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The Monthly Newsletter of the Monongalia
Wireless Association
Morgantown, West Virginia

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From the Prez – Repeater Repair

The transmitted signal on the 144.43/144.83 MHz repeater is down again which indicates that there is water in the coax cable. The water can be getting into the cable from two sources: (1) a leak (break in the jacket) somewhere along the cable length up the tower and/or (2) water getting in to the cable from the antenna. It is unlikely that both are sources.

The transmit coax is 1/2 inch hard line and runs from just above the repeater rack in the Channel 24 transmitter building to close to the antenna at about the 200 foot level on the tower. The hard line is connected to the antenna by a short soft line (RG-8) jumper with an N type connector on the hard line end and a PL-259 UHF type connector on the antenna end. This cable has been in place for over 20 years and has given good service. The antenna is a VHF Phelps-Dodge Super Station Master of about the same age. Given the antenna is isolated from the coax by two RF connectors that should be water tight, and the antenna itself is filled with wax, it is unlikely water is coming

from the antenna. The most likely source is an abrasion some where along the line between the bottom of the tower and the upper end of the line. This may have been caused by other tower work or other feed lines attached to our line.

The solution to this problem will require the installation of a new run of coax from the repeater to the antenna. I would recommend that the new run be of 7/8 inch hard line instead of 1/2 inch. We are in the process of getting cost estimates on the materials and the labor for the installation. The tower work must be done by some one approved by Channel 24 who has the proper insurance. The work itself will take about one day to complete.

– Mike, K8LG

MWA Repeaters - I

Repeater operations are one of the most-used activities in ham radio. We may take repeaters for granted, and maybe know little about what makes this convenient gadget work. Norton, WD8AFJ, will be presenting a 2-part series on MWA's Repeaters. Part 1 begins below, and also includes the page on functions and operations of the repeater controller that is at the end of this issue.

– Editors

Yes, I just push the mic button and away we go -- blah, blah, blah. Perhaps some of you haven't seen or considered the equipment behind the mic. Here are a few facts about the two (yes there are two) MWA repeaters.

First is the 145.43 MHz two meter repeater. The other is the 444.7 MHz repeater. The audio of

Next MWA Meeting
Tuesday, August 20. 7:30 PM
WVU Engineering Building.

each repeater is hard wire connected to the other repeater. This means that when you talk on 2 meters, you are also being heard on the 440 MHz band. Conversely, when someone inputs a signal on the 440 side, they are heard on the 2 meter side also. You can tell (usually) which input receiver is being used by listening to the courtesy tone. If the input is on the 440 side, the courtesy tone is a higher audio frequency.

Here are a few more technical facts about the machines. The repeaters are located in the WNPB TV transmitter building at Sand Springs. It is located north of Chestnut Ridge Park adjacent to Coopers Rock State Forest.

Both machines are RCA 500 series commercial grade repeaters which K8LG has keep on the air for years. They were installed sometime around 1978. Transmitter power on the 2 meter side is about 90 watts at the antenna input. The 440 power is somewhat less.

The 2 meter receive antenna is 280 feet above ground on the tower which itself is about 519 feet high. The 2 meter transmit antenna is 180 feet up the tower. The 440 repeater uses one antenna for both receiver and transmit at about 310 feet up.

Both repeaters are controlled by an RC85 microprocessor- based unit. This unit was customized by K8LG so that it can control both machines and share the telephone line. The phone line is used for autopatch service and can also be used by the control operators to send instructions to the control unit.

Information on the operation and function of the repeater controller is at the end of this issue of Solid Copy. You may want to copy this page to have handy near your radio.

At a future MWA meeting we plan to show slides and discuss these and other items in service at the site. So when you push the mic button as I do, remember there is \$10,000 worth of club equipment working for you on the top of the mountain.

More next month on the people side of repeaters.

– Norton, WD8AFJ

The HF Operator

Question: Is it possible to operate on the HF bands with an attic antenna?

W8PT: Yes, you'd be surprised on how many amateurs who face outdoor antenna restrictions get on the air by using an attic antenna. Also many apartment dwellers have been forced into using indoor or attic antennas; and, some have reported just amazing DX on their truly invisible radiators.

Dipoles are commonly used as attic antennas, but beams can also be constructed - obviously the beam is constructed to favor a fixed direction.

Care must be taken in constructing antennas in the attic because there are a number of dangers including falling through the ceiling below, kicking up nasty fiberglass insulation that makes your skin burn, and the presence of electricity!

