



PCARA Update



Volume 7, Issue 2

Peekskill / Cortlandt Amateur Radio Association Inc.

February 2006

Ready for action

The storm on January 18th gave me an opportunity to use the generator that I purchased following the massive August 14, 2003 blackout. By running the generator on-and-off over the approximately 42 hours of the outage, I was able to keep the refrigerator cold and some lights on. As a result of the high winds, my G5RV antenna didn't fare too well. When I stepped out of the door on Thursday the 19th, I stepped over the dipole. One end had been torn from its tree. **The whole experience reminded me how important emergency preparedness is!**

We have some upcoming events. A Foxhunt has been scheduled for May 6, 2006, and is being coordinated by Malcolm, NM9J. **Field Day** 2006 is the weekend of June 24-25. There was some discussion at the January meeting about possibly holding Field Day somewhere other than at Bear Mountain, but this still



Remember the Hy-Gain TH-3JRS triband Yagi that Joe, WA2MCR brought to Field Day 2005? Joe now has that same antenna up in his back yard and is enjoying the DX.



View of Peekskill Bay from Bear Mountain in Spring. Will PCARA's Field Day take place from Bear Mountain this year?

has to be discussed and finalized. Also brought up at the January meeting, was holding a Special Event Station for the PCARA 6th Anniversary. As with Field Day, this too needs to be decided and planned.

As you can see, we have some talking and planning to do. Please come out to the February 5th meeting at Hudson Valley Hospital Center and share your thoughts and ideas! I hope to see each of you there.

— 73 de Greg, KB2CQE

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Secretary/Treasurer: *open.*

Adventures in DXing

– Karl N2KZ

Mike's Miracles

Harry Potter has nothing on Mike, N2EAB. Grand wizard Mike has brought me two miracles. The first was a wonderful QRP kit, a Small Wonder Labs SW+40, blazing a thousand milliwatts on 40 meter CW. At the January 2006 PCARA Meeting, Mike brought his next miracle. It's a little plastic box with four jacks and two knobs possibly from an old, recycled Japanese clock radio. It's also DX dynamite!



Mike, N2EAB.

miracle at a recent hamfest. The transceiver sat helpless in a vendor's milk crate, at the very bottom of the pile, looking for a good home. Mike bought it, cleaned and polished the front panel, made some repairs and added useful labels. Mike didn't have an 80 meter antenna, so I served as the rig's captain on its first voyage since rehabilitation. What a smooth and happy sail it was! I found it hard not to make a QSO. People heard the rig's clean musical note and gravitated to it. My most distant QSO was to Wes, KB9TXS, in St. John, Indiana, just south of Chicago. I also worked a rare XYL, Mimi, VE2AZJ from beautiful Quebec City on the St. Lawrence River in Canada. Many, many thanks, Mike, for some wonderful times!

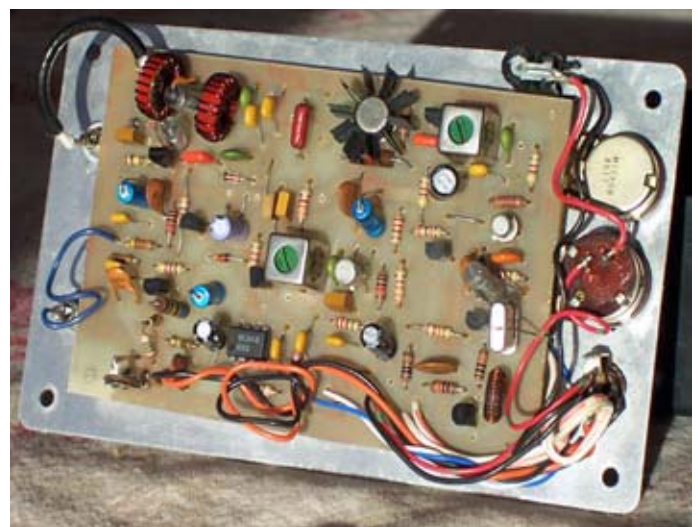
A quick operating note: This frequency, 3.6864 MHz, and the TV color burst frequency, 3.579545 MHz, are both havens for QRP operators. Crystals for these two frequencies are often available as inexpensive surplus. The 3.579545 MHz frequency is nearly zero-beat with the Fists CW Club calling frequency on 3.58 MHz. Watch these frequencies for homebrewers showing off their projects. Tiny transmitters make exciting QRPp catches and are great fun to add to your logbook!



