled, the problem goes away. But that's our main input so disabling it doesn't solve anything. Dale found that moving components around inside the cabinet change things even to the extent that leaving the cabinet doors open solves the problem. That's why each time he tinkers with it, it seems to clear up. Feeling that it's better, he closes the doors and leaves only to get home and see that it has returned. Shielding various modules hasn't helped and I personally feel that RF is getting into the controller, which is not shielded. However, only the 439 receiver input disabled eliminates the problem. The receiver is shielded but perhaps not well enough. Maybe a new 439 receiver design is in order. We'll see.

Next on the agenda has been the strange interference that has shown up at 915.04 MHz which is almost right in the center of our 915.00 MHz link input. The signal is an unmodulated carrier and quite strong originating from the downtown Columbus area. I could even pick it up at my QTH about S4 from 15 miles away. The radar link signal was enough to override it but not without severe interference bars. My temporary solution was to replace the 6dB antenna at Channel 4 with a 16 dB one. The increased signal strength helped but some interference still rode through. Then I decided to not fight it and just move from 915 MHz to 910 MHz so I ordered a crystal for 910 and also 920 if we needed it. The day that the crystal arrived, the interference disappeared. (Is someone playing games with us?) In any case, I decided to construct a new 910/915 receiver and have 910 or 915 remotely selectable. The interdigital filter can be adjusted to pass both 910 and 915 so it became easy to do. At this time, the receiver is complete and waiting for some of my free time to install it. So now we will have either 910.0 MHz or 915.0 MHz input frequencies available. Nice touch, huh?

OK, if **OUR** problems are not enough, we have to work with other AC power problems. One recent evening I received a call that our repeater as well as another repeater was out of service and had been all day. Since severe weather was a real possibility that evening, I decided to go to the repeater immediately and check it out. When I arrived on site, I found the 20 amp circuit breaker in the room power panel tripped. That breaker feeds power to our system as well as another repeater and one other commercial system. I reset the breaker and everything came up running. That’s GOOD, right?… Wrong! At that point I didn't know what tripped it in the first place so I wiggled everything I could in our cabinet looking for intermittent shorts…nothing found. Then I noticed the FM repeater wasn't coming up correctly. It would try to transmit then shut down. After a while, the 20 amp fuse in the FM repeater high voltage circuit popped. We found the problem. It's either a shorted tube in their final or a bad power supply component, don't know which. I believe that system is still down but no problems have surfaced in our system. I know it's not good to focus on others' problems, but sometimes it feels good to find out for once that it's not our fault. Enough said!

Our pulse type interference on the 2.4 GHz input continues. It's that interference that is keeping us from using the 2.4 GHz input so it's important we find it but so far, no clues. A spectrum analyzer sweep of the band at the site showed no external signals within the interdigital filter passband but it continues. It's a real head scratcher. Our RED-WHITE-BOOM activity July 3rd might prove to be an important clue. It showed me that we had severe interference at that site also which is 1/4 mile from the repeater. In fact, it's much stronger and is on all 4 Wavecom bands. Since we used the Wavecoms for only a short distance transmission (about 20 feet) the signal is strong enough to override the interference adequately. However because it's on all 4 bands and stronger at another site, it a possibility that the interference is riding in on the IF of the Wavecom…unlikely but possible. We need to check it out. More on that saga later!

Well, that’s about it this time. I need to finish this so I can work on the antenna measurement equipment for our antenna party on the 23rd. Be sure to attend if you can with or without an antenna but if you DO come try to bring some snacks for the "workers". See the notice on page 12. See everybody at the party!
…WA8RMC

Mirage Amplifier ATV modifications Revisited

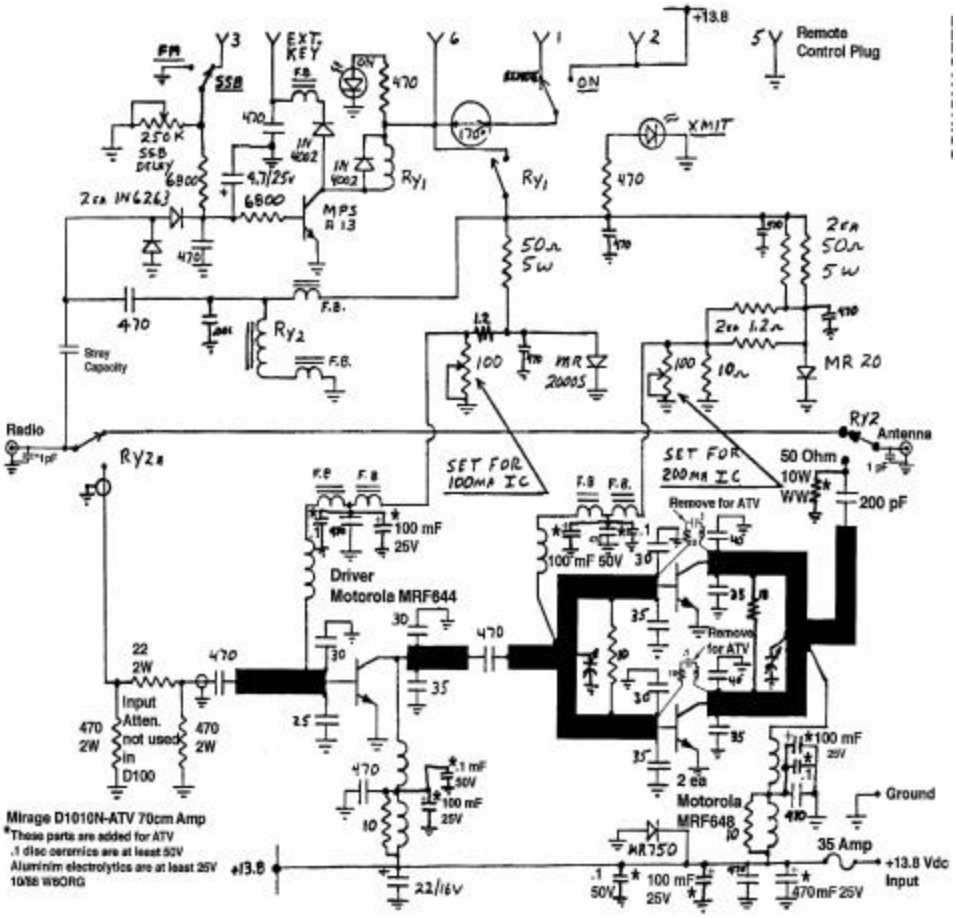
***ED note**: the following article was presented in its entirety in ATVQ magazine Volume 13 - No 2. I included just the modification part here in the hope it will serve as an informative guide to those with and without the Mirage amplifiers. As usual, Tom, W6ORG, keeps well informed of modifications of this sort. Enjoy! WA8RMC*

The Mirage D1010-ATV, D100-ATV, D3010-ATV or respective repeater versions all have the modification done at the factory for ATV and all mode amateur radio service. The non-ATV version has a feedback network between the base and collector to prevent low frequency oscillation in the final amplifier transistors. This network, however, will also distort the color, sound and horizontal sync in ATV operation. The modification engineered by ***P.C.*** Electronics for Mirage in the mid 1980's, simply removes this feedback network consisting of a series .1 mF disc, 10 Ω resistor and wire wound inductor. However, depending on the age of the amplifier, you need to check to make sure that there is a 50 Ω 10 Watt power resistor connected between the RF output and ground. This will give a 50 Ω low frequency termination but, being wire wound, look like a high value inductor or RFC at 70cm. The resistor will prevent low frequency oscillation when the series feed back networks across the base to collector of the finals are removed. If there is no 50 Ω 10 watt WW power resistor located on the output side of a 200 pF uncased mica cap, you can get one from Radio Shack (271-133) and solder it in.

The original modifications appeared in ATVQ and in a column by W6ORO in the first quarter of 1989 issue of ATVQ. Amplifiers manufactured after this date have the power resistor and other modifications so all that is needed to make a standard amp into the ATV version is to remove the series feedback network. Those manufactured before that date need to be visually checked for some added 470mF, 100mF 50V aluminum electrolytic caps and .1mF 50V ceramic disc caps. Refer to the schematic. There should be all 3 of these caps in parallel on the +13.8 V line just after the fuse. There are should be 100 mF in parallel with .1 mF disc caps to ground between the RF chokes that feed the bias to the driver and finals and also the collectors. All these capacitors are necessary to keep the bias and collector supply voltages stable and constant during the high peak currant swings at the video modulation rates up to 5 MHz. The 1pF disc caps at both RF connectors reduced some of the loss by matching our some of the internal coax lead inductance by better than l dB. This will help in both transmit and receive. Make the cap leads direct and short at the connectors.

The modifications have no effect on other modes, except maybe to improve the SSB audio envelope linearity. The mode switch should be left in the SSB position for ATV so that the automatic RF T/R sensing does not drop out or chatter in the case of a very white picture where average power will be low - you may want to increase the delay. This switch has nothing to do with the amplifier bias or linearity. If used at a repeater, you may also want to remove the power leads and replace with a SO-239 connector and bypass with 100pF caps.

Yes, it is absolutely necessary to first make sure that the peak envelope power from your ATV transmitter does not exceed the maximum input power specified for your specific amp before connecting up and follow the set up procedure on the first page exactly - do not blind tweak or vary the RF drive, blanking pedestal or video gain controls by just watching the picture. You must do the set up procedure as described with a RF power meter - borrow one if you have to - in order to have a stable picture with the proper video to sync ratio and not splatter the band.



