ATCO NEWSLETTER

VOLUME 18 NUMBER 1 **January 2001**

The ATCO newsletter is the official publication of a group of amateur television operators known as AMATEUR TELEVISION IN CENTRAL OHIO Group Inc." and is published quarterly (January, April, July, and October)

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ATCO HAM IN THE SPOTLIGHT

This time the picture is of James Reed WA8UZP. He is our Ham in the spotlight.

Like the others who preceded him, Jim is an avid ATVer. In addition to that, he manages to be an expert computer user. Combine those and it's no wonder his signal is on the air often. Even his wife enjoys the hobby. Keep up the good work, "Chief Operator Jim"! (View his ATV picture on Tuesday nights and find out why.)

Jim has been licensed for nearly 35 years and is now a "retread ATVer" from the "golden" days.
He says "There was GOD, the planet earth and Bill Parker alone in his basement back at that time".

ACTIVITIES ... from my “workbench”

Hello again! It’s Newsletter time! Now that the Christmas season is officially over, I can sit back and take a breather. Even though I took a well-deserved vacation between Christmas and New Year, very little ATV activity took place. It seemed that there were too many other things that needed attention. I did some machine work to fix my lathe and right in the middle of it all I managed to contract the flu bug for a day. It only lasted for a day but my lack of ambition lasted for a couple of days thereafter. Now I’m refreshed and as soon as the Newsletter is published, I’m back to the basement to work on repeater enhancement projects.

The repeater 2.4 GHz transmitter stopped working and was left off the air for some time thinking the problem was the failure of the output transistor like the last time which was costly to repair. Just recently Dale has been able to make a return trip to seek the cause. It turned out to be a bad diode in the power supply. It’s not as bad as an RF transistor. It should be back in operation by the time you read this Newsletter.

Also, the 446.350 MHz link transmitter has become intermittent. It seems that it works great until Net Night then refuses to turn on. Dale made a trip up there the other day and wiggled about every cable in the system, which refused to reveal any intermittent. The link worked all the time he was there. “Obviously you can’t fix it if it ain’t broke” proves that Murphy is there someplace. The last few days it has been OK but wouldn’t you know it, it quit about one hour before Net time on Tuesday. One of these times it won’t work when we’re there. Right now, we don’t know if the problem is in the transmitter or the controller commanding it.

I’m busy designing a new 12-volt power supply for the repeater. There are two 12 volt linear supplies up there now which are not too efficient and create a lot of heat. Since we need more efficiency to reduce the heat and also free up so much needed real estate in the cabinet rack, I took on the project. It helps to find an extra couple of 12 volt 75 amp switching power supplies in the junk at work. (Yes…I’m a pack rat too!) These supplies were just what we needed. John Busic, WA8DNI had previously and donated a 12 volt 65 amp supply for the cause but since my find at work produced newer units and most importantly an identical spare supply, I decided to return John’s and use mine. John did, however, find two 75-amp shunts that I need to measure the output current so I’ll use them. Thanks, John. As soon as two digital panel meters arrive from Jameco Electronics, I’ll finish the supply by mounting it in a rack panel, enclosing it, add output filtering, add the panel meters and output connectors. This single supply will furnish 12 vdc power for the 427 MHz and the 1250 MHz transmitters and have enough reserve current to allow increasing the 427 MHz transmitter power output in the near future.

I would like to build a 100 watt final transmitter to replace the Mirage 40 watt unit now in service. Presently, we’re using a PC Electronics exciter going into a Mirage final amplifier. I’m not complaining about the PC Electronics unit for it has served us well but in order to improve the quality it will be necessary to replace it with a commercial TV modulator, which I have at this time. That unit has SAW filters to provide a better vistigal signal but needs an extremely linear final amplifier to make sure the signal stays clean. The Mirage is not very linear and produces a great deal of intermodulation, which destroys the quality of the signal passing through it. The best amplifier we can find is a Teletec unit. However, Teletec decided to exit the Ham business and stay strictly commercial (that’s where the money is). I decided to look into “reverse engineering” a Teletec to see if it can be easily done. More on that one later. It may prove to be too large of a task considering my available time so don’t count on it soon. If any of you out there have any other ideas, I’d like to hear about them.

Dale is busy upgrading the repeater controller from the Intutitive Circuits unit back to the VS90 unit we previously had. It seems we can’t find the unit to fit our needs. This time it might be different. Dale has been plagued with a problematic microprocessor IC so an attempt to get a satisfactory resolution with the VS90 supplier produced an offer to give us the VS90 source code if we would “quit bothering him”. This is great because we now will be able to tailor the code to meet our needs. So far, I have re-assembled it with my assembler, which revealed many errors. After some work, and a little help from my friends, I resolved the error problem and blasted what I thought was an acceptable program. Finally there remained only one small problem. Just because the assembler saw no program errors does not guarantee that it will run in the circuit. It didn’t! After some rework, it works somewhat but at least one more bug looms. After I finish this Newsletter I’ll have some time to check it out further. When installed, we’ll be back to our old repeater control codes.

I’ve got good news from N8NT. He has been looking at the roof camera control software trying to locate the bug that prevented proper camera direction reversal. I removed the camera from the roof late last fall and delivered it and controller to Bob so he could check it out. Bob tells me that he found the bug and installed an updated EPROM in the controller. It all works OK now. As soon as a “semi warm” day occurs, I will try to make it back to the roof for installation. Look for a working repeater roof cam soon! Thanks Bob!

The 2.4 GHz receive circuit is plagued with interference problems. We believe that a wireless Ethernet spread spectrum system is in use very close by and producing severe desensing in the receiver. I have had a spectrum analyzer at the site and it revealed severe interference from 2405 through 2440 MHz. As a result we decided to move the receiver input from 2411 down to 2398. This has helped dramatically but some interference is still seen as narrow horizontal bars in the picture. The receive bandpass is still extending up past 2410 so we feel that an additional filter that has an upper cutoff about 2405 or so will help even more. Even with the system as is, a 500mw signal at Dale’s house produced near P5 pictures where it wasn’t even perceptible before. We’re making progress. The 2.4 GHz band could still be useful for us!

Well, that’s about all for now. I’m sure we’ll have more problems to resolve next time. After all, that’s partly what Hamming’s about! If it worked flawlessly the first time and stayed that way, this hobby would be a very boring way to occupy time. Stay tuned for more next time. …WA8RMC

INTERNATIONAL SPACE STATION UPDATE

Yes, I know the following doesn't directly relate to ATV now, but in the not-too-distant future I'm sure that ATV activity will include signals to and from the station. We might as well know a little about what's going on up there now and the ARRL Letter sums it up just fine. Ed.

COMING SOON: FIRST HAM OPERATION FROM ISS…Amateur Radio is poised to mark an historic milestone. Operation from Amateur Radio's first permanent foothold in space is expected to debut soon after the all-ham Expedition 1 crew arrives November 2 aboard the International Space Station. The ISS crew could be on the air by mid-November.

The Amateur Radio on the International Space Station--or ARISS—initial station gear already is aboard the ISS awaiting the arrival of Expedition 1 Commander and US astronaut Bill Shepherd, KD5GSL, and Russian Cosmonauts Sergei Krikalev, U5MIR, and Yuri Gidzenko. The equipment includes VHF and UHF hand-held transceivers as well as a TNC for packet, a specially developed headset and signal adapter module plus power adapters and interconnecting cables.