80 meter QRP transceiver discovered by Mike, N2EAB.

Mike's tiny rig is a fixed frequency transceiver using a computer clock reference crystal on 3.6864 MHz in the middle of the 80 meter CW Novice sub-band. Mike measured the output power to be about 1.4 watts. The only adjustments are an AF gain control and RIT. Using only a handful of parts, the transceiver allowed me to work seven states and one province in just a couple of days! The signal reports I received were not too shabby. My favorite response was from N1JWP, Mark, in Sturbridge, Massachusetts, who wanted to know how I created my huge 599 +10 signal. When I told him I was operating a one-watt homebrew rig with a dipole, he thought I was kidding. Mark was using a fancy Yaesu FT857D at 50 watts. When he heard that I was at just one watt, he turned his rig all the way down to 20 watts. I still heard Mark with a solid copy. Our armchair quality rag-chew QSO lasted nearly an hour and a half without any QSB.

Mike, N2EAB, found the 80 meter one-watt



View inside the 80 meter, single frequency QRP transceiver. Quartz crystal is at lower right.

Parlez-vous Français?

Mike's other miracle, the Small Wonder Labs SW+40 kit, is capable of stunning DX too! On the night of 24 November 2005, I heard a faint CQ on 7020 kHz and gave a hopeful reply. Andy, F3NB, came right back to me with a 459 RST report. We chatted for a few minutes and had a grand time, both thrilled that my one-watt signal was traveling well into the south of France.

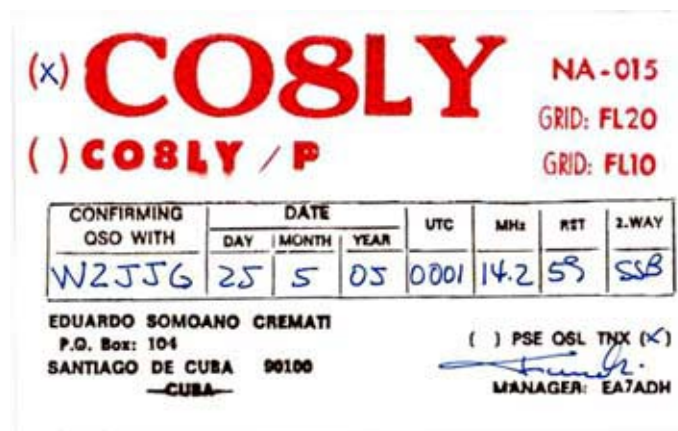
I discovered later that Andy is actually quite a renowned amateur radio operator. Andy has been on the air since 1932 and is still very active at 89 years

old! In his shack you'll find a sophisticated Kenwood TS-850S transceiver connected to a magnificent Hy-Gain Hy-Tower 18HT 53 foot tall vertical with many ground radials. Andy has QSOd many QRP stations stateside and is a member of the renowned ARRL A-1 Operator's Club. I'm very glad to have my callsign in his log book!

I am not the only one blessed with good DX! At our last PCARA meeting, Jim, W2JJG, showed us another amazing QSL. Jim received a letter from Eduardo, CO8LY in Cuba, complete with an attractive Cuban stamp on the envelope. This is a rare instance where a Cuban ham sent out his QSL without going through a QSL manager. Without explanation, it appears his QSL manager in Spain actually filled out the card. But, wait! It was mailed from Cuba! Nice catch, and a great collector's piece, Jim!



Jim, W2JJG.



Cuban QSL card as received by W2JJG.

Always remember the three Golden Rules of DXing: 1: Always answer a CQ, no matter how weak it sounds, 2: Call CQ, even when the band seems "dead," and 3: Listen and listen carefully! My New Year's resolutions? Use no rig with a serial number and never exceed one digit of wattage!

Get It Straight!

Every New Year's Day, the ARRL sponsors Straight Key Night, one of the high holy days for all who send Morse code. If an annual celebration is just not enough, there is a new club just for you! The Straight Key Century Club offers a festival of manual brass on the first day of every month (UTC time). SKCC members have just 24 hours to work other members pounding their straight keys to gain points toward the club's awards program. Contact 100 fellow SKCC members during these sprints and you'll earn an attractive certificate of accomplishment.