Dl010 vs Dl00. The only difference between these two models is a resistive Pi network attenuator on the input. To make a D1010 into a D100 if you only have a 1.5 watt pep ATV transmitter, is to simply remove the 3 resistors (two 470 ohm and one 22 ohm 2 Watt) and put a short #18 buss jumper in place of the 22 Ohm 2 Watt resistor. Also note that this changes the maximum input power from 15 watts to 7 watts so as not to blow the driver transistor. The D3010 is the D1010 without the driver stage.
…Tom O'Hara W6ORG

A NEW ATV 900/1200 MHz RECEIVER ENTERS THE MARKET

We now have available a dual band synthesized FM ATV receiver - 33/23FMR. This imported receiver is converted for the ham bands by us and has 8 front panel selected frequencies by a rotary switch: 910.0, 915.0, 920.0, 1248.0, 1252.0, 1255.0 1265.0 and 1280.0. Dual video and line audio outputs and 1.3x7.5x5" metal case make it ideal for repeater or link applications where one output goes to the repeater transmitter and the other to a local monitor. It takes 12 Vdc @ 380 ma and comes with a wall plug power supply. Antenna input is a type F jack but we supply an F plug to N jack adapter. De-emphasis network parts are included with the application note. You can down load a
picture of the receiver, which is contained within our New Products pdf file on page 4 of the http://www.hamtv.com web site. Price of the 33/23FMR receiver is $150. (*Note: I bought one of these and am very surprised with its high sensitivity. It is now in place at the repeater as the 900MHz link input receiver and performing very well! WA8RUT and N8LRG also bought one and are equally impressed. It is a welcome addition to the hamshack…Ed)*

I was asked about the sound on the new receiver. It is set for 5.5 MHz but will lock on +/- a few hundred kHz no problem. There is a coil that can be tweaked up to 6.5 and as low as 5.1 MHz if you so desire. This is easily done by receiving a signal on the sound subcarrier frequency you use and adjusting the slug on L For about the same AGC voltage as no signal on pin 7 of the 3089 IC.

The receiver is set up for the standard 4 MHz deviation but the IF filter is a bit wide. Rather than a desirable 17 MHz wide SAW filter, it has one that is about 30 MHz. I assume they did this to accommodate some of the free running types of transmitters. I may look into a source of 17 MHz SAW filters, but if used at a repeater site, the input bandpass filter being 17 MHz should suffice to reduce the possibility of adjacent channel interference.

The receiver is synthesized so is very stable for remote sites, portable or mobile where there will be temperature changes. Sensitivity is quite good also. No preamp is necessary, but an antenna mounted preamp is recommended if your coax loss is greater than 3 dB and you need the ultimate sensitivity. After I play with it some more, I will up date the app note to let everyone know.
…W6ORG, Tom O'Hara W6ORG, P. C. Electronics

THIS COULD HAPPEN TO YOU!….K8AEH knows for sure.

(K8AEH is currently on 2-weeks of jury duty)

The Judge said, "Will the juror with the ATCO Newsletter please put it away and pay more attention to the curvaceous blonde on the witness stand who is suspected of having removed her boyfriend's family jewels with a dull butcher knife when they were in bed together while reading his newly arrived ATCO Newsletter with W8RRF's picture on the cover? Bailiff, "Wake-up the juror immediately, and bring that document to the bench now! I wish to discover what is so damn interesting so I can get my own copy and get-on ATV also.
…Author Unknown.

U.S. ENDS GPS SIGNAL DEGRADATION…pinpoint ATV signals.

The Clinton administration said today (May 1) it will stop degrading the accuracy of publicly available Global Positioning System (GPS) signals at midnight tonight. Elimination of the degradation feature, called "selective availability," means civilian users of GPS will be able to pinpoint locations up to 10 times more accurately than before. The White House had said it would seek to eliminate the feature entirely by 2006, but concluded that moving sooner would not harm U.S. national security. (GPS signals have been degraded since the satellite service became operational in the 1980s to prevent the use of the navigation data for weapon targeting and other military uses).

"Along with our commitment to enhance GPS for peaceful applications, my administration is committed to preserving fully the military utility of GPS," President Clinton said. "The decision to discontinue [selective availability] is coupled with our continuing efforts to upgrade the military utility of our systems that use GPS, and is supported by threat assessments which conclude that setting [selective availability] to zero at this time would have minimal impact on national security."

Making the decision easier, the White House also said the Pentagon has "demonstrated the capability to selectively deny GPS signals on a regional basis when our national security is threatened."

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LEAGUE CONTINUES OPPOSITION TO EXPERIMENTAL VIDEO PLAN

The ARRL is continuing its opposition to attempts by Los Angeles County, California, to obtain an experimental license permitting airborne microwave TV downlinks (TVDL) in the 2402-2448 MHz range. Amateurs have a primary domestic allocation at 2402-2417 MHz. In a filing with the FCC, the ARRL again asked the Commission to deny the County's application.

The LA County proposal, filed last August 9, seeks FCC authorization to develop a TVDL system for public safety purposes using four 10-MHz channels at 2.4 GHz to transmit video images from helicopter-borne cameras for use by public safety agencies. The ARRL has called the application a "foot in the door" toward gaining a permanent berth in the 2.4 GHz band. The League also has filed a Petition for Reconsideration of the granting of a similar experimental application filed by the City of Los Angeles.

In a Reply to Opposition to Informal Objection filed in late April, the ARRL reiterated that Los Angeles County has failed to justify its experimental authorization request. The League said the County has not provided any assurance that the TVDL system would not cause harmful interference to amateur users. The ARRL also contends that it would be impractical, if not impossible, to use frequency coordination, frequency agility, directional antennas and other technology--as the County has suggested--to cooperatively share amateur spectrum and still prevent unintentional interference.

The LA County proposal characterizes the 2402-2448 MHz band as "underutilized" and asserts that current occupants--including Amateur Radio and industrial, scientific and medical instrumentation--would not suffer harmful interference. The League called the LA County monitoring studies "fatally flawed" and said they don't reflect current band occupancy. Citing ATV repeaters and video links as well as the impending Phase 3D amateur satellite operation, the League said the 2.4 GHz band enjoys significant use by the LA area Amateur Radio community.

The League's Reply points out that TVDL operation already is permitted in the public safety frequency pool at 2450 to 2483.5 MHz. LA County is licensed for video operations on a single 2.4 GHz channel but says it encounters conflicts with broadcasters.
…From ARRL members only web page bulletin vol. 19 #18 on 5/5/00

UNLICENSED VIDEO TRANSMISSION

I'm just wondering what, if anything, to think or do about the rise of freely available video transmitters in the 70cm ham band. I recently stumbled across one example at eBay, and when I went looking, found a whole rat's nest. I sent an email to one seller and received this response. Am I wrong? Are there devices a non-ham can use to legally transmit on 434 MHz? I didn't think so but... with the proliferation of these things, one wonders what can or should be done.

The reason why we see so many of these illegal sellers now is that the perception is that the FCC is not enforcing. It is illegal to offer for sale any RF device that requires FCC Compliance - Part 2.803. I saw a bunch of illegal stuff at Dayton too, even some 2.4 stuff with much more power than legal under license free part 15 which had the usual part 15 freqs (2 in the ham band and 2 outside) being sold by a company owned by hams. Just about any intentional radiator other than stated for ham use only requires FCC compliance in order to be advertised or sold and must have a sticker on it with the FCC ID number for the device. Part 15 max level in the 420-450 MHz ham band is only 46 **MICROWATTS** to a dipole. See http://www.arrl.org/tis/info/part15.html for more info on what is legal and what is not for license free part 15 or ISM part 18.
…Ed Hare, miweber@mindspring.com

(W1RFI@arrl.org) at the ARRL is the expert if you have technical or legal questions on this and copy him anything you send to the FCC on this subject. I suggest Emailing to Riley Hollingsworth (fccham@fcc.gov) the info whenever you find an obvious advertisement for transmitting gear in the ham bands for non-ham purposes (SPY Cam transmitter, one way transmissions, business apps, etc.) directed to non-hams and no mention of the legalities. Riley is only one guy and has to prioritize his energy so if he gets a lot of complaints on this particular subject, he might get something going. I've had a surveillance video transmitter looking down on a parking lot running continuously since December wiping out a number of FM voice repeaters in a 5 mile radius. Local FCC knows about it and tried to find it once but again, not a high priority for them. I think the only reason they even tried once was the Email I sent to Riley a few months ago.

There are license free FCC Compliant video systems available from ATV Research that can get up to 2 miles line of sight. The receiver has optional high gain antennas to get the DX. The prices aren't bad either. I'd suggest to anyone who needs a non-ham purpose short distance link and has line of sight to give him or her at call at 1-800-392-3922.
…Tom O'Hara W6ORG

MORE INFO ON THE COMMERCIAL DIGITAL TV FORMATS

MONTREUX, Switzerland — The U.S.-developed digital TV system is steadily losing influence in the global market, as more and more countries back the European-designed Digital Video Broadcast (DVB) standard. Even some current subscribers to the U.S. Advanced Television Systems Committee (ATSC) standard are considering defecting to DVB.

Momentum toward the DVB standard was apparent at the World Television Forum Montreux 2000, an international conference for engineering executives and broadcasting and technology industry management, which concluded here on Sunday (June 4). The Forum also drew regulators from a number of countries.

According to an international update on digital broadcasting held at the conference, Australia — which had earlier reversed its support for ATSC— spent much of last year preparing for a DVB-based digital TV rollout on Jan. 1, 2001. Having conducted a number of tests in recent months, "We're more and more convinced that the DVB was the right answer," said David Soothill, director of communications and planning at SBS Corp., one of two government-funded public broadcasters in Australia.

Brazil, slated for a DTV launch in the first quarter of 2001, is expecting "the official announcement on its decision on a digital TV system in July or August," according to Fernando Bittencourt, director of engineering at GloboTV. Brazil's Society of TV engineers and the Brazilian association of radio and television broadcasting stations, which were authorized by the National Telecommunication Regulatory Agency in Brazil to conduct DTV tests, have already sent their final report to the Agency, he added. The test report, the preliminary results of which caused a major stir when they were shared at the National Association of Broadcasters (NAB) convention in April, concluded that Brazil should drop the 8VSB standard of ATSC and suggested that "the digital TV system to be adopted in Brazil must use the [DVB] COFDM modulation." Either Japan's ISDB or Europe's DVB standard could be chosen, Bittencourt said.