The Expedition 1 crew is set to blast off October 31 aboard a Russian Soyuz rocket from the Baikonur Cosmodrome in Kazakhstan and will arrive aboard the ISS a couple of days later. Once on board, the crew will begin a four-month stay aboard the ISS--the first permanent occupancy of the international complex.

Two US call signs have been issued for Amateur Radio operations as part of the Amateur Radio on the International Space Station program. The FCC granted vanity call signs NA1SS and NN1SS to the International Space Station Amateur Radio Club on October 11. The NA1SS call sign will be used on board the ISS, while NN1SS will be for ground-based ISS communications from Goddard Space Flight Center in Maryland. A Russian call sign, RZ3DZR, and a German call sign, DL0ISS, also have been issued for use aboard the ISS.

The initial station gear will be installed temporarily in the Zarya Functional Cargo Block of the ISS and will permit operation only on 2 meters--FM voice and packet. Tentative operating frequencies are: Worldwide downlink for voice and packet, 145.80 MHz; worldwide packet uplink, 145.99 MHz; Region 1 (Europe) voice uplink: 145.20 MHz; Region 2 & 3 voice uplink, 144.49 MHz. Yet to be determined is the ARISS operating schedule, which will depend on the crew schedule. The ARISS Team anticipates multiband, multimode operations with the crew and regularly scheduled school group contacts.

For more information about Amateur Radio on the ISS and SAREX, visit the ARISS Web site, http://ariss.gsfc.nasa.gov/.
From ARRL Letter volume 19 No 41 on Oct 28 2000.

ATV ROCKOONING…Bill Brown is at it again trying for a record.

Bill Brown WB8ELK will be trying for a record this Sunday, Oct 29th by sending up a rocket to 80,000 ft on a balloon and then firing it off. The amateur rocket has to reach 125 miles to win. See http://www.harcspace.com for details, launch times and updates.

To avoid government rules and regulation problems, the balloon/rocket will be launched from the deck of a ship 120 miles offshore in the Gulf of Mexico. There will be ATV aboard as part of the payload. Hams at Dauphin Island, AL (the Mobile ATVers are manning this one), Mexico Beach, Florida and Bradenton, Florida are set up to track and monitor the flight. ATVers for a 500 mile radius should be able to pick up the video with an GPS overlay from the vertically polarized 1.5 watt AM ATV Tx PC Electronics TX on 434.0 MHz and/or possibly the horizontally polarized 1 watt FM ATV on 2418 MHz. Amateur rocketeers are going farther and farther all the time. Who knows, some day one might even achieve orbit.
Good Luck WB8ELK ! From Tom O'Hara W6ORG. and the Amsat BBS: 28 OCT 2000
…Edited & forwarded by W8DMR

SUNDAY, OCTOBER 29 -- 8:00 PM CST --- News from the Boat! The rocket did indeed fire, but had a major tip-off due to one or more foam guides getting caught up in the structure of the gondola (see the Gondola Diagram for placement). Thus, on the plus side, the new pre-launch combustion chamber pressurization process worked great, as did all the launch-related electronics. In fact, the Boat reported that all electronics on the rocket and gondola worked as planned.

The rocket video that was observed was of the rocket tumbling back to Earth -- and not of the rocket inside the gondola as had been earlier speculated. Upon viewing the recording of the rocket video, the GPS data overlay on the rocket video froze during the 15-second rocket burn, but restarted very soon afterwards. At that point, the rocket was just below 75,000 feet, thus it could not have climbed very high, if at all. According to the Boat, they received good quality video of the rocket all the way down to splashdown, and they were on route to attempt to recover the rocket. (Of course, finding a mostly black rocket at night -- with a new moon -- is a near impossible feat, especially since the onboard electronics will corrode seconds after touching seawater. More information will be posted on Tuesday after the Boat crew
returns to Huntsville late Monday and has time to rest.

The Boat crew also reported that they received good quality video from the gondola, including full color video of the rocket launch process. According to the Boat, the tear-out panel process failed (it was not mentioned which part of the process did not work), although it was mentioned that all of the onboard electronics worked well. The balloon and gondola drifted slowly eastward and is being tracked via onboard GPS by the Boat crew. Shore Station 1 served as a relay to report the information (and the latest position) to Eglin AFB safety personnel. Projected splashdown point for the gondola is well out to sea.

MONDAY, OCTOBER 30 -- 7:00 AM CST --- News from the Boat! The balloon and gondola drifted slowly eastward and was tracked all night long via onboard GPS by the Boat crew. The last reading had the balloon descending below 35,000 feet, with a projected splashdown point about 40 miles east of the nominal rocket launch coordinates -- still 200 miles out to sea, and at least 100 miles from the only commercial aircraft route crossing Eglin AFB waters (Gulf Route 26). Eglin AFB safety personnel were provided with updates of the balloon's location, and were satisfied with the progress reports. The Boat crew is still on route back to shore. No word on whether or not the
rocket was recovered.
…from http://www.harcspace.com

DIGITAL TV DX…it CAN be done!

With the controversy surrounding 8VST-T modulation, and the generally gloomy outlook for its acceptance for indoor reception, Vs having outside antennas, and the various questions of is it going to work, here is a little excitement.

While my ATV friends may think I am absent from the airwaves, I in fact have just been very busy on the commercial side of TV. Recently I completed a study (600+ pages) comparing UHF reception in Chicago. The study involved 5 NTSC UHF stations and 1.25 DTV stations. That's one full data and one with partial data. Recently more stations in Chicago have joined the DTV world, and 1 will be conducting another study shortly that will document the DTV reception. I'm using my own personal "ENG" truck, mast and a slew of test gear that almost makes my ham shack look light.

Meanwhile, there are now some 60+ DTV stations operating full time in several markets. You can obtain a current list by visiting the NAB [www.NAB.ORG/dtv] site and going to the DTV station page. There they list by market the DTV operating stations and the list is updated as quickly as stations become operational.

You can receive ATSC digital TV fairly inexpensively. A WinDTV card for your computer (by Haupaggue Electronics) is available for $299 at most computer stores or by Internet. The NTSC is only about $49. I purchased 8 of the NTSC/DTV cards to pass around station staff to monitor our own Channel 45 DTV signal which is a half million watts from the top of the Sears tower. I have one in my home computer, and it is hooked to my master house antenna system. The antenna is a typical mid range Wineguard UV combo on the rooftop, about 25 feet above ground. A rotor lets me move it to view adjacent markets.

>From my home south of Crown Point, IN, (about 45 airline miles from the Sears Tower) I can usually watch South Bend P4. About 50% of the time Milwaukee from the Lake inversion effect, and frequent glimpses of Indianapolis, Lafayette, Ft Wayne, Madison, and more distant locations. Needless to say, these coincide with the 440 MHz ATV band openings. The VHF stations in these markets are also similarly viewable under the same atmospheric conditions.

The obvious question is "Are the DX DTV stations also able to be received?" The answer is yes, and more easily than the NTSC stations!

Sunday morning 10-28-00, between shopping, making meals and training dogs, I managed to squeeze in a few minutes of regular TV and noticed a band opening. Milwaukee, Indianapolis was fairly strong and South Bend a bit iffy. In Milwaukee there is a rather low powered DTV-8 that carries NTSC 10 WMTV. It is best known in Broadcasting for interference to Muskegon, MI viewers of WOOD TV 8 in Grand Rapids. The shot being about 65 miles directly across the lake between Milwaukee and Muskegon. The Channel 8 Milwaukee station has decreased its power and changed to a directional antenna to reduce the problem, but as we hams know, when the band is up, power is meaningless with 10 watt 300 mile contacts on ATV possible.

