

Clay's Corner for January 2023

**Providing news and views from a broadcast engineers
perspective since September 1986**

Welcome to the New Year!

Winter certainly got underway prior to the 'official' start of Winter with a lot of below normal temps...and lots of snow in the mountains ...and period of it in the low-lands too. This picture, from one of the AccelNet Web-Cams, shows conditions at the summit of West Tiger. The tracks from a previous visit were now covered by new snow fall.



Travel to broadcast facilities, like West Tiger, with snow depths like this, are impossible with a rubber-tire vehicle with chains. In the past, we would rely on the services of a fellow that had a small snow-cat. Those days are now gone thanks to the development of, smaller, 4 wheel drive, ATV's fitted with Tracks. One of the first to adopt these machines was Doug Fisher who needed something to access the broadcast facilities on South Mountain west of Shelton in the Olympics. That site, about the same elevation as Tiger Mt. receives more snow due to its location and proximity to the Ocean. More recently, AccelNet, has purchased a couple of these machines to service their own equipment at West Tiger. Thankfully, they are based in Kent and have offered transportation services to others who have to get up there.

Travel to sites like this has changed, rather dramatically, thanks to the development of Tracks that replace rubber tires on ATV's. These machines come from many different makers and in many different styles and models. Some, like the one pictured, can carry two people, larger ones can take more. The term now commonly used for them is 'Side-by-Side' a reflection of their seating arrangement.

Here's an example of one –



The advantage of these machines is that they are smaller and weigh less. With their rather large 'foot-print' (Amount of surface area on the snow) they are able to go 'over' snow that a rubber-tire vehicle could not.

Interestingly, I don't know of any broadcaster in this area that has purchased one of their own. I suspect, in some areas, broadcasters have added machines like this to their 'Tool-box', just not around here where, apparently, they would rather hire others to provide transportation.

Working at West Tiger for the past 30 + years I've witnessed a lot of weather variations with Winter the most interesting and challenging. During this season you keep an eye on the 'snow level' as the weather up-there can be very different! One of the tools I used is an on-line forecast that has a handy graphic of the snow level. Note the Red-Line at 3000 ft. This one shows how the Freezing Level was at Sea Level and then popped up to over 6,000 feet. This was the forecast that showed the warming event just before Christmas.