Meanwhile, Argentina, which formally adopted the ATSC standard in 1998, is reconsidering its decision. According to local newspaper reports, Argentina's communications secretary, Henoch Aguiar, was quoted as saying that the previous resolution on DTV standard "is null and void." His statement was based largely on the fact that the choice of the ATSC standard was made without tests, without any coordination with Brazil, and was based on some false considerations of the European standard DVB, Aguiar reportedly said.

ATSC chairman Robert Graves, who attended the conference here, confirmed the Argentina news reports but downplayed their implications. They do not mean that Argentina will automatically adopt DVB, he said. "They are not that stupid," he said. He implied that Argentina's decision has a lot to do with a recent change in government, rather than with technical issues associated with the ATSC standard. Graves said that the ATSC will continue to work with Argentina, and will support its decision making process.

To date, aside from the United States, only Canada, South Korea and Taiwan remain committed to ATSC. And although nothing is set in stone yet in Mexico, Graves said it is "highly likely" that the country will join the U.S. ATSC camp. Meanwhile in Europe, the United Kingdom, Sweden and Spain have already rolled out DVB-based digital TV broadcasting.

A race to sign up more countries to support one DTV standard over another is important, said Graves, primarily for economic reasons. The greater the market, the more equipment that's compliant with a particular standard will become available on the mass market, thus achieving a desired economy of scale, he explained.

Reports on the trials and rollout of DTV broadcasting services in various countries have had a significant impact on plans for DTV implementation in the rest of the world. Many conference attendees repeatedly expressed their concern and interest. "We are watching very carefully how the ATSC system succeeds on the U.S. market," one said.

That assessment is still hard to make, even in the United States. In fact, Maximum Service TV, a Washington-based group representing local TV stations, is launching yet another set of DTV tests, even as concerns grow among U.S. broadcasters and regulators about the performance of ATSC's 8VSB standard and the lack of an unbiased engineering analysis of DTV test data.

Meanwhile, the Australians, who claimed to have done their homework, appear very pleased with the findings of a number of tests carried out last year. The Australians found that "the DVB COFDM modulation scheme works much better than expected," said SBS' Soothill. "A suite of additional tools and features of the DVB system also seem to run more smoothly." The Single Frequency Network works well and the impulse noise — often criticized by the ATSC camp as COFDM's weakness — "was not as bad as people might have thought," he
said. "But that's probably because we use 8k COFDM rather than 2k."

Even the COFDM's coverage, which is also pointed out by ATSC proponents as another limitation of DVB, is passing muster, Soothill said. "We are achieving mostly slightly better coverage than previously predicted," he said. But different countries implement their DTV broadcasting policies in vastly different ways, and each tends to have its own peculiar quirks and glitches. In Australia, for example, the government is not allowing multi-channel broadcasting in principle, except for a few sporting events. The government also mandates terrestrial broadcasters to offer 20 hours of HDTV broadcasting per week by the end of the first year of DTV broadcasts. The most

simulcast a program in three modes: the current analog PAL, HDTV and standard definition TV (SDTV). More specifically, whenever broadcasters decide to offer HDTV programs, they are also required to carry the same program in SDTV mode. The purpose of the policy appears to be the government 's wish to make a program available on SDTV to those who cannot afford an HDTV set .

In contrast, the ATSC digital TV sets sold in the United States are designed to decode all 18 high-definition and standard-definition formats, which will allow the sets to downconvert HD programs to SD. Speaking of the apparently inefficient use of the bandwidth in Australia, Graves said, "If there were a bit police in the world, the Australian government would be the first to be arrested."

The fact that the Australians are keen on HDTV broadcasting also puts them in an awkward situation among nations that have adopted the DVB standard. At this time, no European countries that have launched DTV service are offering an HDTV option. Graves noted that if Mexico joins the ATSC camp, "We will have a 500 million population market for ATSC-compliant digital TV receivers." But consumer electronics manufacturers will need to develop and manufacture an Australian-flavored DVB-based digital TV receiver for a population of 18 million, Graves said. This huge difference in economies of scale could have a big impact on TV set manufacturers and on consumers,

To speed up the transition from analog to digital broadcasting, SBS' Soothill speculated, the Australian government "may have to revise some of their decisions on DTV." For more technology news, visit http://www.edtn.com
…6/9/00 from EDTN news network

442.7 MHz REPEATER INTERFERENCE FROM CAR ALARM

I did check the FCC web site and found that at least some of these devices have been Certificated by the FCC, so the issue really is one of harmful interference. Under FCC rules, these are probably "Periodic Emitters," which could operate on nearly any frequency above 70 MHz. The frequency of 433.92 is often used for these because that is a frequency legal in some parts of the world for remote-control devices, so there are lots of modules available for that frequency. Unfortunately, although generally not a repeater input frequency, 433.92 is also an amateur frequency and poses potential problems to various amateur activities, depending on local band plans.

Many of the 433.92 MHz devices are FCC Certificated, remote-reading digital thermometers, for example. Others are being sold as "modules" -- little PC boards with pins on them. I had a nice chat with the FCC Lab staff, the people responsible for Part 15 issues, and in their opinion, these modules would have to be Certificated by the FCC and based on their power levels, they could not be. I am aware of Radio Shack and Parallax; can anyone identify any others? I want to address them all at once.

I want to bring this matter before the ARRL RFI Task Group. I will also contact the manufacturer and distributor in question, to obtain more information about their products and to answer any questions they may have about why choosing an Amateur Radio frequency for an unlicensed device is not a good idea. To date, all I have are reports of RFI in Canada. Ken Pulfer of the RAC is looking into this north of the border. Can any US hams or organizations supply me with reports of harmful interference in the US?

ARRL has prepared a Web page that discusses the complex issues surrounding Part 15 devices. See http://www.arrl.org/tis/info/part15.html Any and all information, or input about the best course of action, would be very much appreciated.
…Ed Hare, W1RFI, ARRL Lab Supervisor , 225 Main St, Newington, CT 06111, Tel: 860-594-0318, FAX: 860-594-0259, w1rfi@arrl.org

This might be of interest regarding the so-called license free devices being sold on the 70cm band. The 442.7 would get into 439.25 ATV systems and the 433.92 into 434 systems. If anyone can identify any of these devices giving trouble to ATVers and/or know who the sellers are, please email Ed Hare W1RFI at the ARRL.
…Tom W6ORG

NEW DARA PRESIDENT

Hello Folks,
Since I have now taken on the privilege of being the Dayton Amateur Radio Association's (D.A.R.A.) President, a fine group of Ham Radio Operator's, I have resigned my position as chairman of the ATV Repeaters and appointed Tom Para, WA8ZAH, as the new ATV Repeater Chairman. Tom is a good replacement and will make the ATV Repeater an even greater organization.

I will continue on with being an active participator in our ATV activities as this is what I grew up with. Please welcome Tom, WA8ZAH, for being the new DARA ATV Chairman. Thanks much and 73's,
Reuben Meeks, W8GUC
(*Hey, Reuben! How about discount Hamvention tickets for ATV'ers?…Ed)*

ATV IDEA MATERIAL…things we'd like to see?

A number of people have suggested various ATV activity ideas that have merit. I've presented them below in hopes of stirring interest. Comments are welcome….Ed.

- Is there an ATV repeater that can be accessed from the Internet somewhere?
  CHRIS WA4LSW http://www.qsl.net/wa4lsw

- I was just wondering Gene, How may ATV repeater systems are running weekly HAM classes or quarterly classes on their system? This might be pushing the envelope a bit but it seems that ATV'r could do some great service for new and upgrading HAMs. Several years ago there was a 1/2 to 1-hour HAM hour on one of the SAT's. I used to re-transmit the audio and video over the ATV repeater in our area. Unfortunately it went "dark" in a short time. It would be nice to see something again on the "birds".
  …Dean K9PT dandrewj@dwave.net

  When I was in Germany, you would have had an audience large enough to make that a good idea. They had about 100 people that would monitor the Monday night net every week! Wow, wish we had systems here in the USA like that or do we and I just do not realize it. The ATV Net they had was like a newscast, where, the two M/C's would read something like the NewsLine that we read over our two meter repeaters here in the states. A third person would do the "production" and change cameras, zoom, take care of ID'ing, and all that good stuff. They had a background, a newsdesk, the whole works. After the NEWS, they had check-in and as people checked in, their callsign was scrolled across the bottom of the screen. What a neat operation.
  …Gene Harlan - WB9MMM

- I sure would like to see some articles on the "other" signals that can be sent over ATV. I mean BTSC stereo, SAP audio and closed captioning. Things like that. Also the legalities of these on ATV. Maybe even something on digital MPEG2 ATV. Some of the above things we are already transmitting on ATV here.

- Our ultimate goal, and I'll tell you more when it happens, is to provide a "once a week" **National ATV net feed over a Ku band satellite** channel that can be received by many ATV systems and retransmitted during their net.
  …Lee AB5IG Dallas
  (*The ATCO members can potentially be involved in the effort Lee describes above. It could become reality soon! More about it when details are firmed up!…Ed).*

DAYTON 2000 ATV ACTIVITY AS REPORTED BY W3HMS

I believe that most ATVers look forward to the Dayton Hamvention for the traditional three ATV events which encompass the Friday Night Lions Club ATNA General Meeting and Technical Session, the Saturday Afternoon Technical Session moderated by Bill Parker, W8DMR and the Saturday night dinner. In addition, we in ATNA held our Thursday night Executive Board meeting, which is about the only time in each year that we can get most officers together. This year was no exception and I think most folks enjoyed these events; we even managed to quit the Friday night session at a much more reasonable hour! Many photos were taken by Art Towslee, WA8RMC, of ATCO and ATNA, which are/were available for download at http//psycho.psy.ohio-state.edu/atco.