Sure enough, from Milwaukee, channel 10 was visible; channel 6 was there but had two other CO-channel signals beating with it. A scan of the DTV mode found channel DTV8. At first, much like rain fade DBS, the signal was blocks, intermittent and audio bits here and there, but as the band improved, the signal got better until there was full reception. I snatched a few frames in the WinDTV 2000 program, and E-mailed them off in hopes of a reception confirmation. The scan also picked up a DTV 25 station. I did not know where that was, and so a search was made by rotating the antenna while watching the DTV 25 channel on the computer. When I got to the Indianapolis direction, it popped in and came in just fine. Full reception. So I captured a few frames of DTV 25 which is the parallel of WRTV channel 6 Indianapolis. I could also get 13 NTSC from Indianapolis just fine. DTV pictures are either "perfect" or nothing, albeit, there is a 1-dB range of signal level where the error rate may produce partial pictures, blocks, or broken sound. DXing the usual NTSC signals often is difficult because of the co channel interference. This is clearly seen in the channel 6 NTSC pictures. The closest channel 25 NTSC signal to me is Peoria, IL, about 100 miles; the DTV 25 signal is about 150 miles away. There was no trace of the Peoria signal, but the Indianapolis signal was certainly P5, or perhaps we should say D5! The NTSC 13 pictures is a good P4+, some co-channel signal can be seen from a local (6 miles) LPTV channel 13 that runs video juke box. Although not visible in this pix, there is also a 13 in Grand Rapids, that when the

band is open, gets competition from the local LPTV 13. If I turn the antenna today, I can see it also. While the Indianapolis channel 25 DTV signal was easily received, there was only P1 to P2 signals from one Indianapolis NTSC UHF stations, and the others were not visible at all. So in this one instance, UHF DTV was perfect while UHF NTSC was basically not watchable from 150 or so miles.

The Milwaukee low power DTV 8 signal was also visible, but the more powerful NTSC VHF channels in Milwaukee was a full P5 perfect reception, except for some co-channel interference. So even low power VHF DTV can make it, albeit not as well as full power VHF NTSC.

I did not receive any of the DTV signals from South Bend, and the NTSC signals were at best P3 (16, 22, 28), quite a bit less than "normal."

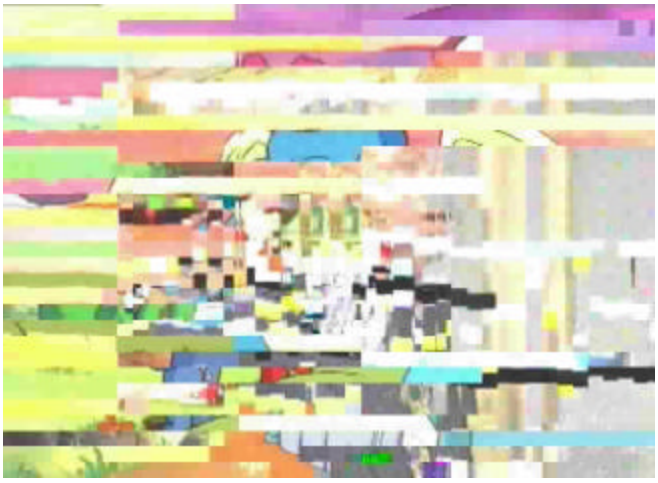
Also included is the ID shot from my own Channel 44N/45D station that has a half million watts from the Sears building 24/7. It's the most powerful DTV station in Chicago. For those watching DTV, Chicago has D31 WFLD fox at 200 kW ERP, D43 WCPX (with 6 multiplex channels of programming) at 100 kW ERP, D45 WSNS with 467 kW ERP. All are at the same antenna height (but not the same antennas) from the top of the Sears building. Soon NBC 29 and ABC 52 will be operating (they have been testing on air for the past week) and WGN DTV 19 is supposed to be on in December. Pix of 31 and 38 are also included.

The WinDTV board is quick in locking in to the DTV signals. The board itself doesn't have a lot of buffer memory, and will, on perfectly good signals, occasionally drop frames, or block defect the picture. But for the money, it's perfectly fine in these early days of DTV.

The WinDTV board receives all VHF and UHF channels, in NTSC M, NTSC N or ATSC 8VSB-T mode. It also has two inputs, one for an antenna and one for cable. It can scan both and selects the demodulation mode automatically between analog and DTV. The board also has lots of nifty features to capture video input from an external source, i.e., your baseband video and audio from an ATV receiver, TV set, camera, VTR, etc., and has a good tuner. I have not yet tried to see if using the cable input for cable channels 56-60 will net ATV signals, but it would be a natural thing to try. The capture mode lets you snatch off air frames, and there is also a movie mode, however, you need lots of disk space to store the JPEG pix files!

So here are the pictures. Happy DXing the new DTV world.

The pictures above are normal pictures with enough signal to provide receiver capture. They will always be P5!
The pictures below result when the signal has insufficient strength. Notice that instead of "snow", segments of picture are missing.



…Henry Ruh AA9XW (KB9FO)

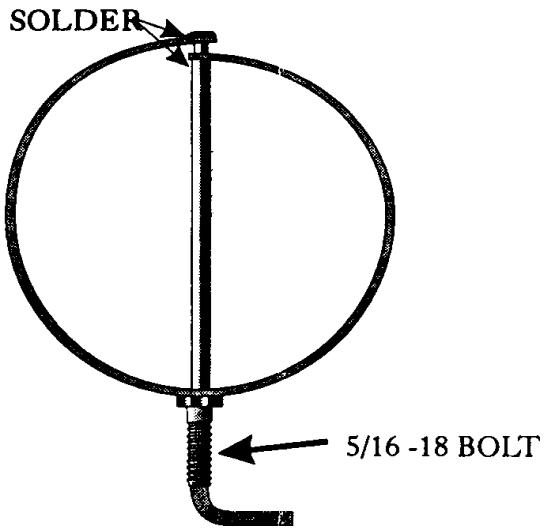
2400 MHz LOOP YAGI ANTENNA…Another one of Ted's goodies

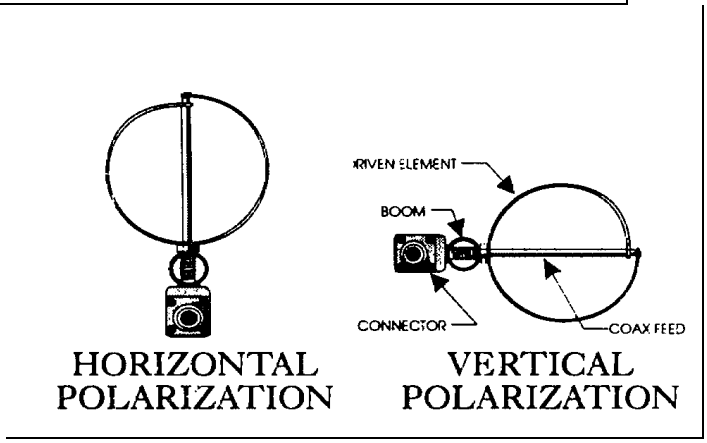
Ted, N8KQN, has been busy last summer whipping up yet another antenna for us. Good job Ted.