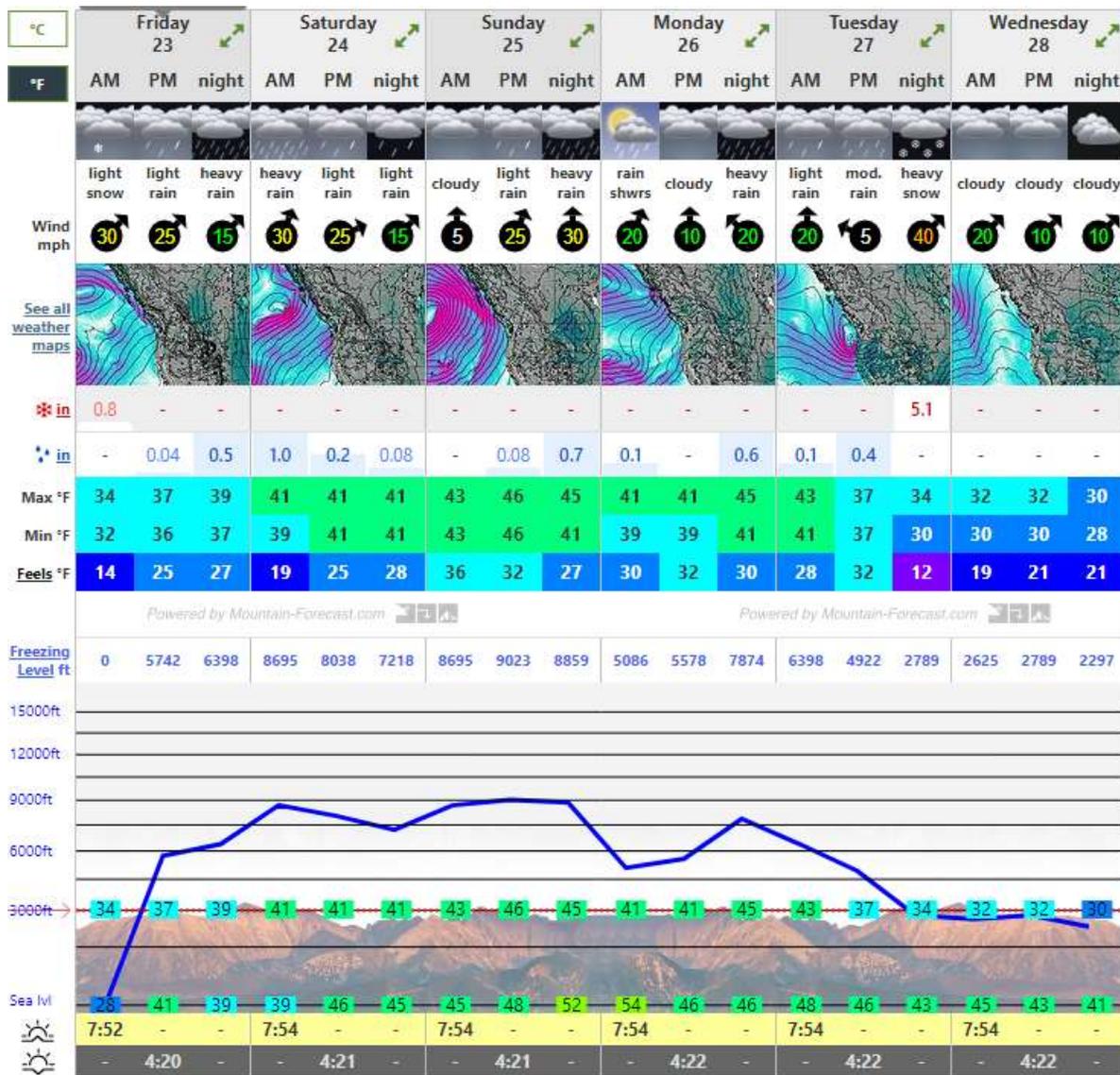


During this time of year, we have come to expect these up's and down's. Unlike Snoqualmie Pass, just 25 miles East of West Tiger, we don't get those cold east-winds that keep the passes colder for long periods. Rather, we see these variations.

Perhaps what's unusual about this year is that we've had so much winter so early.

By the 23rd, we were into the warming with much higher freezing levels and heavy rain forecasted. This brings thoughts of 'I wonder if enough will melt so I will be able to drive up there'. There are some locations, near the top of the mountain, that are shaded...(Never seeing any direct sun) that are very slow to melt. In years past, I've been able to drive that far and snow-shoe the rest of the way.

Look at the forecast for late Tuesday (Below) – Winds of 30 mph and heavy snow and the Freezing Level headed downward. This is certainly turning out to be an 'interesting' winter. Now the question is what will the next couple of months bring. Traditionally we have long period of being unable to drive to the top during late January through early April....Time will tell.



Meanwhile – in the low-lands....The forecast of Freezing Rain caused many of us to recall previous events, specifically, the really bad event of 1996. None-the-less, even though this event was not as bad, the icy mess did take it's toll on the area, causing a Ground-Stop at SeaTac airport as crews worked to get, at least, one of the 3 runways open. By Christmas Eve, heavy rains and moderating temperatures up into the 50's washed away all but the memories.

We were the lucky ones as the storm pushed east. On Christmas Eve they were forecasting 5 feet of snow and 60 mph winds in Buffalo, NY. In many areas hearing the song 'White Christmas' was cause for people to exclaim 'Shut it off'. Again, proving that we are, perhaps, lucky when it comes to winter weather?

After Christmas we experienced a couple wind-storms that you'd, normally, expect in October or November. One of them, on the 27th produced considerable flooding due to a King-Tide that was enhanced by very low Barometric Pressure. Looking at the Sea-Tac Observations, it dipped down to about 28.5 or 966 mb.

If you recall, in previous columns, I've written about the impact of situations like this on some of our area AM Stations, specifically, 1360 at Browns Point and 570 on the east side of Vashon. At this writing, I've not heard of any damage to broadcast equipment, however, as I've stated previously, with Sea-Levels going up, events like this could well negatively impact these stations.