Tom Peterson, KC9ECI, began the club on January 9. In less than one month, The Straight Key Century

Club is over 1000 members strong!

It's easy to join. Just e-mail Tom at: tom at galesvillefiredepartment.org and request membership. All licensed hams are eligible for free membership, and your SKCC number is yours for life! PCARA Mike, N2HTT, SKCC 0203, alerted me to this new club. Now I'm member 0402! Check the SKCC web site at: <http://groups.yahoo.com/group/skcc>.

The first SKCC monthly sprint starts this Tuesday night, January 31 at 7:00 p.m. Eastern time and continues until 7:00 p.m. Wednesday night February 1. Take a listen on 3720, 7120 and 14048 kilohertz for a parade of straight key CW. Even better, get your own SKCC number and join in the fun! Can you contact 100 members in 24 hours? Listen for me around 7120 with my Heathkit HW-16 or HW-7! I need the points!

SuitSat

Did you ever want to participate in an International Space Station mission? Starting Friday, February 3rd, you may get your chance. An old, used Russian spacesuit has been transformed into a most unusual earth orbit satellite. Just add one Kenwood TH-K2AT handi-talkie transceiver, a battery pack, a sensor for temperature readings, a compact voice synthesizer and telemetry device and a small helmet-mounted antenna and you are good to go.

The modified spacesuit will be thrust out of the space station into orbit and will begin broadcasting voice messages and slow scan television on 145.990 MHz FM in the two-meter amateur band. The Kenwood HT produces 5 watts RF output. Discover the time of fly-by using NASA's fascinating J-Pass program available at: <http://science.nasa.gov/RealTime/JPass/25/JPass.asp>. Enter your Zip Code and you'll instantly know when the next show begins. Aim your Yagis toward the proper position in the sky! You may hear SuitSat's 30-second message of greetings, followed by a burst of telemetry. Transmission of a slow scan TV



SuitSat-1 ready for launch. The electronics control panel is on top of the helmet along with the SuitSat antenna. [Photo courtesy NASA.]

picture ends the sequence.

Mission Specialists at NASA have especially encouraged schools to participate in listening for SuitSat and reporting reception to the project's website suitsat.org. Awards will be issued to groups that copy SuitSat's message. Extra credit is given to those who can capture the slow scan TV picture!

For more information on Suit Sat, head for these web sites: <http://www.amsat.org/amsat-new/articles/SuitSat> and <http://www.suitsat.org>. You can see a press conference clip on the mission at: <http://www.amsat.org/amsat-new/information/videoNews.php>. By the way, I like a snug fit. Do you have anything in a 42 Regular in white?

Orange Aid!

Running out of room for all your QRP rigs? Is orange your favorite color? Have I got an idea for you! A popular fruit during the winter months are tasty little clementine oranges from Spain. You'll often find them in food stores in small five pound crates. After the sweet orange treats are in your belly, you can use the crate as a useful addition to your shack.



"Oh my darling, oh my darling"...

I've collected a bunch of little QRP rigs, but it's hard to keep them all in order. Simply remove one side



"Herring boxes without topses, Sandals were for Clementine."

panel of the clementine crate, and turn it upside down. *Voilà!* Now you have a useful and inexpensive little shelf. The top panel, usually made of durable Masonite, even has nice breather holes already drilled into it. Who could ask for anything more, and the price is excellent! Eat a tasty treat and, when you're done, you'll have a neat way to organize your rigs!

HD Shorts

Who says Morse code is dead? The CBS-owned UPN TV network and Warner Brothers Television's The WB are entering into a joint operating agreement to form a new network called **The CW**. This isn't a joke! I wonder if anyone will get the message!



WNBC-DT has added a third virtual channel called WNBC-DT 4.4. Programming consists of mostly reruns of features that previously appeared on Channel 4 newscasts. Obviously playing off a primitive server, sometimes the audio is in sync with the video, but it usually isn't!

Religious Trinity Broadcasting (WTBY Poughkeepsie) has added a fifth virtual channel called Smile of a Child or SOAC. It is a hodge-podge of archival children's programming with no particular schedule.