Each loop can be made from ¼" wide brass or aluminum. The driven element (DE) must be brass however, so it can be soldered to the bolt and coax as shown. Drill a hole .125 hole ½"from each end and form the piece into a loop. The dimension in the table below is from hole to hole. The total length of the loop piece should be ½" longer overall. Fasten to a ½" or ¾" dia. OD aluminum boom with 4-40 stainless screws. The gain is unknown at this time because of the lack of accurate test equipment.

The figure below illustrates the position of the driven element for the desired polarization but should be set for vertical if the ATCO repeater is viewed. The coax used is 1/8" rigid line to connect to the driven element. It can then be adapted to an "N" fitting with a standard hood before connecting to the coax downfeed. Be sure to use the best coax available for the downfeed because of the high losses. 1/2" Heliax is recommended as the absolute minimum and only if a short run is used (50 ft or less).
…N8KQN

Element	Space between elements	Element Total length (circumference)
REF#1	0	5 ¼"
REF#2	1 ¾"	5 ¼"
DE	7/16"	4 11/16"
DIR01	11/16"	4 ½"
DIR02	7/16"	4 ½"
DIR03	1"	4 ½"
DIR04	1"	4 ½"
DIR05	11/16"	4 ½"
DIR06	1 15/16"	4 ½"
DIR07	2"	4 ½"
DIR08	2"	4 ½"
DIR09	2"	4 ½"
DIR10	2"	4 ½"
DIR11	2"	4 3/8"
DIR12	2"	4 3/8"
DIR13	2"	4 3/8"
DIR14	2"	4 3/8"
DIR15	2"	4 3/8"
DIR16	2"	4 3/8"
DIR17	2"	4 3/8"
DIR18	2"	4 3/8"
DIR19	2"	4 3/8"
DIR20	2"	4 3/8"





ATCO FALL EVENT…Another good time for one and all

Yet another Fall Event has come and gone. The turnout was rather light again this year. (Is it just me or is the cold weather keeping us away?). Never the less, the rest of us enjoyed good (free) food brought by me and financed by our treasury. The agenda included a "social" time followed by lunch, a short meeting and door prizes. During the meeting we had an informal annual election of officers and I'm happy to announce that the present officers are re-elected for another year. There was no specific topic on the agenda so we discussed many smaller items too numerous to list here. As always, we had an abundance of door prizes donated by various individuals. I can see that Roger, WB8DZW, due to his donations, should now have a shack that is much easier to move around inside! Thanks for your generousity. There were a few items that were left because the prizes outnumbered the participants which I collected and will see that they return for the upcoming Spring Event. Enjoy the pictures of the Event below.
…WA8RMC

PHASE 3D (AO-40)…a Ham satellite 10 years in the making!

Here I go again reporting non-ATV subjects. Well, again, not quite. It's been talked about for some time that the next step after successful operation of this just launched and most advanced Ham satellite ever could be some form of digital video ATV operation. In order to stay abreast of the developments, let's start by reviewing the progress to date. Ed.

IT'S ALIVE! PHASE 3D IS NOW AO-40 (The ARRL Letter Vol. 19, No. 44 November 17, 2000)
Alive and well and in orbit around Earth, the satellite known for the past decade as "Phase 3D" has a new name. AMSAT-NA Board Chairman Bill Tynan, W3XO, this week announced that Phase 3D now will be known as AMSAT-OSCAR 40,or AO-40.

"We have been calling it Phase 3D for far too long," Tynan said. "Henceforth it will take its place in the long line of OSCARs, satellites built by the Amateur Radio community for the Amateur Radio community throughout the world."

Tynan said he got the official go-ahead from Phase 3D Project Leader Karl Meinzer, DJ4ZC, to assign an OSCAR number. It's been 40 years since the first OSCAR satellite launched. AMSAT-OSCAR 40 was dedicated to the memory of one of its principal builders, Werner Haas, DJ5KQ, and operates under the call sign DP0WH. Haas died earlier this year. A plaque aboard AO-40 is dedicated to his memory. Tynan, whose tenure as AMSAT-NA President covered the early years of the Phase 3D project, was overjoyed to see the satellite finally in orbit. "Congratulations and thanks to all whom participated in any way to this wonderful achievement," he said.

Following a one-day postponement, Phase 3D was successfully launched November 16 at 0107 UTC and placed into a geostationary transfer orbit, from which it will be nudged into its final high elliptical orbit. When the Ariane 5 launcher successfully deployed Phase 3D at 0153 UTC, cheers erupted from the AMSAT team monitoring the flight's progress in the Arianespace control room. The satellite is not expected to be ready for general use for about nine months.

"It was a textbook launch," said Phase 3D Mission Director and AMSAT-DL Executive Vice President Peter Guelzow, DB2OS. Guelzow, who's filling in for Phase 3D Project Leader Karl Meinzer, DJ4ZC, said the satellite appears to be in excellent health. A "general beacon" was transmitting on approximately 435.450 MHz. The AO-40 PSK beacon has been monitored on or about 145.898 MHz--slightly different from the expected frequency.

This week's Phase 3D launch culminated a decade of planning, design, construction and testing as well as an ambitious fundraising campaign. The ARRL was among the major contributors to the Phase 3D project. Newly elected AMSAT-NA President Robin Haighton, VE3FRH, hailed the news of the launch. "It expands the capabilities of radio amateurs to work with higher frequencies and develop advanced communication techniques," he said. "Once more, Amateur Radio operators will be at the leading edge of communications experimentation.

The satellite now is in orbit some 585 miles above Earth at the closest point. Phase 3D's final elliptical orbital configuration will put the satellite some 2500 miles away from Earth at its nearest point, and some 29,500 miles at its farthest. At 630 kg (1380 lbs.) and some 20 feet across when the solar panels are deployed, Phase 3D is the largest Amateur Radio satellite ever put into space. Three other satellites, the giant PanAmSat PAS-1R communications satellite and the smaller STRV-1C and 1D mini-satellites, joined AO 40 for the ride.

TROUBLE ABOARD AO-40.
On December 13, 2000, telemetry transmissions from the brand new amateur radio AMSAT OSCAR-40 satellite ceased. Automatic restarts of the satellite failed.

BUT NOW THE GOOD NEWS!
We just got information from New Zealand and Australia that AO-40 is back on Air!! At 2000 12 25 21:45 Ian, ZL1AOX sent a RESET command through L-band and an initialization block to switch the S2 S-Band transmitter On. Just after the first attempt the S2 beacon came on 2401.305 MHz, Signal was about S5 to 6 which was comparable to when S2 was heard last during testing. At 2000 12 26 00:30 signal strength has dropped to below S1 over a period of 30 minutes. The beacon was confirmed by several other stations in Australia, including Graham VK5AGR. Assuming this is true, we have a long way to go, but it's sure a step in the right direction!!!

RESET RESTORES AO-40 TRANSMISSION.
Merry Christmas, AMSAT--AO-40 is back! Following a 12-day silence, AO-40 once again is transmitting telemetry. In response to an L-band command sent Christmas Day by command station ZL1AOX, AO-40 resumed transmitting on 2.4 GHz. Software was reloaded to permit telemetry transmissions on 2401.305 MHz. Some problems remain on the satellite, however.

"Recovery of AO-40 continues, and some housekeeping tasks were performed by the command stations to improve and stabilize the situation," said Peter Guelzow, DB2OS, of the AO-40 team. Guelzow says new software routines were loaded successfully to restore the battery-charge regulator system and other housekeeping functions. "We will now start a detailed analysis of the situation," he said. Telemetry transmissions from AO-40 ceased December 13 while ground controllers were testing the onboard 400-Newton propulsion system following an initial orbital shift. Some observers feared the satellite had been irreparably damaged. Guelzow says ground stations

now have regained control of the satellite. Ground controllers hope the telemetry might yield some clues about what went wrong aboard the satellite to make it stop transmitting.