I found the following picture, on-line, of Browns Point. The white structure on the left is the historic Lighthouse. The tall-skinny pole on the right is the transmit antenna for 1360 AM. According to news reports, the Lighthouse and park area behind it were covered with water. This would likely mean that radio antenna had its base in the water as well. The good news is it's shut-fed. I have a lot of experience with this site as I was the Chief Engineer at KMO when the station moved to this location...Way back in the last Century



The winter storm impacted some broadcast operations in a most-expensive way...taking down an 1800 and 800 foot tower near Garden City South Dakota taking down radio and TV operations. A build up of Ice was blamed.



Visibility was limited when this picture was taken, but, if you look close, you can make out the tower on the ground.



Perhaps you remember, on February 28th of 1971 an ice-storm brought down two of the KOIN towers in Portland.

The 'Burning Man' event will now have it's own radio station. Apparently, the promoters of the event are buying KFBR from nearby Gerlach, Nevada. The event this year will run between August 27th and September 4th and attracts some 75,000.

Last month I wrote about EV's and their impact on the power grid – Not long afterward I received this from Kent Randles...

A short article on power for electric vehicles.

<https://www.msn.com/en-us/news/technology/what-effect-will-electric-vehicles-have-on-the-power-grid/ar-AA12OsKI>

A slightly longer article, that notes that the fossil-fuel industry is behind the misinformation about charging electric cars.

<https://climatenexus.org/climate-issues/electric-vehicles-power-grid-2022/>

We have been blessed with having a number of Hydro projects in our area. Meanwhile, Eastern Washington has been developing Wind & Solar Power in a number of locations.

Take a look at this picture of a solar – plus – windfarm ... Wow !



Should we be concerned about security to our electrical supply system in light of what happened recently in North Carolina? The answer is – perhaps yes! In the North Carolina case, vandals turned two electrical substations into ‘Target Practice’. This matter got the attention of a number of law enforcement agencies, including the FBI. There are those that say some group on the Internet is promoting this, perhaps this is the case...Whatever or whoever is behind this, my fear is that it will get worse.

There is a lot of specialized equipment within these chain-link fences that may well not be stocked by every PUD. Restoration could take a lot more time than we’d like. Funny how we assume that, other than an outage caused by some disaster, storm, fire, earthquake etc. electrical power will always be there when we want it. We, normally, don’t think of man-caused power outages.

Not long after the North Carolina incident, a number of Electrical Sub-Stations were vandalized in Pierce County operated by Tacoma Public Utilities and PSE. Because there were signs of ‘forced entry, the matter is being treated as a burglary. Once inside the vandals damaged equipment that caused the outage.

Federal officials have been issuing warnings that the U.S. power grid needs better security to prevent domestic terrorism. Interesting how some substations have solid walls around them, while others are only surrounded by a chain-link fence. This extra security is going to come as a cost, something we will all likely be paying for going forward. I can see these firms petitioning the state for rate-increases to pay for enhance security.

I get the feeling that the perps either knew what they were doing, or were just plain-lucky? Those places can be deadly.

All of this should give us, in this business, good reason to think in terms of larger fuel storage tanks for that Generator. Perhaps we should also be thinking about how secure our own electrical equipment is? All it takes is some weirdo to suggest, on-line, that targets should include broadcast facilities.

We are, certainly, living in the age of the ‘Hacker’. A number broadcasters have been hacked, in one way or another. I found it interesting that a flaw has been discovered that would permit a hacker to gain access to a vehicle equipped with SirtiusXM that would allow them to unlock, start and honk the horns of cars of subscribers. Apparently, they were able to patch the problem before some bad guys discovered it.

An old trick revisited – Recently one of the technical remainers frequented by broadcast engineers had a thread whereby several contributors recalled the old ‘Light bulb speaker protection scheme’. The issue was that DJ’s, especially those whose hearing was shot due to listening to excessively loud audio, would crank-up the volume on speakers in the studio to the point that damage would be done to the speakers. Some Engineers would simply put a fuse in series with the speaker...When the DJ complained a speaker stopped working, you would explain that it was their fault – etc. The lightbulb solution was an automatic one. It involved placing a 12 volt lamp, commonly used in automotive tail-lights, in series with the speaker. With this the higher the volume, the lamp, acting like a current limiter, prevented the speaker from being blown. Of course, today’s vehicles are swiftly moving away from ‘Light bulbs’ in favor of LED’s. Has anyone else used this method?