We started the Friday Night session at 1900, which may be a bit early, as many could not arrive until about 1930, a much better time for 2001. Bill Brown, WB8ELK, Mr. ATV Balloons, was the MC again this year, and he lead a well deserved ovation for Art Towslee, WA8RMC and John Hey, W8STB for their efforts with, respectively, obtaining the prizes, and making arrangements for the hall and foodstuffs for the intermission. Bill also kicked off the introduction of all members event. I conducted the ATNA session and noted that ATNA progress was slower than desired, by many I suspect and certainly by me, in 1999/2000. But some very nice things did occur, so lets look at them:

This was followed by the technical presentations, (for which hard copies were NOT available as ATVers don't do that!). Chris, N8UDK and Jeff, N8QPJ addressed Shuttlevision via ATV Repeater" in the first presentation. They talked about the extraordinary interest generated, among ATVers and the general ham public, from putting the Dishnet NASA Channel video on their 430 MHz ATV repeater, after making suitable arrangements with Dishnet. They do this during the periods of shuttle flights. The sound is on 2 meters so it can be readily available to the general ham public. For info, as was mentioned, the NASA Channel is also available on C band (big dish) satellite

ATV. Chris and Jeff could not have been more enthusiastic.

The Atlanta Crossband ATV Repeater System was briefed by Ralph Fowler, N4NEQ. They have video input on 1.2 Ghz FM and 430 MHz AM outputs. They also send NASA launch data audio and video out via this repeater. They call up weather pictures via the Internet.

Following the break with refreshments and lively discussions, we saw a video tape made about the ATV Network of Southern California for which the short title could be: mountains make it happen! "Mobile ATV Adventures" were covered by John W8STB, as he had in the recent past motored from Ohio to Illinois/Indiana making ATV QSOs from his mobile station. He offered tips to the assemblage on how to do this without killing you the most notable step being to avoid ATVing while in motion.

Next, Bill Brown, WB8ELK, showed an interesting video about "Catch a Falling Star" detailing the results of an ATV balloon focused on relaying video of meteor trails to the ground. Prize drawings were nicely interspersed by Art throughout the evening.

The final event of the evening was a brief look at ATV operation on 10 Ghz by yours truly, which was based on my article in ATVQ for Fall 1999. One highlight we noted from the past April was a 19 mile reception of 24 Ghz ATV signals from Joe, WA3PTV using just 5 mw and an 18 inch offset dish.....which we have since moved out to 28.5 miles.

As to attendance, we had 39 signed in but Art estimated about 85 so some folks did not see the sign in log. The evening was targeted to close at 2300...we made it at about 2310 and most in attendance pitched in with clean up.... certainly shows how much can be done quickly when people join forces!....before all left, so very tired.

The Saturday afternoon ATV Forum from1300 - 1500 was organized, planned, and chaired by Bill Parker, W8DMR and was held this year at a local high school quite close to the Hamvention. Attendees could arrive by frequent shuttle buses or car as parking was suitable. Art Towslee, WA8RMC, presented the ATCO repeater. It is a most formidable repeater with outputs on 13, 23, and 70cm bands and inputs on more than one band. The general informational needs of ATVers were addressed by Gene Harlan, the Editor of ATVQ. Gene addressed his own magazine and the British magazines for which he is a US Agent. They are "CQ-TV", the magazine of the BATC, British Amateur TV Club, and "VHF Communications" which is the English translation of a very high quality German publication. I was most surprised when Gene asked for a show of hands of those who have subscriptions to each magazine.....and mine was the only hand in the air!

Next, Bill Parker, W8DMR, gave an in depth presentation on getting on ATV using some very good slides to make his point. Bill really knows his stuff! The afternoon terminated with Bill Brown, WB8ELK, showing his video on the Leonids as he did Friday night.

The annual Saturday night ATV dinner organized by John Hay, W8STB, was a more relaxed way to discuss ATV in which the smaller numbers permitted round table type discussion. In summary, I enjoyed the ATV events again this year and hope we can do even better next year.
…John, W3HMS

WB8ELK talks at the Saturday afternoon session.

Here's a glimpse of the participants at the Friday night gathering.

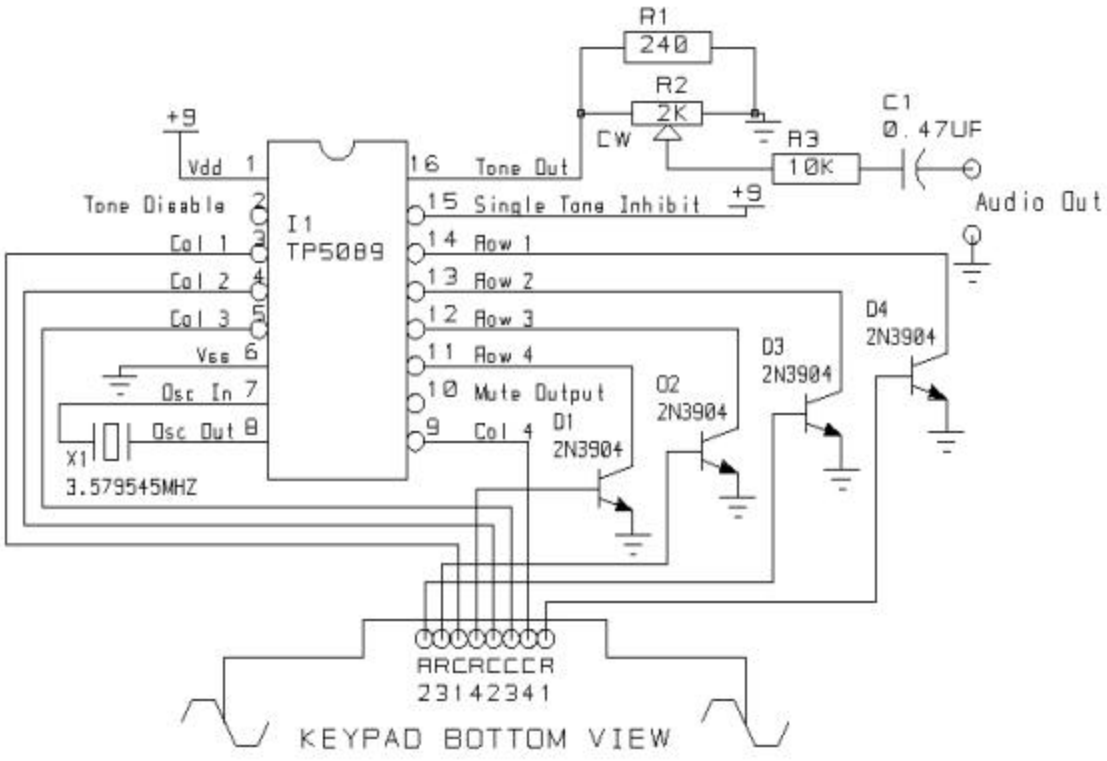
PORTABLE 16 BUTTON DTMF (TOUCH-TONE) PAD

This was one of those "back-burner" projects I had put off for some time and no one seems to make a tone pad similar to the one I had purchased years ago from Data Signal except with the extended keys in a 4X4 matrix. The cost of just a 16-button keypad alone from a few manufacturers I saw in catalogs and searches on-line was $25.00 or more. Not very many have the standard telephone button configuration with the A-B-C-D keys labeled or even in the right column position. This and no enclosure or encoder IC led me to consider purchasing a microphone with the keypad installed. I could modify it for what I needed, but they are typically $50.00 or more new with no information about the circuit or if it could be interfaced with a microprocessor for automatic dialing. I haven't seen this type of microphone at flea markets without a rig attached. I really prefer the larger telephone size buttons and spacing anyway which makes it easier to see and use without accidentally hitting two keys at once. The idea was to have something that I could battery power to be portable and use at home in front of me on the rig at the operating bench and also to toss into the tool box when I make a trip to the repeater site to hook up to the controller to enter control codes.

I found in the recent Jameco catalog (www.jameco.com) a 16 button keypad, sub-surface mounting, about 3X3" (PN 169244 $6.95) and a TCM5089N 16 pin DIP integrated tone dialer chip (PN 32803 $3.95). I thought this would be a rather simple project to put together but when I received the parts I found that no information was supplied with the keypad for the pin-out and after reviewing the data sheet for the encoder IC, I found it needed a DPST type switch matrix where if a button is pushed the row and column connect together and go to ground. This seemed unusual to me as I have only seen keypads that are for a scanned SPST matrix and the single pole with a common bus type. After I checked continuity to determine what row and column went to what solder pad a method needed to be devised to get the encoder IC to work with this type keypad. This was a bit of a puzzler since you only have the two contacts for each button pushed and the encoder IC wants to see one row and one column tied to Vss (ground). After much thought and paper scribbling using gates, inverters or diodes to produce what was needed I finally found a simple solution using transistors. The column and row inputs of the IC have internal pull-up resistors. Connecting the column side of the keypad to the column inputs directly and the row side to the base of a NPN transistor when a button is pushed the column input to the encoder actually acts as an output to drive the base of the transistor and the IC sees the 0.6V at the base-emitter junction through the switch contacts as a low on the input. The collector of the transistor is now driven low to satisfy the row input.

A plastic enclosure was located while I was at Radio Shack (about $6) that was the right size and even has an externally removable lid for the 9V battery compartment and includes a leaded 9V battery clip. The parts were mounted on a small perfboard and held in place to the bottom of the keypad with a small adhesive backed plastic cable clamp. This allows easy removal/replacement of the board if anything needs to be changed. The 9V battery should last a long time since it draws only 2 to 2.5µA when idle and 1.1 to 2.5mA when a button is pushed - specified at 3.5V supply but operates up to 10V. X1 is a standard color burst crystal with wire leads and the transistors are any NPN general-purpose silicone switching type. The value of R3 should work for most applications but it may be necessary to make a change depending on the impedance of the audio circuit this is going to be connected to. There is plenty of audio level available and works well with my Kenwood TR-9000. If the "Single Tone Inhibit" at pin 15 is left open (pin 15 has an internal pull-down resistor), pressing two keys at once will not produce a single tone. I decided a single tone might be useful at times. Also, a transistor could be added to the "Mute Output" at pin 10 to drive an LED to indicate when a key is pressed or to key the push-to-talk line (PTT) of a transceiver so you wouldn't have to grip the microphone button when toning.