I discovered an interesting article in the ARRL Antenna Compendium, Volume 2 by NT0Z. Kirk gives construction details on a 10, 15, and 20M tribander antenna. NT0Z reports some very promising performance numbers too, and the best part of it all was that Kirk spent only \$25.00. If you'd like a copy of the article, just let me know – email: w8pt@qcol.net . 73

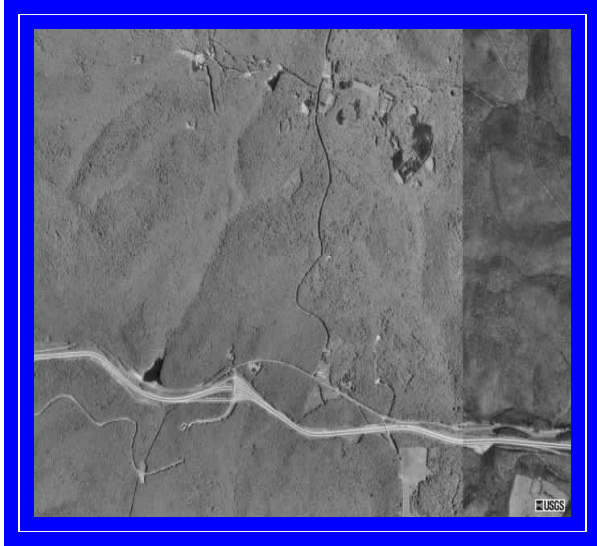
-- Rich, W8PT

SUBMITTING INFORMATION FOR SOLID COPY

Send info for Solid Copy to Jack,
WF8X@arrl.net, or Bill,
WA8YCG@arrl.net no later than the 7th of
month in which the information is to appear.

Name that place

Here is a high altitude photograph of a place near Morgantown. Can you identify it?



Answer at the bottom of the page.

MWA ON-LINE

Visit the Club's web site on the Internet at
<http://www.qsl.net/w8mwa>

For what it's worth

Several years ago I was in the Pike's Peak area of Colorado. This sign was on the main highway in the National Forest. The warning says, "Due to sightings in the area of a creature resembling "Big Foot" this sign has been placed for your safety." It was not a spoof. CYA?



I looked long and hard but saw nothing resembling Big Foot.

– Jack, WF8X

The Place? Coopers Rock exit, I-68. The dark objects in the upper right are pine plantations. Harris Lake is in the top left. The Trout Pond is in the lower left.

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W8MWA REPEATERS 145.43 MHz AND 444.7 MHz

REPEATER CONTROLLER REVIEW

Here is a quick review of the commands you may need for the repeater controller.

AUTOPATCH

Dial * then the phone number or autodial code number. Let up on the mike button. The controller will say "Autopatch" then pause, then readback the number to you then pause. To dial the number the user must click his mike during either pause. If you "click" during the first pause, the readback is canceled. To hang up the patch, the command is pound (#). Please identify yourself before and after the patch. Current FCC regs do not require logging third party traffic within the US so you do not have to identify the third party.

EMERGENCY AUTODIAL

The emergency autodial code for the 911 system is *9 . The hangup code is pound (#), the same as above. You do not have to "click" your mike to make the controller dial the 911 center.

USER AUTODIAL

Repeater association (RA) members can be assigned two user autodial codes for telephone numbers in the Morgantown extended dialing area (Fairmont, Kingwood, etc.) as the controller supports short code autodialing. Please contact the autopatch coordinator, Norton Smith, WD8AFJ, at 296-2311 to arrange for this feature.

PATCH TIMER EXTEND

The patch timer will time out the repeater at three minutes. A message will be given before the timeout. Should you for some reason need more than 3 minutes, the patch extend code is * * 3. After the extension, no warning is given for the patch timeout.

TOUCH-TONE UNMUTE

Sometimes you need to pass touchtones through the controller without them being decoded or muted. This is needed to dial office phone extensions after the line answers. To do this, after the line answers send # and the numbers you need during one transmission ie. #1278 to dial extension 1278. This only unmutes during that single transmission.

TOUCH TONE PAD TEST

The controller will readback any digits that you send to it. The code for this function is 5 then the digits you want to check (ie. 5123456789*0# will readback the digits 1 through # in the order entered.

If you have any questions about the repeater, call Norton Smith, WD8AFJ at 296-2311 or at e-mail nsmith@wvu.edu