The FCC has proposed new rules to bolster the security of the nation’s emergency alerting system (EAS). The new NPRM wants broadcasters and cable systems to report incident of unauthorized access to their EAS equipment to the FCC within 72 hours. Frankly, this is all well and good, but – what about those Stations and cable systems that are operating unattended for long periods of time? I can fully understand, and appreciate, the intention here, however, I have to wonder if the proposed rule was fully thought out? Oh well, this is why they call it a ‘Proposed’ rule making. Will be interesting to see how responding parties address it.

On the subject of EAS - The CISA (Cybersecurity and Infrastructure Security Agency), on November 23rd released an advisory for those that employ the DASDEC EAS equipment regarding its apparent vulnerability to hacking. If you have this equipment, you have already probably been advised and have installed the ‘Patch’
But wait, there is more!

EAS participants must soon submit their annual Form One filings for 2022. The filings shall be submitted via the FCC’s ETRS, no later than Feb 28th. The Commish’s Rules require EAS Participants to renew their Station Information (Transmitter Location, Monitoring Assignments, make and model of their EAS equipment etc.

And – As you may have noticed, there was no National EAS Test in 2022. A date for the 2023 test has not been announced, assuming there will be one.

If you wondered why I did not attend the SBE16 Christmas Party – I was in the midst of the worst cold I'd had in many years....Figured no-one else wanted it.

As we all know, all too well, prices are going up with everything costing more. Not to be left out, the FCC announced that Applicant Fees are increasing 11.6%. Here's a couple examples, starting with AM Stations –

New or Major Change	\$4440
License Renewal	\$ 365
Change Call letters	\$ 190

The FCC is upholding a \$20,000 fine for a violation that goes back many years. The Station involved is KSCO licensed to Monterey-Salinas-Santa Cruz California. From what I understand, the AM station is licensed to operate with 10,000 Watts Day and 5,000 watts at night. Apparently, the owners determined that their coverage at night was better if they operated with 1,000 Watts, non-direction rather than with their licensed 5,000 Watt Directional Antenna system ---- So that's what they did. With one catch – They did not receive FCC approval to do so. And – They did this for 30 years ! Ooops.

It's that time again – Time to mark 2023 Calendars with major events for the year. Here's one to add – The NAB show in Las Vegas will be held April 15 thru the 19th at the Las Vegas Convention Center. Incidentally, this is the 100th anniversary of the 'Big Show'

Radio continues to play a big role in football all over the PNW and beyond via an extensive network of stations. As you likely know... KIRO AM & FM, in Seattle, are the flagship stations. Here's a list of stations that carry the games of the Seahawks starting with stations in Washington-

Aberdeen KDUX 104.7 FM
Bellingham KPUG 1170 AM & 97.9
Centralia KMNT 104.3 FM
Chelan KOZI 93.5 FM
Chelan KOZI 100.9 FM & 103.1
Colfax KMAX 840 AM
Colville KCRK 92.1 FM
Ellensburg KXLE 1240 AM
Forks KBDB 96.7 FM
Grand Coulee KEYG 98.5 FM
Longview KEDO 1400 AM
Moses Lake KBSN 1470 AM
Mt. Vernon KAPS 660 AM
Mt. Vernon KAPS 102.1 FM
Olympia KGY 95.3 FM
Omak KNCW 92.7 FM
Port Angeles KONP 101.7 FM & 101.3 FM
Shelton KMAS 1030 AM & 103.3
Spokane KHTQ 94.5 FM
Tri-Cities KONA 610 AM
Walla Walla KUJ 1420 AM & K233CJ 94.5 FM
Wenatchee KPQ 560 AM
Yakima KIT 1280 AM & KIT 94.5 FM

Oregon

Astoria KCRX 102.3 FM
Baker City KKBC 95.3 FM
La Grande KRJT 105.9 FM
Bend KLTW 95.7 FM
Lebanon KGAL 1580 AM
Medford KTMT 580 AM
Portland KGON 92.3FM
Portland KFXX 1080 AM
The Dalles KODL 1440 AM & KODL 99.1 FM & KODL100.5 FM