…Dale, WB8CJW



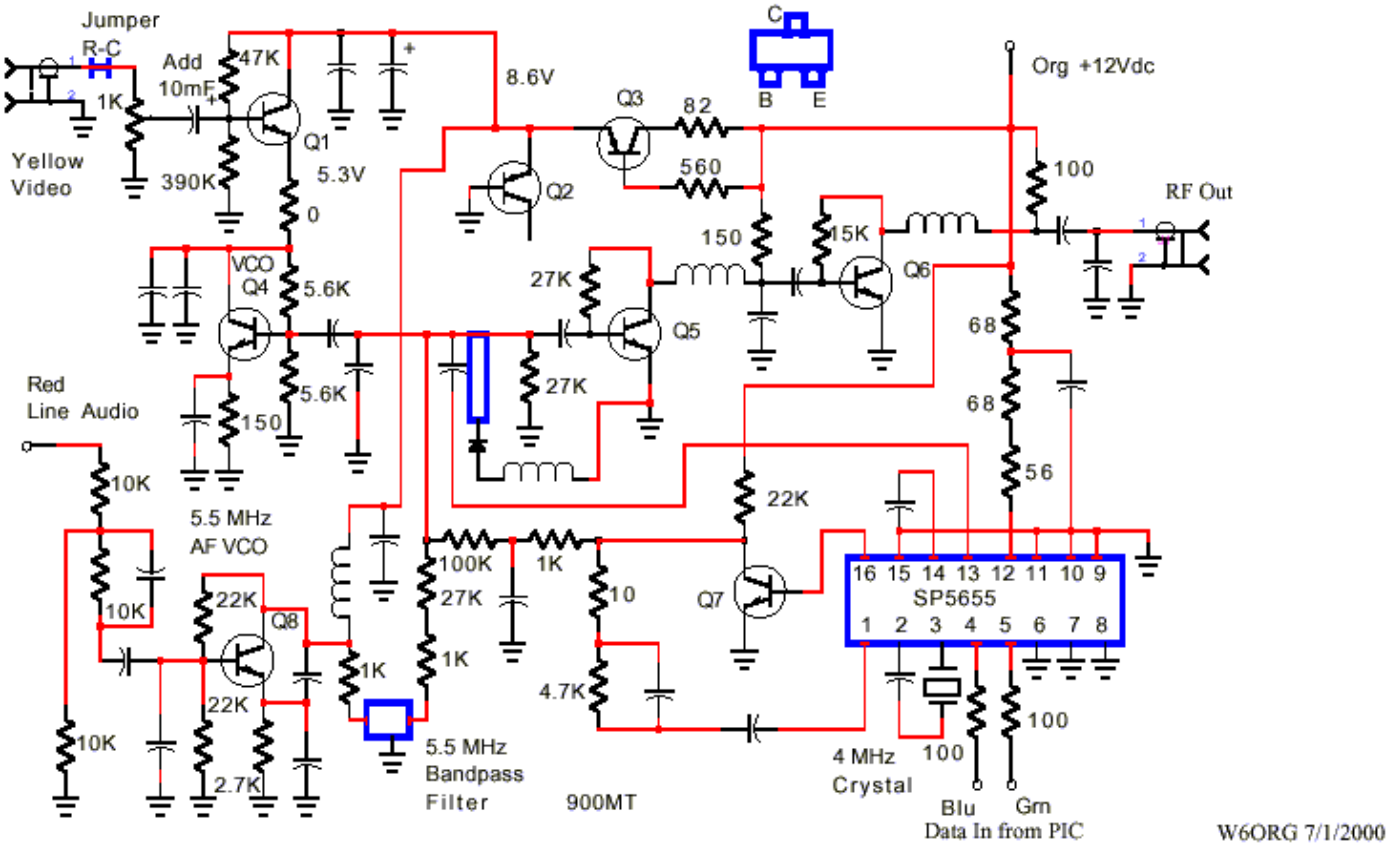
PC ELECTRONICS 900 MHz MODULE PROBLEMS/SOLUTIONS

A number of us (myself included) purchased a 900MT transmitter module from PC Electronics. Unknown to PC Electronics is the fact that their vendor changed the product, which now does not transmit proper pre-emphasis video. The video seems rather unstable and difficult to keep from rolling at the received end. Dale, WB8CJW, has also been working hard to determine the problem but we believe Tom, W6ORG, now has a handle on it with a solution described below. Ed. *Tom responds…*

"Attached is the updated 900MT ATV transmitter schematic with the audio subcarrier added in. I still have not played with increasing the value of the 1K at the collector of Q7 to see if that helps the vertical sync droop some more, but jumpering out the parallel R-C in series with the 1K video gain pot and raising the coupling cap from the wiper to the base of Q1 from .1 to 10 MF restores a lot of the vertical sync. I'll
take some pictures of both the 900MT and 900VT modules later and make up a modification notice showing exactly where the jumper and cap are to make it easier on everyone to make the modification".
…73, Tom W6ORG P. C. Electronics

Not shown and external from the module on the 12V regulator board is a 75 Ohm termination and series coupling cap

A solder jumper is done across aparallel resistor and capacitor that is between the video input on the module board and the 1K video deviation pot.
A 10 Mf electrolytic is put in parallel or in place of the chip cap between the video deviation pot wiper and the base of the transistor Q1.



NEW MEMBER SECTION

Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are the lifeblood of our group so it's important that we actively recruit new faces aggressively.

AA8XA Stan Diggs Columbus, Ohio
KB8GUE Ron Piatt Leesburg, Ohio
N8TCB Bill Smith Columbus, Ohio

…Art WA8RMC

THE THIRD ANNUAL ATV ANTENNA PARTY IS COMING!

Mark your calendar for Sunday July 23! Our annual antenna measuring party will again be held at Teds place, N8KQN. Bring your 400, 1200 or 2400 MHz antenna for a good check of the actual forward gain. We'll have our standard computer controlled antenna rotor system installed that will automatically start and stop the rotor to produce an actual real time polar plot of the antenna pattern.

Ted has gone out of his way this year to build an open roofed shelter with no sides so we can place the computer, antenna control and detection equipment to be out of the weather. Come rain (Oh, we hope not) or shine (Please) to check your antenna. Last year it was so sunny that we had a hard time seeing the computer monitor in the yard. This year we'll have a roof to shed some of that bright light.

As was the case last year, each person should bring some food that we can snack on, chips, pretzels, pop, munchies or sweets. Even if you don't have an antenna to measure, you're welcome to join us and see what is going on. Or, if you prefer, just come to swap stories or pick up pointers, etc. We won't force you to bring an antenna. Check the repeater bulletin board for the map with directions for those of you that don't know where Ted lives. See you there!
…WA8RMC

RED-WHITE-BOOM WAS GREAT AGAIN!

The ATCO participation in the RED-WHITE-BOOM security video was present and accounted for again this year. For those of you that don't know, we provide crowd control video surveillance for the Columbus police each year for the July 4th fireworks show. Since the crowd usually approaches 500,000, everyone is very busy. A fringe benefit is that we get to see the fireworks from a reserved very prime location.

We were short on help this year with only me, WA8RMC, Ed Flannagan, KB8TCF, and John Chapman, KB8INY, to do all of the work. Ed had a helper at his end while my wife kept me company at my end. The setup was like this: I had a camera on the Gas Co parking garage roof with a 1280 MHz transmitter pointing at the police headquarters building. Ed received the signal and re-transmitted it via a Wavecom @ 2.4 GHz to the EOC police command post below. A second video channel on the police building roof sequenced two cameras and sent the video down to EOC via a second Wavecom channel. In the EOC, they could continuously monitor the two video sources for signs of excessive crowd concentration. Luckily there were no significant crown problems. The only one I saw was when someone below me in the crowd seemed to want to pick a fight with everyone generally stirring up trouble. I turned the camera toward it and called attention to the problem. It took about 30 seconds for about 10 or more dispatched police officers to locate him and cart him off. "Good job" was the comment from headquarters.

Everything else seemed to be okay. Rain momentarily dampened the situation about 7:30 PM and caused many to run for cover. I covered up the equipment and stayed there with an umbrella. The fireworks were great from my vantagepoint but most people were surrounded by fireworks smoke that wouldn't disperse because of the lack of wind and extremely damp conditions. It was too bad for I feel the fireworks were the best yet! Oh well, there's always next year. (I know many plan their own outings for the 4th but if you can make room for it next year, there will be plenty of room for extra participants.
…WA8RMC

ATV EQUIPMENT SUPPLIERS… Find your ATV stuff here!

Below is a list of manufacturers of ATV equipment that I have found. There is no endorsement of any of the manufacturers listed below so buyers beware. If I or anyone else that I know of has had any trouble with a manufacturer, it won't be listed. As I get more info, I'll add manufacturers. Likewise, if I hear of any trouble, it'll be removed. Good luck and keep me advised.

…Art WA8RMC

Michael Kohlstadt, KD6UJS has a limited supply of used but working Pacific Monolithics 2.4ghz downconverters and power supplies which will work fine for the repeater.
Phone: 408-926-0430.