Super XM Fun

XM Satellite Radio has launched a wacky on-line audio feed called Super X on their web site's channel 30. XM describes the format as "Just Weirdness!" which is an understatement! Heard only via the Internet, it's worth a visit or two just for a giggle. Don't be surprised if you hear a kazoo band humming Led Zeppelin's "Whole Lot of Love" or a group of Tibetan monks singing the Archies' "Sugar Sugar." Where do they find this stuff? Great dedication and research resulted in a remarkable record library supporting this service. Many rare recordings by unusual and unexpected artists create quite a unique, quizzical and entertaining place to shake your head and listen. Even if you don't already subscribe to XM, you can audition Super X by signing up for a free three-day trial at: <http://xmro.xmradio.com/xstream/index.jsp>.

If you are already a part of XM Nation, you may have noticed that the LCD display on your radio is limited to only 16 alpha-numeric characters per line. The truncated listings of artists and titles often result in silly (and often unprintable) descriptions. My holiday favorite was: ELP I BELIEVE IN FAT(her Christmas). How about: James Brown "PAPA'S GOT A BRA(nd new bag)"; Stylistics "NVER GET TO HEAV(en)" and MARY CHAPIN CARP(enter) singing "A BEAUTIFUL

RACK(et"). Many, many others could not be printed in this newsletter. You'll have to watch for them yourself!

My favorite Christmas present is the new XM Clip XT antenna for the Delphi MyFi, Pioneer AirWare and Tao 2Go portables. The original clip antenna, included in the first wave of MyFi kits, was designed only for reception of terrestrial repeaters filling in reception "holes" in urban areas. The new second-generation Clip XT greatly improves reception of both satellite and terrestrial XM broadcasts. Now I can listen to XM during my entire 45 mile Metro-North commute. My Clip XT arrived just in time! Baseball spring training begins February 16! Go Red Sox!



XM Clip XT antenna.

Tell your friends about PCARA Update! You can find all our issues on line at: <http://home.computer.net/~pcara/newslett.htm>. Questions, comments, suggestions? Please drop me a line at: [n2kz\(at\)arrl.net](mailto:n2kz(at)arrl.net).

Until next month,

— 73 de N2KZ "The Old Goat" dit dit

Verizon launches FiOS

Massapequa Park, NY — January 24, 2006 — Verizon unveiled FiOS TV in New York today to residents of this village of 17,000 on Long Island, making it the first community in the state to feature the new service. Verizon will begin taking customer orders immediately.

"This is not cable TV. This is not satellite. This is FiOS TV," said Bob Ingalls, president of Verizon's Retail Markets Group. "Customers who liked what FiOS did for their Internet connection will love what it does for their TV. We've harnessed the speed and capacity of broadband with the power of broadcast to create a revolutionary, new entertainment experience."

Information on packages and prices is available at <http://www.verizon.net/fiostv>.

FiOS TV is designed to be a formidable competitor to cable and satellite. It is delivered over Verizon's fiber-to-the-premises (FTTP) network, which has industry-leading quality and reliability. Fiber delivers amazingly sharp pictures and sound, and has the capacity to transmit a wide array of high-definition programming that is so clear and intense it seems to leap from the TV screen. It also delivers Internet download speeds of up to 30 Mbps (megabits per second) and upload speeds of up to 5 Mbps as well as high-quality voice services.

Verizon obtained a local video franchise in

Massapequa Park in September 2005. Franchises have also been approved in the villages of Nyack and South Nyack in Rockland County and are under review by the New York Public Service Commission.

(Verizon press release).

New Tech Pool

On January 20, the National Conference of Volunteer Examination Coordinators (NCVEC) released their new Technician element question pool. The pool comes into effect for Tech-class examinations administered from July 1 2006 and lasts for four years.

The new pool contains 396 questions, from which 35 questions are chosen for each license examination. There are no graphics or diagrams contained in this question pool.

The last time the question pool was updated was July 2003, when a new syllabus containing renamed subelements and different numbers of questions for each topic also came into effect. There was then an increased emphasis on safety, rules and operating procedures. Perhaps the NCVEC has been listening to critics who thought that the 2003-2006 pool had too many questions — 511 questions, up from 385 in the previous pool. There has also been a move to simplify language in the new 2006-2010 pool, making the questions more easily understood by youngsters.