Idaho

Boise KBOI 670 AM

Lewiston KCLK 1430 AM & KCLK 107.3 FM

St. Maries KOFE 1240 AM

Montana

Kalispell KHNK 95.9 FM

Missoula KKVU-HD3 102.9 FM

Hawaii

Honolulu KIKI 990 AM

Alaska

Anchorage KBYR 700 AM

Anchorage KTMB 102.1 FM

Cordova KLAM 1450 AM

Juneau KINY 800 AM & KINY 103.5 FM

Sitka KIFW 1230 AM

Kodiak Island KVOK 560 AM & KVOK 98.7 FM

Ketchikan KTKN 930 AM & KTKN 95.7 FM

Kenai – KSRM 920 AM

British Columbia

Vancouver BNN Bloomberg 1410 AM | CFTE 1410 AM

Kelowna 1150 AM | CKFR – 1150

Victoria | CFX 1070

Now, be honest....Did you ever think the Seahawks Radio Network was that large? Perhaps, in terms of square-miles covered, it's the largest of any NFL Team? I still have to wonder about having the Seahawks games broadcast in Hawaii.

I recently started work on a new project –

Replacing the Auxiliary Transmitter for KING-FM at Cougar Mountain where they share the American Tower Master Antenna with a number of other broadcasters that use the facility to back-up their Main transmitters on West Tiger.

Not long ago, KIRO-FM (97.3) did the same thing, for similar reasons. Should the station have to use their Auxiliary, other than the difference in coverage (West Tiger is twice as high as Cougar) making use of the facility transparent to the listener. The present Analog FM transmitter at Cougar will not transmit HD Radio signals, meaning that KING-FM's listeners to their HD2 and HD3 programming would, when the switch is made, have the station disappear from their radios.

The new Auxiliary Transmitter will be a Nautel GV15, almost identical to their West Tiger Main which is a GV30

Underscoring the issues with obtaining components, the transmitter will not arrive here to be installed until April.

The, present, Auxiliary Transmitter is a Continental model 816 manufactured in the early 90's. It will be taking the place of an even older Collins 831 at KNKX which was made in the 1970's.

The good news is the Continental only has to be moved a few feet. As for the Collins, it 'might' be moving to Spokane.

I have my fingers crossed that WSU's NWPB will be able to secure the financing to replace their 35 year old transmitter at KVTI this year. I wrote about this in my previous column.

Quite unlike a lot of today's electronic equipment, Broadcast Transmitters are built very well and are asked to work – 24/7/365 for many years. Not many 35+ Year old transmitters still running, when you find one that is – it's a testament to the people who designed and built it as well as those that have maintained in over the years. Just like automobiles, some are designed to last a long time (If properly maintained) and some are not. I try to choose transmitters using the same criteria as I do the vehicles I drive. The good ones, rarely break.

If you recall, last month, I wrote about the FM Radio Site west of Port Angeles called Striped Peak. I just happened to run across the following picture of the Port Angeles Airport.... See that little piece of elevated ground just off the west end of the runway? Yep – Striped Peak. Transmitter location for **KNWP** and **KVIX**.



If you'd like more information – Go here –

[About William R. Fairchild Int'l Airport \(CLM\) | Port of Port Angeles, WA - Official Website \(portofpa.com\)](http://portofpa.com)

Yes, there are two airports in our state with the name Fairchild – <https://www.fairchild.af.mil/>. This one is just west of Spokane.

Here's some interesting data from a recent survey regarding what are called 'Cord-Cutters'

- About 20% of TV Viewers do so via and Over-The-Air (OTA) Antenna.
 - Back when TV Started, they were called, simply – TV antennas
 - When Color came along, they were 'Color Antennas'
 - Today they are called (you guessed it) - Digital Antennas.
- 58% of antenna owners say they are interested in local news and information about their local community.
- The term 'Linear-TV' is becoming popular. Perhaps because OTA Viewers watch the output of a station in a linear manner.
- Apparently most that watch OTA TV are happy with the experience, however, many long for the ability to have more channels to view (Cable or Satellite hangover?)
- Over half of TV viewers are interested in OTA, but many remain confused as to how to go about it. 13% of these say they are planning on making the switch.