After onboard software watchdog routines failed to restart beacon transmissions automatically, a full reset command and an initialization block to switch on the S2 S-band transmitter were sent via L-band.

Guelzow said telemetry revealed that some temperature sensors have failed and some current sensors indicated incorrect values, but solar sensors seemed to be working fine. The good news was that AO-40's power situation--in particular the battery voltages--looks nominal.

Guelzow said additional software would be loaded in the next few days and the various uplinks checked out before any attempts are made to turn the 2-meter transmitter back on. "Clearly, we need more time to analyze and understand what has happened here," Guelzow said. He said that while there are no indications that the 2-meter beacon transmitter has failed, ground controllers don't want to risk losing communication again. "So for the next days the spacecraft will continue to be transmitting on S-Band only," he said.

Phase 3D Project Leader Karl Meinzer, DJ4ZC said AO-40 command stations "will continue to follow a conservative philosophy" with a primary goal of not causing additional damage while retaining as much evidence as possible to analyze what made the beacon transmissions stop.

On December 22, AMSAT proposed holding an inquiry into the incident that led to the loss of communication with AO-40. A letter from AMSAT-NA President Robin Haighton, VE3FRH, said, "AMSAT believes that it is in the best interests of our organization to determine all, the facts surrounding this incident and to make sure that a similar situation cannot happen again either on AO-40 or on a future satellite."

PROJECT LEADER "OPTIMISTIC" ABOUT SATELLITE'S FUTURE

AO-40 Project Leader Karl Meinzer, DJ4ZC, has expressed confidence that, despite its problems, the satellite will be functional in the future--although its mission likely will be different from the one planned prior to launch. "Personally, I am optimistic, and I believe that the command and engineering team stands a good chance of turning AO-40 into an extremely useful Amateur Radio satellite," Meinzer said this week (Jan 10, 2001) in a posting made available via AMSAT News Service.

While current data indicate that some onboard systems have been lost or compromised, "there has been no further deterioration after the second incident," he said. Meinzer said that especially if the ATOS arcjet and the three-axis stabilization systems still work, "AO-40 will still be able to produce a large fraction of the Amateur Radio service expected from it."

The AO-40 ground team has determined that, in addition to the 2.4 GHz transmitter, the 2-meter, 70-cm and 1.2 GHz receivers and high-gain antennas are operational. He said the 70-cm and 1.2 GHz omnidirectional antennas do not work, but the status of the 2-meter omnidirectional antenna has not been established.

The 2-meter transmitter was tested briefly, but unsuccessfully "It demonstrated a marked temperature increase, but no signal was heard," Meinzer said.

AO-40 team member Peter Guelzow, DB2OS, and Meinzer said additional tests of the 2-meter transmitter were pending, but Meinzer said they would have to wait. Meinzer said ground controllers first want to reduce the spacecraft's spin rate "to ensure that the satellite's heat-pipes will be able to handle the dissipation for extended periods."

Neither Guelzow nor Meinzer mentioned the possibility--raised last week--that a leak of some sort on AO-40 might be contributing to the enhanced spin rate. Meinzer said this week that magnetorquing—attitude control--was begun in order to reduce spin. Meinzer said ground controllers hoped to return the attitude control system to full functionality.

ATV BAND OPENING!

News Flash:
The ATCO 1.25 GHz FM ATV repeater was seen in Lynn, Indiana by KB9JGF, Bill. Thursday morning at 10:30 AM, January 11, 2000. Bill tuned his satellite C-band downconverter one channel higher (10 to 11). He normally monitors 1270 MHz.

Much to his amazement, the W8RUT/R repeater was locked in color, and was a P-4 signal. Using his 439.25 MHz ATV transmitter, every time he keyed it up and then stood by, he observed the 1.25 GHz FM ATV repeater from Columbus, Ohio. The city of Lynn, Ind. is located 120 miles west of Columbus, Ohio.

KB9JGF's antenna for 23 cm is horizontally polarized; the W8RUT/R ATV repeater has a vertically polarized omni antenna for 23 cm, which makes it even more remarkable.
…W8DMR

PORTABLE ATV…here's an antenna setup that will make you drool!

Tom Taft, KA8ZNY, has solved the problem of portable operation with inadequate antennas. Actually he wanted a setup that he could trailer to a given site for field day or for emergency communication situations. Working with the idea of needing a severe weather emergency communications antenna system, the array shown below was born. Congratulations to Tom for his mechanical ability and the desire to build this awesome setup.
…WA8RMC
The two pictures at the right show KA8ZNY, Tom, and WB8ZZR, Paul, adjusting the payload in the parking lot.

Below is a picture of the erected system at the National Weather Service Headquarters in Wilmington, Ohio.

FORT WAYNE ATV REPEATER…It's up and running!

There is a new ATV video link in the area. Wayne, K9SLQ has built a remote link for the Fort Wayne, Indiana repeater. It is located in Blufton, Indiana with an input frequency of 439.25 MHz. The antenna is pointed at the Dayton Ohio area, which makes it in line with Columbus also. Anything received in Blufton is transmitted via 900 MHz to the 900 MHz Fort Wayne link input and repeated back out on 900 MHz in Ft Wayne. Enter C1* C1* on 144.34 MHz to activate the Blufton to Ft Wayne transmission.

The Fort Wayne main repeater operates as a 439.25 MHz in and 910 MHz out machine. The 910 MHz signal from Fort Wayne is re-transmitted on 434 MHz at the Blufton site
…W8STB

HISTORY OF TELEVISION…sources of info

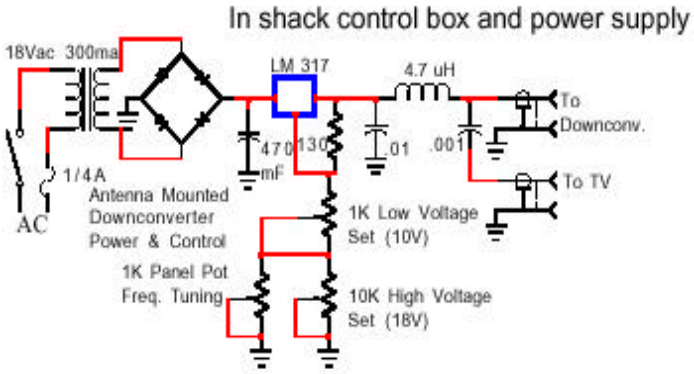
If you're interested in the history of world TV development, there is a lot of good stuff at web sites named in the NY Times and listed below.
www.farnovision.com
www.techreview.com/articles/oct00/schwartz.htm
www.cinemedia .net/SFCV-RMIT-Annex/rnaughton/phd8100.html
members.tripod.com/%7EFrameMaster/index.html (no www in front)
www.dfm.dircon.co.uk/tvl1strx.htm
members.aol.com/cingram/television/dumont.htm (no www in front)
The Baird site (dfm.circon.etc) even has pictures of early disc scanning pix recorded on wax discs in the 20's.
…W5OE…from a note published on HATS reflector

Antenna Mounting ATV Downconverters

For optimum sensitivity, the first preamp stage in a receiving system should be placed directly at the antenna to avoid the coax loss. The first stage should be the lowest noise device in the system and can either be part of the downconverter or a stand-alone preamp. There are some pluses and minuses to antenna mounting downconverters Vs just a preamp Vs low loss coax.