You can download a copy of the new question pool in various formats from either the NCVEC (<http://www.ncvec.org>) or from the ARRL. Here are some sample questions from the new pool. Would you know the answers?

T2D07 (C) When may you operate your amateur station aboard an aircraft?

- A. At any time
- B. Only while the aircraft is on the ground
- C. Only with the approval of the pilot in command and not using the aircraft's radio equipment
- D. Only when you have written permission from the airline and only using the aircraft's radio equipment

T6B11 (D) When using a portable transceiver how do you select a specific IRLP node?

- A. Choose a specific CTCSS tone
- B. Choose the correct DSC tone
- C. Access the repeater autopatch
- D. Use the keypad to transmit the IRLP node numbers

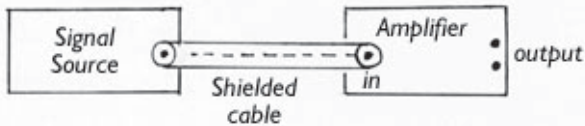
T7A06 (B) Which of these items would be the most useful for a hidden transmitter hunt?

- A. Binoculars and a compass
- B. A directional antenna
- C. A calibrated noise bridge
- D. Calibrated SWR meter

Looping around

Several people in PCARA have asked about eliminating hum from interconnected equipment. This can be a common problem in audio/video setups as well as in amateur radio. The usual cause is a **ground loop**. Let's see how they can occur.

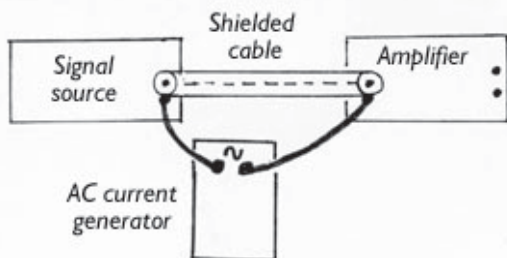
Take a look at the first picture... we have a low level signal source connected through a shielded cable to an amplifier.



Low level signal source connected to an amplifier.

No problems so far... the low level signal travels down the shielded cable to the amplifier, where a magnified version of the incoming signal is then produced at the output. An example of this arrangement in amateur radio might be an external microphone preamplifier feeding an HF transceiver. For an audio/video example, think of an external AM/FM tuner or an XM satellite receiver feeding an audio amplifier. We use shielded cable for the interconnection to prevent pickup of any unwanted signals — such as hum, noise or RF — on the inner conductor.

Now take a look at the second picture... we have introduced a relatively large AC signal across the shield connections at the two ends of the shielded cable.



A strong signal is placed across the shield wire of the connecting cable. The shield wire has some resistance.

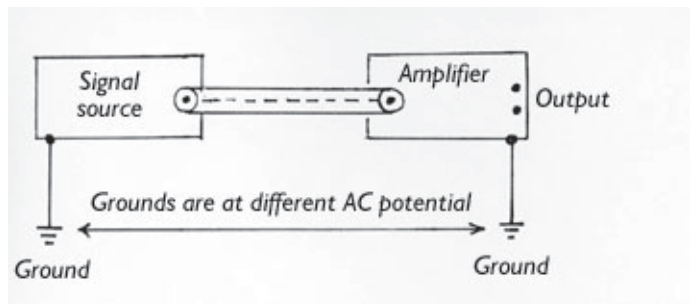
What do you think will happen? As far as the amplifier input is concerned, the signal running down the inner conductor is just the same as before, but the shield wire now has an extra AC current flowing through it. This introduces an extra signal at the input. If the AC signal was at 60 Hz power-line frequency, the input signal — and the amplifier's output — would now include a loud hum!

But wait — you may be saying — nobody would deliberately connect a large AC signal source across the ends of a shielded cable. Well, that's correct — but in a typical home there is no need to go looking for a large AC signal source, when one is already present courtesy of the power company.