Downeast Microwave
Antennas, Power Amplifiers, Deluxe Downconverters, microwave parts.
954 Rt. 519 Frenchtown, NJ 08825
Phone: 908-996-3584
Fax: 908-996-3702

Hamtronics Inc
Ham receivers, transmitters
Antennas, Preamps
http://www.hamtronics.com/

M²
Antennas
7560 N. Del Mar Ave.
Fresno, Ca 93711
Phone: 209-432-8873
http://www.m2inc.com

CCI Communications Concepts, Inc.
508 Millstone Drive
Beavercreek, OH 45434-5840
(937)426-8600 Voice
(937)429-3811 Fax
Email: cci.dayton@pobox.com
http://www.communications-concepts.com ATV Equipment

ATV Quarterly (ATVQ)
ATV magazine publisher
5931 Alma Drive
Rockford, Il. 61108
Phone 815-398-2683
FAX 815-398-2688
Email: atvq@hampubs.com

PC Electronics
ATV Transmitters, Receivers
Manufacturer/Reseller
2522 Paxson Ln.
Arcadia, CA 91007-8537
Phone: 626-447-4565
Fax: 626-447-0489
tom@hamtv.com
www.hamtv.com

Black Box
1000 Park Drive
Lawrence, PA 15055-1018
(800)552-6816 Voice
(800)321-0746 Fax
Email: info@blackbox.com
http://www.blackbox.com
Electronic Connections

SHF Microwave Parts Company
10GHz Gunn oscillators and Antennas
7102 W. 500 S.
LA PORTE, INDIANA, 46350
Fax: 219-785-4552

Allied Electronics
7410 Pebble Drive
Fort Worth, TX 76118
(800)433-5700
http://www.allied.avnet.com
Electronic Parts House

GEKCO Inc
TV test signal circuit boards
PO Box 642
Issaquah, Wa 98027-0642
Phone: 425-392-0638
Email: sales@gekco.com
www.gekco.com

Cable X-Perts
416 Diens Drive
Wheeling, IL 60090
800-828-3340 Voice 847-520-3444 Fax
http://www.cablexperts.com
Wire and Cable

DCI Communications
Interdigital filters and cavities
Box 293, 29 Hummingbird Bay
White City, SK, Canada S0G5B0
Phone: 306-781-4451
http://www.dci.ca/

ATV Research Inc.
TV cameras & related parts
1301 Broadway PO Box 620
Dakota City, NE 68731-0620
Phone: 402-987-3771
Homepage: www.atvresearch.com
Email: atc@pionet.net

E. H. Yost & Company
2211-D Parview Road
Middleton, WI 53562
(608)831-3443 Voice
(608)831-1082 Fax
Email: ehyost@midplains.net
Battries

Phillips-Tech Electronics MMDS, ITFS downconverters and antenna systems
P.O. Box 8533
Scottsdale, AZ 85252
Phone: 602-947-7700
Fax: 602-947-7799

MCM Electronics
650 Congress Park Drive
Centerville, OH 45459
(800)543-4330 Voice
(800)765-6960 Fax
http://www.mcmelectronics.com

Jameco Electronic Components
1355 Shoreway Road
Belmont, CA 94002-4100
(800)831-4242 Voice
Email: infor@jameco.com
http://www.jameco.com
Electronic Parts

Fair Radio Sales
1016 E. Eureka P.O. Box 1105
Lima, OH 45802
(419)227-6573 Voice
(419)227-1313 Fax
Email: fairadio@wcoil.com
http://www.fairradio.com
Electronic Surplus Equipment

Directive Systems
RR#1 Box 282 Dixon Road
Lebanon, ME 04027
(207)658-7758 Voice
(207)658-4337 Fax
Antennas
http://www.directivesystems.com/

Mouser Electronics
958 North Main Street
Mansfield, TX 76063-4827
(800)346-6873 Voice
(817)483-0931 Fax
Email: sales@mouser.com
http://www.mouser.com
Electronics Parts House

Hosfelt Electronics Inc.
2700 Sunset Boulevard
Steubenville, OH 43952-1158
(800)524-6464 Voice
(800)524-5414 Fax

Pauldon Associates
210 Utica Street
Tonawanda, NY 14150
(716)692-5451 Voice
ATV Receivers and Transmitters

Universal Radio Inc
6830 Americana Parkway
Reynoldsburg, Ohio 43068
614-866-4267
http://www.universal-radio.com

Spectrum International
J-Beams, KVG, Micromodules,VSB
John Beanland
Phone:978-263-2145.
Email: Spectrum@ma.ultranet.com
filters

The Wireman, Inc.
261 Pittman Road
Landrum, SC 29356
(800)727-9473
(864)895-4195
Wire and Cable

Webster Communications, Inc.
115 Bellarmine
Rochester, MI 48309
(800)521-2333 Voice
(810)375-0121 Fax
Electronic Parts

Wyman Research Inc.
8339 S 850 W
Waldron, In 46182-9608
765-525-6452
http://www.svs.net/wyman
wyman@svs.net
ATV transmitters & transceivers
SSTV equipt.

INTERNET ATV HOME PAGES (list verified 06/01/00)

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. Most addresses listed below are case sensitive, so type exactly as shown. (For comments or additional listings contact me at towslee@ee.net).

Domestic homepages

http://psycho.psy.ohio-state.edu/atco	Ohio, Columbus, homepage (ATCO)
http://www.radio-amateurs.com	Ohio, Dayton ATV group (DARA)
http://users.erinet.com/38141/atv.htm	Ohio, Xenia KB8GRJ
http://www.hayden.edu/Guests/AATV	Arizona, Phoenix Amateurs (AATV) Carl Hayden High School
http://www.qsl.net/aatv/	Arizona, Pheonix Amateurs(AATV)
http://www.citynight.com/atv	California, San Francisco ATV
http://www.qsl.net/atn	California, Amateur Television Network in Central / Southern
http://w6yx.stanford.edu/~stevem/atv	California, South Bay ATV Group Stanford University
http://home.tampabay.rr.com/k4lk/	Florida,Tampa Bay Amateur Television Society (TBATS)
http://www.nfds.net/~kb4oid/atv.html	Florida, Emerald Coast Amateur Television Society (ECATS)
http://www.qsl.net/scats/	Florida, Melborn Space Coast Amateur TV Society (SCATS)
http://www.bsrg.org /aatn/aatn1.html	Georgia, Atlanta ATV
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
http://kcatv.winning-edge.com	Kansas, Kansas City Amateur TV Group (KCATVG)
http://www.bratsatv.org	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.icircuits.com/dats	Michigan, Detroit Amateur Television System (DATS)
http://www.minn.net/~n0mnb/	Minnesota Fast Scan Amateur Television (MNFAT)
http://www.intecnet.net/vidking/	Missouri, St Louis Amateur Television
http://www.njin.net/~magliaco/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.qsl.net/~no3y	New Mexico, Farmingham
http://www.lloydio.com/oatva.html	Oregon, Portland ATV (OATVA)
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm	Oregon, Southern Oregon ATV
http://www.usaor.net/users/ka3fzf/	Pennsylvania, Pittsburg Amateur Television in Pittsburg
http://www.voicenet.com/~theojkat/w3phl.html	Pennsylvania, Phila. Area ATV
http://www.geocities.com/Hollywood/5842	Tennessee, East ATV
http://www.hats.stevens.com.	Texas, Houston ATV (HATS)
http://www.wacoatv.org	Texas, WACO Amateur TV Society (WATS)
http://www.hamtv.org/	Texas, North Texas ATV
http://www.ussc.com/~uarc/utah_atv/utah_atv.html	Utah ATV
http://www.qsl.net/w7twu	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://www.batc.org.uk/index.htm	British ATV club (BATC)
http://www.sfn.saskatoon.sk.ca/recreation/hamburg/hamatv.html	Saskatoon, Canada ATV
http://www.gpfn.sk.ca/hobbies/rara/atv3.html	Regina, Canada ATV
http://www.inside.co.uk/scart.htm	UK,Great Britain ATV (SCART)
http://www.cmo.ch/swissatv	Swiss ATV
http://www.rhein-land.com/atv	German ATV in "Niederrhein" area
http://www.arcadeshop.demon.co.uk/atv/	UK, G8XEU ATV homepage
http://lea.hamradio.si/~s51kq/	Slovenia ATV
http://www.burnabyradio.com/ve7rtv/	British Columbia, Canada VE7RTV repeater
http://www.qsl.net/zl1qf/atvug/ATVusers.html	Auckland, New Zealand ATV

INTERNET MISCELLANOUS HAM RELATED HOME PAGES

(list verified 06/01/00)

The following addresses are helpful in searching for many different Ham Radio items on the INTERNET.

http://www.stevens.com/atvq	ATVQ Magazine home page. ATV equipment & article references.
http://www.hamtv.com	PC Electronics Inc. Lots of proven ATV equipment for sale.
http://downeastmicrowave.com	Down East Microwave Inc. Lots of uhf/microwave parts & modules.
http://www.yahoo.com/Entertainment/television/Amateur_television	Listing of some of the available ATV home pages.
http:/www.acs.ncsu.edu/HamRadio	General ham radio info- satellite track, call sign database etc.
http://www.arrl.org/hamfests.html	Current yearly hamfest directory.
http://amsat.org	AMSAT satellite directory/home page.
http://www.arrl.org	ARRL home page
http://www.arrl.org/fcc/fcclook.php3	ARRL/FCC revised CALLSIGN database. Search call sign or name.
http://hamradio-online.com	Ham Radio Online "newsletter" Lot of Ham related info.
http://www.qsl.net/atna/	ATNA homepage
http://www.qth.net	ATNA member listserver (click "select list" to subscribe)
http://www.ham-links.org	Ham Radio collection database
http://bro.net/explorer/part97.htm	FCC part 97 details. Look up the FCC regulations
http://fly.hiwaay.net/~bbrown/index.htm	Tennessee Valley Balloon launch info (Bill Brown WB8ELK)
http://www.ipass.net/~teara/atv4.html	Arizona ATV 2.4Ghz Wavecom page (Wavecom mod. info)
http://www.ham.net/lisats.html	Space Shuttle Launch Info Service & Ham TV System (LISATS)
http://www.svs.net/wyman/	Wyman Research Inc. W9NTP Don Miller ATV equipment
http://www.m2inc.com /	M2 Antenna Systems Inc.
http://www.dci.ca/AMATEUR.htm	DCI Digital Communications Inc. Bandpass filters
http://scott-inc.com/wb9neq.htm	Kentucky, Airborn ATV from WB9NEQ in Bowling Green
http://www.icircuits.com/	Intuitive Circuits Inc
http://www.qsl.net/kd4dla/ATV.html	KD4DLA ATV web page index
http://www.severe-weather.org	Columbus, Ohio severe weather net at Columbus airport
http://www.mods.dk	Ham radio modification lists.