The Pluses: It is more important to minimize coax loss with FM ATV systems than AM ATV since the picture to noise ratio changes more rapidly. With AM the picture to noise ratio is dB for dB with 6 dB being one P unit or half the distance for the same picture to noise level. An acceptable rule of thumb has been 3 dB or less coax loss or greater than 100 ft of Belden 9913 or LMR-400 on the 70cm band for instance, before considering expending time and money on an improvement. With FM it depends on the modulation index and how good the limiter is – given the 4 MHz deviation standard we use on the 902 through 2400 MHz bands and poor limiting found in today's IC PLL or quadrature detectors it is about 2-3 dB for each dB of coax loss. The higher bands have much more coax loss so having the first stage as close to the antenna as possible is much more significant. Many may try ATV by first getting a downconverter and antenna to receive the local repeater output. If everything practical has been done with antenna gain and positioning and the picture still has some snow in it, then eliminating the feed line loss is the next step. If the repeater is crossband, and you don't have to transmit on the repeater output band, then just adding an antenna mounted preamp might be the best way to go. If you don't mind a little solder slinging, then you can repackage the downconverter board in a weather proof box for antenna mounting and build a DC coupler/ control box. The coax to the shack can be hundreds of feet of RG6, which has little loss at ch3 and which the converter gain has overcome. To transmit on the same band, you must add the complexity of T/R switching.

The Minuses: Primarily it is cost, complexity and reliability. As mentioned, if you want to transmit on the same band, you need to build in a RF T/R relay system. RF coax relays for UHF and above are not cheap and you need to sequence the DC and RF so that you don't transmit into an open coax for too long and that there is enough isolation between the two relay ports such that the transmitter does not blow the preamp . Max RF at the preamp should not exceed a few milliwatts.

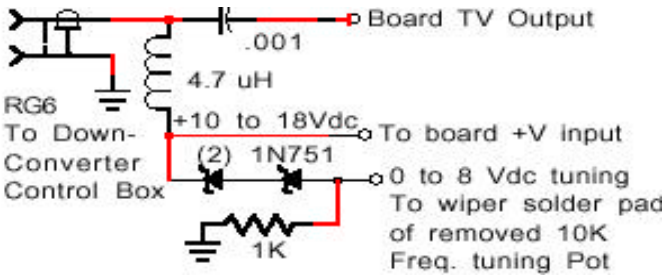


Effective weather proofing is important so that moisture does not get in and ruin the circuit. The box generally needs to be constructed to have seams and connectors only on the side pointing to the ground. Temperature is also significant especially in areas with weather extremes. Most ham gear is not designed or even tested to see how it does below freezing - a proportional resistive heater is some times used in this case. With tunable downconverters the LO frequency will probably drift and require slight frequency dial adjustment every 10 degrees of outside temperature change or so - this may or may not be a source of annoyance. The TVC-2G only drifted 340 kHz from 75 down to 5 degrees F which is in the range of most TV AFC's if tuned in the center. Higher bands will shift more.

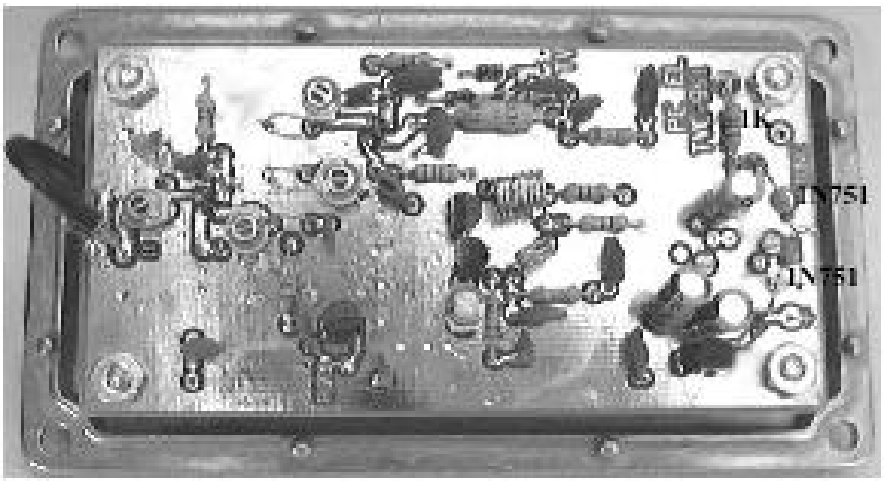
The downconverter board from the TVC-4G, 9G or 12G can be removed and the control box built using the old chassis box and many of its parts - it uses a CAB234 box.

Repackaging:

Shown below is a TVC-9 902-928 MHz tunable downconverter built into an Eagle 4591 die cast aluminum box All holes are in the cover so no moisture can get in when mounted facing the ground. The board is first placed and centered on the inside of the top cover. This way the (4) 1/8" dia mounting screw holes can be marked and then drilled accurately. Then drill a 1/8" pilot hole directly between the two-board mounting holes at one end for the F-61 jack. On the other end drill the pilot hole in-between but about a 1/2" in from the line between the two board mounting holes. Finish drilling the F jack to 3/8" and on the other end the UG-58 N jack to 5/8". Place the UG-58 jack in the hole and mark and then drill the 1/8" diameter holes for the four 4-40x5/16", lock washer and nut. Check for shorts.



On the downconverter board, remove the old tuning pot wires and bandspread 10K trim pot. Twist and solder the two 1N751 Zener diode leads together then solder the cathode end of one to the extra hole on the + DC input trace and the other end to the wiper solder pad of the old tuning pot wire. At the extra solder pad next to the wiper solder pad add the 1K other end soldered to ground plane.



Put in the four 4-40x5/8” board mounting screws and secure with a lock washer and nut. Then put a nut on each one and thread down about 1/4” from the end along with a lock washer. Place the board on the screws and put a nut on each down to where the screw top is flush with the nut, then tighten the respective nut on the bottom of the board. Check to make sure none of the connectors are touching the bottom of the board, then solder the cap, inductor and coax ends to their respective locations on the board. Check that there are no shorts on the F61 jack center to ground.

Wrap one end of a .001 mF disc cap and a 4.7 uH inductor around the center pin terminal of the F-61 jack as close to the insulation as possible and then solder. The cap lead must be long enough to reach the TV output of the board and the inductor to the + voltage input. Cut off the excess terminal as close as possible to the wires. This is necessary to clear the bottom of the board. Mount the UG58 jack and use a solder lug under one of the outer mounting nuts and pointed toward the center pin terminal. Cut a piece of RG174 50 Ohm coax to about 2”. Strip the outer insulation back 1/4-inch and fold back the braid. Strip the center conductor 1/8”. Place one end through the solder lug hole and solder to the center terminal. Flair the braid around the solder lug and solder them together. Preset the tunable downconverter control box by first turning the 1K frequency tuning pot to full CCW which is the lowest frequency and DC VCO voltage. Set the Low Voltage pot for 10Vdc out, which will give zero volts to the varicap on the downconverter board. Then turn the frequency pot to full CW and set for the highest frequency which is 18Vdc. Connect the downconverter and reset the lowest frequency and highest frequency while receiving an ATV signal for the about 2 and 8 respectively on a 0-10 dial.
…W6ORG (c) 2000 Web site: http://www.hamtv.com

NEWS BULLETIN…cheap ATV cameras could get cheaper!