Unwanted AC signals can be introduced whenever there are multiple **ground** connections for the various items of interconnected equipment. (U.K. readers... for

"ground" read "earth".) We tend to think of "ground" in idealized terms — as though we were living on a huge sheet of copper with excellent conductivity, so every place is at exactly the same potential. In practice, the ground is not perfectly conducting, and the electrical potential can vary from place to place because of currents flowing through the earth. Furthermore, the ground connection on three-wire electrical cords is not intended as an audio or RF signal reference — it's there purely for your safety. With the chassis connected to the ground wire, there is no danger of high voltages appearing on exposed metal. If the chassis should accidentally be touched by a live AC or high tension wire, the safety fuse in the supply line will blow.

Take a look at the third picture. We have our two items of interconnected equipment, each of which is connected to ground through a three-wire AC power cord.



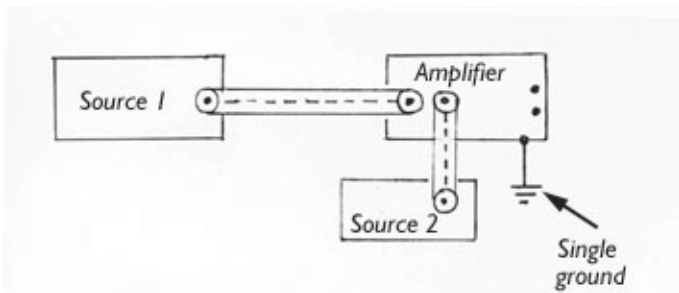
Each piece of equipment has its own ground connection thanks to a three-wire electrical cord.

Unfortunately, the ground for the signal source is at a different AC potential than the ground for the power amplifier. As a result, there is an AC signal imposed across the shielded cable, just as in our second picture. And just as before, current will flow and there will be a loud HUM on the amplifier's output.

This arrangement now includes a **ground loop**. An electrical loop exists which includes the shield of the shielded cable, the metal chassis of the equipment, the ground wires of the items of equipment, and the "ground" connection between the equipment. That connection might include some actual "earth" if items are attached to station ground, or it might be provided purely by the AC wiring between equipment. Remember that "ground" is not a perfect conductor, and differences in "ground" potential will produce AC currents through the shielded cable. (Incidentally, that same loop may also pick up strong RF signals if any are present.)

What can we do about this type of problem? Well, we could bond all the equipment together with heavy gauge wire — but this would only *reduce* the problem and not remove it. The usual fix for a ground loop is known as "single point grounding". We continue to interconnect all the equipment through shielded cables, but only **one** item in the collection of equipment is connected to ground. Now the shielded cables are no longer part of a loop and they can do their job of keeping unwanted noise and hum off the inner conductors.

Sometimes, single-point grounding is impossible to arrange. Perhaps several items of equipment have three-



Single point ground: only **one** item of the inter-connected equipment is connected to ground.

wire electrical cables for safety reasons, or perhaps an RF ground is required to keep the chassis from rising to a high RF potential. In this case, you can still convey audio signals between connected equipment, using a “Ground-Loop Isolator”. The isolator includes a transformer or transformers in the cable path to pass audio-frequency signals, while breaking the ground loop and preventing any circulating currents.

The Radio Shack 270-054 ground loop isolator is intended for home and car audio systems. Ground loops

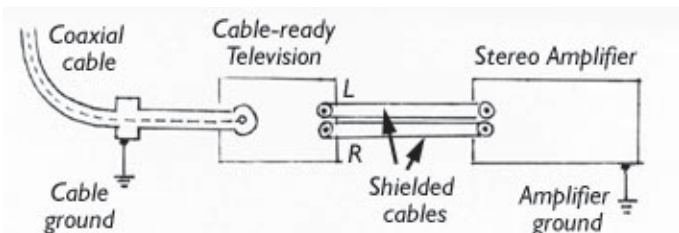


Radio Shack 270-054 isolator prevents ground loops on stereo audio cables.

can arise in cars as well as in homes when, for example, a car radio is grounded to chassis in the dash and an amplifier or preamplifier is separately grounded in the trunk of the vehicle. External XM receivers are another source of

ground loops. You might not pick up much 60 Hz electrical hum in a moving vehicle, but you will probably discover alternator whine and ignition pulses. Another case of a ground loop can occur with cable-TV or over-the-air television. The shield of the coaxial cable line has to be grounded by the cable company near the point where it enters the home. External TV/FM antennas should be grounded in a similar manner. The aim is to prevent voltage surges from nearby lightning strikes from damaging equipment and occupants.