ZVEZDA MODULE EVENTUALLY TO HOUSE HAM RADIO(Maybe ATV too!)

The just-launched International Space Station Zvezda Service Module eventually will become home to the first permanent Amateur Radio station in space. Until the Amateur Radio on the International Space Station--or ARISS--antennas can be installed on the Service Module, however, the initial ham station gear will be installed aboard the Zarya Functional Cargo Block, already in space.

The first ISS crew, headed by US astronaut Bill Shepherd, KD5GSL, is scheduled to be launched in October from Kazakhstan. Accompanying Shepherd will be Russian cosmonauts Sergei Krikalev, U5MIR, and Yuri Gaidzenko. If all goes as planned, the initial amateur station hardware will be sent up to the ISS aboard shuttle mission STS-106 in August, and Shepherd and his crewmates will be on the air on 2 meters (FM voice and packet) from the Functional Cargo Block this fall. The initial station will use an existing Functional Cargo Block antenna that's being adapted to support operation on 2 meters but not on 70 cm.

Current plans call for amateur 2-meter and 70-cm antennas to be installed on the Service Module during a space walk next year. The initial station gear will be reinstalled in the Service Module once the antennas have been fitted. A Russian Proton-K rocket carried the long-delayed Service Module into orbit July 12 from Baikonur Cosmodrome. Zvezda ("star") will contain flight controls, waste-disposal facilities, and crew sleeping quarters. Once in orbit, the unmanned Zvezda will be docked July 26 by computer with Zarya ("dawn") and the US Unity modules launched in 1998.

A Russian call sign, RZ3DZR, has been issued for the ISS ham radio station. A German call sign, DL0ISS, also has been issued, and a US call sign has been applied for. An international call sign may be assigned if a call sign block is established for international space stations.

A primary goal of ARISS is to establish and maintain a schedule of Amateur Radio contacts with schools. ARISS will inherit the long legacy of the successful Space Amateur Radio Experiment. SAREX, a cooperative education effort involving NASA and the ARRL, has allowed students to speak directly to shuttle astronauts and US astronauts aboard the Russian Mir space station via Amateur Radio. **As ISS construction progresses, it's expected that slow-scan TV, various types of amateur TV, and experimental projects eventually will be added.** Phase 2 of the ARISS initial station calls for incorporating a German-built digitalker/speaker-mike, SSTV, and possibly an RF notch filter. Subsequent stages o the ARISS effort call for a transportable station and, ultimately, a permanent station that will include HF through microwave capabilities on several modes. Details of the permanent station still are being worked out.
…The ARRL Letter Vol. 19, No. 27 July 14, 2000

HAMFEST CALENDAR

This section is reserved for upcoming hamfests for as far in advance as we know about them. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here, notify me so it can be corrected. I maintain some fliers that compile this list so for additional info Email me at towslee@ee.net. This list will be amended, as further information becomes available.

22 Jul 2000 OH-KY-IN ARS http://www.qsl.net/k8sch Gene McCoy, N8KOJ 6541 Teakwood Ct. Cincinnati, OH 45224-2111 Phone: 513-541-6935 Fax: 513-541-1656 Email: n8koj@arrl.net Cincinnati, OH.
30 Jul 2000 Portage http://parc.portage.oh. Joanne Solak, 9971 Diagonal Mantua, OH 44255 Phone: 330-274-8240 Email: ljsolak@apk.net Randolph, OH.
5 Aug 2000 Voice of Aladdin ARC James Morton, 6070 North Gap Columbus, OH 43229-1945 Phone: 614-846-7790 Email: kb8kpj@cs.com Columbus, OH.
22 Jul 2000 OH-KY-IN ARS http://www.qsl.net/k8sch Contact:Gene McCoy, N8KOJ 6541 Teakwood Ct. Cincinnati, OH 45224-2111 Phone: 513-541-6935 Fax: 513-541-1656 Email: n8koj@arrl.net Cincinnati, OH
30 Jul 2000 Portage ARC http://parc.portage.oh.us Contact: Joanne Solak, KJ3O 9971 Diagonal Road Mantua, OH 44255-9472 Phone: 330-274-8240 Email: ljsolak@apk.net Randolph, OH
5 Aug 2000 Voice of Aladdin ARC Contact: James Morton, KB8KPJ 6070 North Gap Drive Columbus, OH 43229-1945 Phone: 614-846-7790 Email: kb8kpj@cs.com Columbus, OH
19 Aug 2000 Portsmouth Radio Club Contact: Jack King, 1425 Big Run Road Otway, OH 45657 Phone: 740-372-5811 Email: jeking@zoomnet.net Friendship, OH
20 Aug 2000 Warren ARA http://www.onecom.net/ Contact: Renee McCaman, KB8SVF 451 8th Street Struthers, OH 44471 Phone: 330-755-2433 Email: mccaman@cboss.com Warren, OH
10 Sep 2000 Findlay ARC http://www.bright.net/~kanga/w8ft/hamfest.html Contact: Bill Kelsey, N8ET 3521 Spring Lake Drive Findlay, OH 45840 Phone: 419-423-4604 Email: kanga@bright.net Findlay, OH
17 Sep 2000 Greater Cincinnati ARA Contact: Jim Weaver, K8JE 5065 Bethany Road Mason, OH 45040 Phone: 513-459-0142 Email: k8je@arrl.net Cincinnati, OH
24 Sep 2000 Hamfest Association of Cleveland http://www.hac.org Contact: Ron Nichols, N8LZA 5402 Velma Avenue Parma, OH 44129 Phone: 800-CLE-FEST or 216-999-7388 Email: info@hac.org Cleveland, OH
8 Oct 2000 Medina Two Meter http://www.qsl.net/ Michael Rubaszewski, 4264 Alpine Hill Brunswick, OH 44212-2166 Phone: 330-273-1519 Email: n8tzy@webcombo.net Medina, OH
15 Oct 2000 Ashland Area Contact David Fike, 979 Twp. Road 1654, RFD 6 Ashland, OH 44805-9244 Phone: 419-289-1082 Email: aaarc@neo.rr.com Ashland, OH
15 Oct 2000 Northwest Ohio ARC Greg Schwark, 600 Sunset Spencerville, OH 45887 Phone: 419-647-6321 or 419-647-5127 Email: gas1950@aol.com Lima, OH
29 Oct 2000 Massillon ARC http://www.qsl.net/w8np Contact: Terry Russ, N8ATZ 3420 Briardale Circle Massillon, OH 44646 Phone: 330-837-3091 Email: marc.hamclub@juno.com Canton, OH
29 Oct 2000 Marion ARC Contact: Karen Eckard, N8KE 6583 South Street Marion, OH 43302 Phone: 740-499-3565 Email: meeker@gte.net Marion, OH
18 Nov 2000 Grant ARC http://www.qsl.net/~n1djs Dot Silman, KB8TQU 502 Waynoka Drive Sardinia, OH 45171 Phone: 937-446-2234 Email: huggee@bright.net Georgetown, OH

ATCO REPEATER TECHNICAL DATA SUMMARY

Location: Downtown Columbus, Ohio
Coordinates: 82 degrees 59 minutes 53 seconds (longitude) 39 degrees 57 minutes 45 seconds (latitude)
Elevation: 630 feet above average street level (1460 feet above sea level)

Transmitters: 427.25 MHz AM modulation, 1250 MHz FM modulation and 2433 MHz FM modulation.
Interdigital filters in output line of 427.25, 1250 & 2433 transmitters
Output Power - 427.25 MHz: 40 watts average 80 watts sync tip
1250 MHz: 50 watts continuous
2433 MHz: 15 watts continuous
Link transmitter - 446.350 MHz 1 watt NBFM 5 kHz audio

Identification: 427, 1250 & 2433 xmtrs. Video identify every 10 minutes showing ATCO & WA8RUT on four different screens.

Transmit antennas: 427.25 MHz - Dual slot horizontally polarized 7 dBd gain major lobe west
1250 MHz - Diamond vertically polarized 12 dBd gain omni
2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Receivers: 147.45 MHz for F1 audio input control of touch tones
439.25 MHz for A5 video input with FM subcarrier audio (lower sideband)
915 MHz for F5 video link data from remote sites
1280 MHz for F5 video input
2411 MHz for F5 video input

Receive antennas: 147.45 MHz - Vert. polar. Hi Gain 12 dBd dual band (also used for 446.350 MHz output)
439.25 MHz - Horiz. polar. dual slot 8 dBd gain major lobe west
915 MHz - DB Products vertically polarized 10 dBd gain omni
1280 MHz - Diamond vertically polarized 12 dBd gain omni
2411 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Input control: Touch Tone Result (if third digit is * function turns ON, if it is # function turns OFF)

00#	turn transmitters off (exit manual mode and return to auto scan mode)
00*	turn transmitters on (enter manual mode - keeps transmitters on till 00# sequence is pressed)

Manual mode functions:

00* then 1	Ch. 1	Select 439.25 receiver - manual mode (hit 00* then 1 to view 439.25 signal only)
00* then 2	Ch. 2	Select 915 receiver - manual mode
00* then 3	Ch. 3	Select 1280 receiver - manual mode
00* then 4	Ch. 4	Select 2411 receiver - manual mode
00* then 5	Ch. 5	Select video ID - manual mode (the 4 identification screens)
01* or 01#		Channel 1 439.25 MHz scan enable (hit 01* to scan this receive channel & 01# to disable it)
02* or 01#		Channel 2 915 MHz scan enable
03* or 01#		Channel 3 1280 MHz scan enable
04* or 01#		Channel 4 2411 MHz & camera video scan enable
A1* or A1#		Manual mode select of 439.25 receiver audio
A2* or A2#		Manual mode select of 915 receiver audio
A3* or A3#		Manual mode select of 1280 receiver audio
A4* or A4#		Manual mode select of 2411 receiver audio
C0* or C0#		Beacon mode – transmit ID for twenty seconds every ten minutes
C1* or C1#		427.25 transmitter power output select (C1* = 50W output power or C1# = 1.5W output)
C2* or C2#		(not currently used, could be hooked up to 2433 transmitter for on/off)