I saw this the other day in one of my online EDTN Engineering bulletins, http://www.edtn.com/story/OEG20010102S0010, *so I thought I’d let you in on one of many electronic advances going on these days. Ed*

PHOENIX Dec 20, 2000--Motorola Inc. here today rolled out a new 1.3-megapixel image sensor for digital cameras, video systems and imaging applications. Fabricated with Motorola's ImageMOS technology, the "camera-on-a-chip" device contains analog and digital signal processing circuits, said the company.

The new MCM20027 chip expands Motorola's CMOS image sensor portfolio from several custom and standard products to include a 1.3-megapixel device for SXGA-resolution applications, said Larry Arbaugh, manager of Image Capture Operations at Motorola in Phoenix. "This will enable camera manufacturers to develop higher-quality consumer products at affordable prices," he claimed.

Motorola said it plans to begin offering samples of the MCM20027 image sensor in January. The suggested resale price of the CMOS sensor is $22 in quantities of 10,000 units.

The MCM20027 has been designed to operate as a 1,280-by-1,024 pixel progressive scan image sensor with integrated correlated double sampling (CDS), programmable gain amplifier (PGA) and analog-to-digital converter (ADC), said Motorola. The 6-by-6 micron pitch between pixels provides light sensitivity to 3 lux at 10 frames per second, said the company.

The CMOS image sensor device incorporates an integrated Bayer RGB color filter array and microlenses. The sensor outputs 10-bit Bayer encoded RGB data with all appropriate frame-timing signals.

Motorola said its new sensor requires less than 250 mW of power and has a power-savings mode of 100 microwatts for power-sensitive battery applications. The sensor architecture supports programmable "window-of-interest" for pan-and-scan, digital zoom and other sub-sampling modes required for next-generation digital camera products, according to Motorola.

…For more technology news, visit http://www.edtn.com

ACTIVITY REPORT FROM W3HMS (Mechanicsburg, Pa)

Q: John, what are you guys up to in Pennsylvania these days?
A: Well it is not ATV, but 10 GHz SSB, wide audio FM on 10 and 24 GHz and I am on 5.76 GHz in SSB/CW. I am in process of building a 5 watt CW/SSB 10 GHz home station and these little toys are costly $$$$. I am also going to install a CW beacon with 150 mw on 10368.2 at an altitude of about 2000-ft at a contest station.

As to ATV, Joe WA3PTV and I are both using Bensat satellite TV receivers bought from PC Electronics and color cameras and monitors or color TVs on receive. We have had very good color signals ....about P 4.5... at 19 miles with just 10 mw on 10 GHz in Dec. For receive I was only using a 15 dB horn to a European LNB. If I were using my 24 inch offset dish to an LNB, the signal would have been P5+....it was just too cold to stay out too long, HI!
…John W3HMS

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.

28 Jan 2001 Tusco ARC Contact: Gary Green, KB8WFN 32210 Norris Road Tippecanoe, OH 44699 Phone: 740-922-4454 Email: kb8wfn@tusco.net Dover, OH
4 Feb 2001 x Winterfest 2001 Northern Ohio ARS Contact: John Schaaf, K8JWS PO Box 432 Elyria, OH 44036-0432 Phone: 216-696-5709 Email: noars@qsl.net Lorain, OH
11 Feb 2001 InterCity ARC & MASER http://www.maser.org Contact: Dean Wrasse, KB8MG 1094 Beal Road Mansfield, OH 44905-1605 Email: deanwrasse@yahoo.com Mansfield, OH
25 Feb 2001 Hamilton County ARPSC http://www.arpsc.com Contact: William Tittle, KA8LAY 3038 Bracken Woods Lane Cincinnati, OH 44211-7338 Phone: 513-661-1805 Fax: 513-661-8558 Email: ka8lay@arrl.net Cincinnati, OH
25 Feb 2001 Cuyahoga Falls ARC http://www.cfarc.org Contact: Carl Hervol, N8JLQ 2292 Lake Center Street Uniontown, OH 44685 Phone: 330-497-7047 Fax: 330-497-8489 Email: carlh@pop.raex.com Cuyahoga Falls, OH
18 Mar 2001 + Toledo Mobile Radio Association http://www.tmrahamradio.org Contact: Paul Hanslik, N8XDB 3241 Schneider Road Toledo, OH 43614-2432 Phone: 419-385-5056 Maumee, OH
25 Mar 2001 + Lake County ARA http://hamradio.org/lcara Contact: Roxanne, N8BC 7480 Fern Drive Mentor-on-the-Lake, OH 44060-3233 Phone: 440-209-8953 (9 AM to 9 PM) or 440-257-0024 Email: brown@ncweb.com Madison, OH
1 Apr 2001 + Jackson County ARC Contact: Edgar Dempsey, KD8XL 110 Morton Street Jackson, OH 45640-1335 Phone: 740-286-3239 Email: kd8xl@ohiohills.com Coalton, OH
29 Apr 2001 + Athens County ARA Contact: Drew McDaniel, W8MHV 61 Briarwood Drive Athens, OH 45701 Phone: 740-592-2106 Email: dmcdaniel1@ohiou.edu Athens, OH
29 Apr 2001 + Twenty Over Nine Radio Club Contact: Don Stoddard, N8LNE 55 South Whitney Avenue Youngstown, OH 44509 Phone: 330-793-7072 Email: N8LNE1@juno.com Canfield, OH
18-20 May 2001 Dayton Hamvention Dayton ARA http://www.hamvention.org/ Contact: Jim Graver, KB8PSO Phone: 937-276-6930 Fax: 937-276-6934 Email: info@hamvention.org Dayton, OH
10 Jun 2001 + Goodyear ARC Contact: Rich Kuster, N8ZDQ 1341 Whippoorwill Trail Stow, OH 44224-2327 Phone: 330-796-3951 Email: rich.kuster@goodyear.com Suffield (Akron), OH

NEW MEMBERS

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. It's important that we actively recruit new faces aggressively.

W2OTA Michael Chirillo Wantagh, New York
W8LT Ross Hatfield Chillicothe, Ohio

…Art 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. List verified 6/1/00.
…Art WA8RMC

Michael Kohlstadt, KD6UJS has a limited supply of used but working Pacific Monolithics 2.4 ghz 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 01/15/01)

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).

Note: The listings below without URL's have disappeared! If any of you know otherwise, let me know.

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.angelfire.com/al/gcats/	Alabama - Gulf Coast Amateur Television Society
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://home.tampabay.rr.com/k4lk/	Florida,Tampa Bay Amateur Television Society (TBATS)
?	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://www.qsl.net/k4kjq/atv/BATS.htm	Kentucky, Lexington Bluegrass ATV Society (BATS)
http://www.kcatv.org/	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://come.to/amateurtv.mn	Minnesota Fast Scan Amateur Television (MNFAT)
http://www.intecnet.net/vidking/	Missouri, St Louis Amateur Television
http://www.qsl.net/kd2bd/atv.html.	New Jersey, Brookdale ARC in Lincroft
http://no3y.com/	New Mexico, Farmingham
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
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.nettekservices.com/ATV/	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat	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
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine

INTERNET MISCELLANOUS HAM RELATED HOME PAGES

(list verified 01/15/01)

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

http://www.hampubs.com/	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.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.ham-links.org	Ham Radio collection database
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)
	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_radio.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.
http://gullfoss.fcc.gov:8080/cgi-bin/ws.exe/beta/genmen/frequency.hts	look up any frequency on the FCC data base.
http://www.fcc.gov/wtb/	Starting point from which all radio license holders can be found
http://www.geocities.com/richcam1/Museum008.htm	Lab Guy Antique TV camera listing

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 & W8RUT 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
2398 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
2398 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* = 40W output power or C1# = 1.5W output)	
C2* or C2#	2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)	

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	Equipt. room camera (select 001 when finished viewing camera so repeater will shut down**)**

NOTE: We will change the controller sometime in January or February with a corresponding change to the above control codes. Stay tuned to the Tuesday night Net on 147.45 MHz for further details.