These days, the domestic cable TV converter or cable-ready television is likely to be connected to additional equipment such as an amplifier or Hi-Fi receiver with external speakers, as shown below.



Can you see the possibility of a ground loop here? If the cable TV coax is grounded and the Hi-Fi equipment is also grounded, then stand by for more hum!

There are two ways to cure the problem. One is to introduce a “Ground-Loop Isolator” into the shielded audio cables, just as in the previous example. Another way is to break the loop at the coaxial cable carrying RF — all we need is a device that will pass RF signals without providing continuity for circulating currents. For example, you could obtain two balun transformers designed to match a 300 ohm TV antenna to 75 ohm coaxial cable and connect them back-to-back, as shown in the picture.



Two TV antenna matching transformers connected back-to-back can make a ground loop isolator.

You *must* check with an ohmmeter for no DC continuity between the input and output connections on each balun... some transformer designs maintain a DC path to bleed static off the antenna. You will need at least one balun transformer where the input and output windings are DC-isolated from each other. If you are having problems finding one, you can buy a 1:1 transformer from Klipsch Audio called the “MAGIC” (Mondial Antenna Ground Isolation Circuit) for \$69.99. See <http://www.klipsch.com>. Less expensive is the Dayton VIT-1 Video Isolation Transformer from Parts Express (<http://www.partsexpress.com>) or the Ground Breaker from Xantech. Be aware that these transformers may not transfer the lower frequency cable signals needed for broadband Internet and interactive cable services.



Dayton VIT-1 “video isolation transformer”.

Ground loops can also affect video – for example if you have a camera feeding baseband video signals down a 75 ohm coaxial cable into a monitor or a recorder, and both items of equipment are grounded, watch out for hum bars on the picture. There are isolating transformers available for video signals also.

Just remember that whenever you are hooking up audio/video or amateur radio equipment, each inter-connection provides an opportunity for a ground loop. If you can anticipate the presence of these loops, you will be in a better position to fix any problems as they arise.

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!

Archive: <http://home.computer.net/~pcara/newslett.htm>

PCARA Information

PCARA is a **Non-Profit Community Service Organization**. PCARA meetings take place the first Sunday of each month* at 3:00 p.m. in Dining Room B of the Hudson Valley Hospital Center, Route 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. *Apart from holidays.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz
(IRLP node: **4214**)

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Feb 5: February meeting, 3:00 P.M. HVHC.

Sat May 6: PCARA Foxhunt, 3:00 p.m.

Hamfests

Sun Feb 26: LIMARC Long Island Hamfair, Levittown Hall, 201 Levittown Parkway, Hicksville, NY. 9:00 a.m.

Sat Mar 4: Splitrock ARA Hamfest, Parsippany Police Ath Lg Building, 33 Baldwin Road, Parsippany NJ. 8:00 a.m.

Sat Mar 11: Orange County ARC Hamfest, Temple Hill School, 525 Union Avenue, New Windsor, NY.

VE Test Sessions

Feb 1: West Point Cadet ARC, Thayer Hall, Room 306, U.S. Military Academy, West Point, NY. 7:00 p.m. Contact: Dennis Yates, (845)446-2634.

Feb 5: Yonkers ARC, Yonkers PD, 1st Precinct, E Grassy Sprain Rd, 8:30 a.m. Contact D. Calabrese, 914 667-0587.

Feb 9: WECA, Westchester County Fire Training Center, 2 Dana Rd, off Rt 9A, Valhalla, NY. 7:00 p.m. Stanley Rothman, (914)949-6838.

Feb 13: Split Rock ARA, Hopatcong HS, Hopatcong, NJ. 7:00 p.m. Contact Sid Markowitz (973) 724-2378.

Feb 17: Bergen ARA, Westwood Regional HS, 701 Ridgewood Rd, Washington Township, NJ. 7:00 p.m. Contact: Donald C Younger, (201)265-6583.

Feb 24: Orange County ARC, Munger Cottage, Riverlight Park, Hudson Street, Cornwall, NY. 6:00 p.m. Contact: Ronald Torpey, (845) 783-1692.



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