Auto scan mode functions:

001	2411 receiver (normal mode - returns to auto scan)
002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
003	Equipment room camera (select 001 when finished viewing camera so repeater will shut down)

ATCO MEMBERS AS OF 15 July 2000

.A8XA	Stan Diggs	2875 Southridge Dr	Columbus	Oh	43221-3011		sdiggs4590@aol.com
.8AEH	Wilbur Wollerman	672 Rosehill Road	Reynoldsburg	Oh	43068	614-866-1399	wilbur.w@juno.com
.C3AM	David Stepnowski	735 Birchtree Lane	Claymont	De	19703-1604		kc3am@aol.com
.C8ASD	Bud Nichols	3200 Walker Rd	Hilliard	Oh	43026	614-876-6135	
/4/F5BJV	Marcel Pitzini	443 Eastland Drive	Decatur	Ga	30030	404-378-2772	f5bjv@mindspring.com
/8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	Oh	43147		kc8bni@amsat.org
/B8CJW	Dale Elshoff	8904 Winoak Pl	Powell	Oh	43065	210-0551	dale.elshoff@usiny.mail.abb.com
/A8DNI	John Busic	2700 Bixby Road	Groveport	Oh	43125	491-8198	jbusic@ee.net
.8DW	Dave Wagner	2045 Maginnis Rd	Oregon	Oh	42616	419-691-1625	
/A4DFS	Ed Walker	PO Box 150	Mountain City	Tn	37683	423-727-9611	ebwalker@preferred.com
/A3DTO	Rick White	5314 Grosbeak Glen	Orient	Oh	43146	877-0652	wa3dto@aol.com
/8DXF	Bob Lewis	192 Northview Rd	Blanchester	Oh	45107-8770	937-783-2740	docwest@in-touch.net
/B8DZW	Roger McEldowney	5420 Madison St	Hilliard	Oh	43026	876-6033	wb8dzw@aol.com
/8EHW	Foster Warren	P.O. Box #32	No. Hampton	Oh	45349		
.S4GL	John Barnes	216 Hillsboro Ave	Lexington	Ky	40511	606-253-1178	ks4gl@juno.com
/8GUC	Reuben Meeks	428 Lewiston Road	Kettering	Oh	45429	937-294-0575	rcmeeksjr@mics.net
.B8GUE	Ron Piatt	154 Kennedy Blvd PO box 200	Leesburg	Oh	45135		yonkb8gue@webtv.net
.A8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Oh	44305		
/A8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	Oh	43026	777-4621	
/3HMS	John Jaminet	912 Roberts St	Mechanicsburg	Pa	17055-3451		w3hms@aol.com
/8JND	Richard Knowles	573 Plaza Drive	Circleville	Oh	43113	477-8132	
.8KDR	Matt Gilbert	5167 Drumcliff Ct.	Columbus	Oh	43221-5207	771-7259	mjgilbert@wcom.net
.8KQN	Ted Post	1267 Richter Rd	Columbus	Oh	43223	276-1820	n8kqn@juno.com
/A8KQQ	Dale Waymire	225 Riffle Ave	Greenville	Oh	45331	513-548-2492	walkingcross@mail.bright.net
.3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	Pa	17603-9563		hdeverter@redrose.net
.C8LOW	Bob Harmon	831 McDonell Dr	Gahanna	Oh	43230	478-2193	kc8low@netscape.net
.8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	Oh	43123	614-871-0751	phumphries@iwaynet.net
.A8MID	Bill Dean	2630 Green Ridge Rd	Peebles	Oh	45660		ka8mid@qsl.net
.8NT (Ex KF8QU)	Bob Tournoux	3569 Oarlock Ct	Hilliard	Oh	43026	876-2127	rtournou@columbus.rr.com
/D8OBT ,KB8ESR	Tom Camm & sons	1634 Dundee Court	Columbus	Oh	43227	860-9807	
.8OCQ	Robert Hodge	3689 Hollowcrest	Columbus	Oh	43223	875-7067	
.8OPB	Chris Huhn	146 South Hague Ave	Columbus	Oh	43204	279-7577	
/6ORG,WB6YSS	Tom O'Hara & family	2522 Paxson Lane	Arcadia	Ca	91007-8537	626-447-4565	tom@hamtv.com
/B8OTH	Perry Yantis	1850 Lisle Ave	Obetz	Oh	43207	491-1498	pyantis@compuserve.com
/A2PCH	Craig Stoll	PO Box 1117	Orchard Park	Ny	14127		
.E8PN	James Easley	1507 Michigan Ave	Columbus	Oh	43201	421-1492	jeasly@freenet.columbus.oh.us
/8PGP ,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	Oh	43154	474-3884	
.Z8R	Greg Radcliff	3311Kristen Ct	Columbus	Oh	43231		
/A8RMC	Art Towslee	180 Fairdale Ave	Westerville	Oh	43081	891-9273	towslee@ee.net
/8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	Oh	43110		w8rrf@copper.net
/8RRJ	John Hull	580 E. Walnut St.	Westerville	Oh	43081		
/8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	Oh	43224	261-8583	wa8rut@aol.com
/8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	Oh	45334	937-964-1185	w8rvh@glasscity.net
.B8RVI	David Jenkins	1941 Red Forest Lane	Galloway	Oh	43119	614-878-0575	comm21@coil.com
/8RXX	John Perone	3477 Africa Road	Galena	Oh	43021	740-548-7707	
/A8SAR	Gary Obee	3691 Chamberlain	Lambertville	Mi	48144		
.8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	Oh	43119	851-0223	larry@psycho.psy.ohio-state.edu
.B8SFD	Doug Nicodemus	5837 Karric Sq Dr #185	Dublin	Oh	43016		rimlight@aol.com
/8SJV	John Beal & family	2899 Castlebrook Ave	Columbus	Oh	43026	876-9412	
/3SST	John Shaffer	2596 Church Road	York	Pa	17404		w3sst@juno.com
/8STB	John Hey & family	894 Cherry Blossom Dr	West Carrolton	Oh	45449	937-859-5295	heyjo@netzero.net
.8STV	Jim Carpenter	823 Quailwood Dr	Mason	Oh	45040		
.8TCB	Bill Smith	657 Redford Ave	Columbus	Oh	43207	491-0709	n8tcb@columbus.rr.com
.B8TRP ,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	Oh	43223	272-5784	ed@fastpc1.com
/A8TTE	Phil Morrison	154 Llewellyn Ave	Westerville	Oh	43081		
.B8UGH	Steve Caruso	39 South Garfield Ave	Columbus	Oh	43205	461-5397	scaruso@freenet.columbus.oh.us
/B8URI	William Heiden	5898 Township Rd #103	Mount Gilead	Oh	43338	419-947-1121	
.B8UU	Bill Rose	9250 Roberts Road	West Jefferson	Oh	43162	879-7482	
/A8UZP	James R. Reed	818 Northwest Blvd	Columbus	Oh	43212	297-1327	jrr@cscc.edu
.7VE	John Hays	P.O. Box 95473	South Jordan	Ut	84095-0473		jhays@hays.org
/B8VJD	Rick Morris	203 Merton Street	Holland	Oh	43528		
.B8VUQ	Jack Wolff	2682 Hiawatha Ave	Columbus	Oh	43212	263-3092	
.8WLT	James Neymeyer	2879 East Moreland Drive	Columbus	Oh	43209	237-2331	
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	Oh	43062	740-927-3883	dhunter147@aol.com
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	Oh	43223	272-8266	mmgriggs@aol.com

KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	Oh	43064	
N8YZ	Dave Tkach	2063 Torchwood Loop S	Columbus	Oh	43229	882-0771tkach@copper.net
KB8ZLB	Dave Kibler	243 Dwyer Rd	Greenfield	Oh	45123	937-981-4007k154@bright.net
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	Oh	43125	836-3519ka8zny@copper.net
N8ZTJ	Jeff Skinner	25956 Locust Grove Rd	New Holland	Oh	43145	

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are $10.00 per person payable on January 1 of each year. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost.

The membership period is from January 1ST to December 31ST. New Members will receive all ATCO newsletters published during the current year prior to the date they join ATCO. For example, a new member joining in June will receive the January and April issues in addition to the July and October issues. Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President:	Art Towslee WA8RMC	Repeater trustees:	Art Towslee WA8RMC
V.President:	Ken Morris WA8RUT		Ken Morris WA8RUT
Treasurer:	Bob Tournoux KF8QU		Dale Elshoff WB8CJW
Secretary:	Rick White WA3DTO	Statutory agent:	Rick White WA3DTO
Corporate trustees:	Same as officers	Newsletter editor:	Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL O NEW MEMBER O DATE _____ CALL _____

OK TO PUBLISH PHONE # IN NEWSLETTER YES O NO O HOME PHONE _____

NAME _____INTERNET Email ADDRESS_____

ADDRESS _____

CITY _____ STATE _____ ZIP _____-_____

FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY

_____

COMMENTS_____

_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK O MONEY ORDER O

Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026

TUESDAY NITE NET ON 147.45 MHz SIMPLEX

Every Tuesday night @ 9:00PM WA8RMC hosts a net for the purpose of ATV topic discussion. There is no need to belong to the club to participate, only a genuine interest in ATV. All are invited. For those who check in, the general rules are as follows: Out-of-town and video check-ins have priority. A list of available check-ins is taken first then a roundtable discussion is hosted by WA8RMC. After all participants have been heard, WA8RMC will give status and news if any. Then a second round follows with periodic checks for late check-ins. We rarely chat for more than an hour so please join us if you can.

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (01/15/00)..... $735.03

RECEIPTS (dues)..... $395.00

OTHER INCOME (bank interest)..... $ 13.72

Bank Charge..... $ (2.00)

Spring Event food..... $(198.46)

CLOSING BALANCE (07/15/000)..... $943.29