ATCO MEMBERS AS OF 15 January 2001

AA8XA	Stan Diggs	2875 Southridge Dr	Columbus	Oh	43221-3011		sdiggs4590@aol.com
K8AEH	Wilbur Wollerman	672 Rosehill Road	Reynoldsburg	Oh	43068	614-866-1399	wilbur.w@juno.com
KC3AM	David Stepnowski	735 Birchtree Lane	Claymont	De	19703-1604		kc3am@aol.com
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	Oh	43026	614-876-6135	
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	Oh	43147		kc8bni@amsat.org
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	Oh	43065	210-0551	delshoff@columbus.rr.com
WA8DNI	John Busic	2700 Bixby Road	Groveport	Oh	43125	491-8198	jbusic@copper.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	Oh	42616	419-691-1625	
WA3DTO	Rick White	5314 Grosbeak Glen	Orient	Oh	43146	877-0652	wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	Oh	43026	876-6033	wb8dzw@aol.com
W8EHW	Foster Warren	P.O. Box #32	No. Hampton	Oh	45349		
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	Ky	40511	606-253-1178	jrbarnes@iglou.com
KB8GUE	Ron Piatt	154 Kennedy Blvd PO box 200	Leesburg	Oh	45135		yonkb8gue@webtv.net
KA8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Oh	44305		
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	Oh	43026	777-4621	
W3HMS	John Jaminet	912 Roberts St	Mechanicsburg	Pa	17055-3451		w3hms@aol.com
W8JND	Richard Knowles	573 Plaza Drive	Circleville	Oh	43113	477-8132	
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	Oh	43221-5207	771-7259	mjgilbert@wcom.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	Oh	43223	276-1820	n8kqn@juno.com
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	Oh	45331	513-548-2492	walkingcross@mail.bright.net
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	Pa	17603-9563		hdeverter@redrose.net
KC8LOW	Bob Harmon	831 McDonell Dr	Gahanna	Oh	43230	478-2193	kc8low@netscape.net
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	Oh	43123	614-871-0751	phumphries@iwaynet.net
WB2LTS	Manny Diaz	8 Pearl Ave	Huntsville	Ny	11742-1711		
KC8LZC	Tom Walter	9176 Axe Handle Rd	Milford Center	Oh	43045	937-349-6645	
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	Oh	45660		ka8mid@qsl.net
N8NT (Ex KF8QU)	Bob Tournoux	3569 Oarlock Ct	Hilliard	Oh	43026	876-2127	rtournou@columbus.rr.com
WD8OBT ,KB8ESR	Tom Camm & sons	1634 Dundee Court	Columbus	Oh	43227	860-9807	
N8OCQ	Robert Hodge	PO Box 23473	Columbus	Oh	43223	875-7067	
N8OPB	Chris Huhn	146 South Hague Ave	Columbus	Oh	43204	279-7577	
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	Ca	91007-8537	626-447-4565	tom@hamtv.com
W2OTA,WA2DTZ	Michael Chirillo	942 Bruce Drive	Wantagh	Ny	11793	516-785-8045	
WB8OTH	Perry Yantis	1850 Lisle Ave	Obetz	Oh	43207	491-1498	pyantis@compuserve.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	Oh	43201	421-1492	jeasly@freenet.columbus.oh.us
W8PGP ,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	Oh	43154	474-3884	
NZ8R	Greg Radcliff	3311Kristen Ct	Columbus	Oh	43231		
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	Oh	43081	891-9273	towslee@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	Oh	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	Oh	43081	882-6527	
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	Oh	43224	261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	Oh	45334	937-964-1185	w8rvh@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	Oh	43119	614-878-0575	comm21@coil.com
W8RXX	John Perone	3477 Africa Road	Galena	Oh	43021	740-548-7707	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	Mi	48144		
N8SFC	Larry Campbell		Galloway	Oh	43119		
W8SJV	John Beal & family	2899 Castlebrook Ave	Columbus	Oh	43026	876-9412	johnbeal@columbus.rr.com
W3SST	John Shaffer	2596 Church Road	York	Pa	17404		w3sst@juno.com
W8STB	John Hey & family	894 Cherry Blossom Dr	West Carrolton	Oh	45449	937-859-5295	heyjo@netzero.net
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	Oh	45040		
N8TCB	Bill Smith	657 Redford Ave	Columbus	Oh	43207	491-0709	n8tcb@columbus.rr.com
KB8TRP,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	Oh	43223	272-5784	ed@fastpc1.com
WA8TTE	Phil Morrison	154 Llewellyn Ave	Westerville	Oh	43081		
W8TZ	Ross Hatfield	47 Wildflower Lane	Chillicothe	Oh	45601	740-774-2777	w8tz@qsl.net
KB8UGH	Steve Caruso	6463Blacks Rd SW	Pataskala	Oh	43062-7756	740-927-1196	mixter.1@osu.edu
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	Oh	43338	419-947-1121	
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	Oh	43162	879-7482	
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	Oh	43212	297-1328	wa8uzp@qsl.net
K7VE	John Hays	P.O. Box 95473	South Jordan	Ut	84095-0473		jhays@hays.org
WB8VJD	Rick Morris	203 Merton Street	Holland	Oh	43528		
KB8VUQ	Jack Wolff	2682 Hiawatha Ave	Columbus	Oh	43212	263-3092	
N8WLT	James Neymeyer	2879 East Moreland Drive	Columbus	Oh	43209	237-2331	
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	Oh	43062	740-927-3883	hiramhunter@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	882-0771	tkach@copper.net
KB8ZLB	Dave Kibler	243 Dwyer Rd	Greenfield	Oh	45123	937-981-4007	k154@bright.net
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	Oh	43125	836-3519	ka8zny@copper.net

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
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux KF8QU
Secretary: Rick White WA3DTO
Corporate trustees: Same as officers

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: Rick White WA3DTO
Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL ○ NEW MEMBER ○ DATE _____ CALL _____

OK TO PUBLISH PHONE # IN NEWSLETTER YES ○ NO ○ 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 ○ MONEY ORDER ○

Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, you may pay dues via the Internet with your credit card. Go to www.tournoux.com/~atco and fill out the form. Payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no PayPal involvement.

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 (10/15/00)..... $982.16
RECEIPTS (dues)..... $150.00
OTHER INCOME (bank interest)..... $ 7.94
Fall Event food..... $(119.67)
Bank check cashing Charge..... $ (1.00)
October Newsletter postage..... $ (41.25)
CLOSING BALANCE (01/15/01)..... $978.18

ATCO Newsletter
c/o Art Towslee-WA8RMC
180 Fairdale Ave
Westerville, Ohio 43081

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK MAILING LABEL FOR THE EXPIRATION DATE AND SEND N8NT A CHECK IF EXPIRED.