Now to a topic more related to the Broadcast Engineer that installs and maintains today's Radio broadcast equipment. Soldering! Yes, we are occasionally called upon to solder something, but not often. (I recently had to make repairs to that old transmitter at KVTI I wrote about last month, the defective part was 'soldered' into a circuit). Today, there are many in this industry, especially with the advent of computer/IT equipment that features connectors that don't require soldering, like the RJ45 that is rapidly becoming the connector of choice for not only computer based things, but audio as well. With that being said, there are times that you wished you did not have to solder something, especially when you don't have soldering equipment with you.

The makers of equipment have been listening and have come up with a number of nifty solutions where connections that used to require soldering, can now be made using the little screwdriver commonly called a Greenie



Following are some examples of what I mean -

THE DB CONNECTOR –

The DB connector, available in Male and Female versions with 9, 15 and 25 pins being common, used to always required soldering. It was delicate work, not something you wanted to do standing up on a ladder etc.

To make things faster and easier and eliminate soldering, a number of new creations or 'work-arounds' came along that involve crimping 'pins' on the ends of the appropriate wires and pushing them into the connector. That method may still be viable, however, we have newer devices that don't require little pins and a specialized tool – For these- All you need is something to strip the insulation off the end of the wire so you can push it into the 'euro' connector and use you 'Greenie' to tighten the screw. I call these 'Greenie Compatible'

These are commonly called 'Breakout connectors' The one pictured below is for a DB -25 Pin Male. This model includes a 'shell' and clamp to hold the cable.



Here is a DB-15 Female – Minus the cover shell and cable clamp.



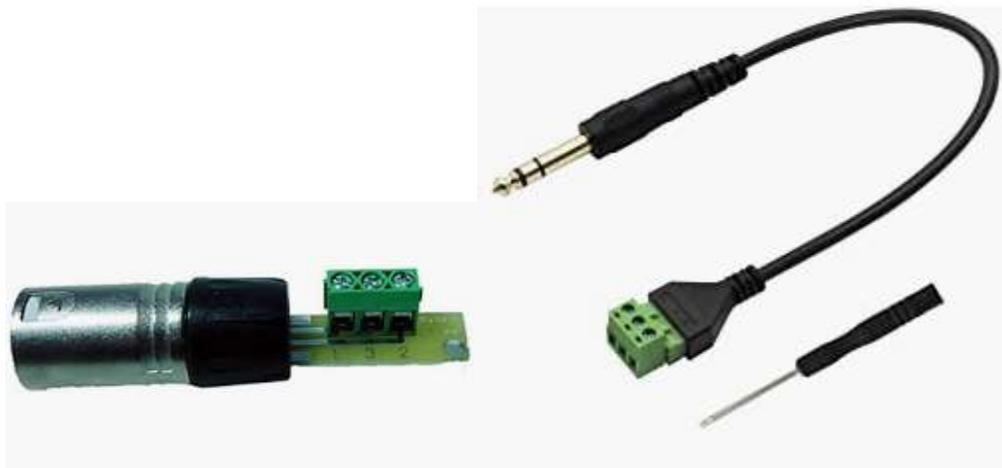
Here's one for the popular DB-9. You can get these with or without hoods to cover the individual connections.



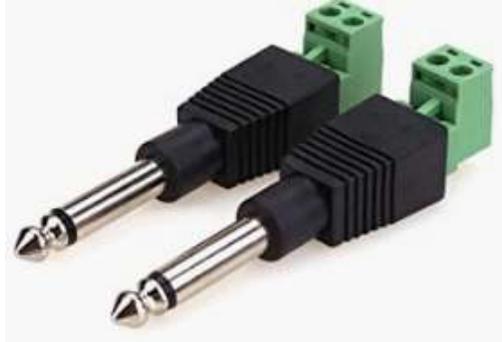
Newer on the market are these that eliminate the need for soldering when using the XLR connector. Certainly, these would be useful when working with a cable where there is little or no strain on the cable involved, such as within an equipment rack. For a Microphone cable, where there are mechanical and stress challenges, those are still best soldered.



Here are a couple more examples of Greenie compatible connectors. On the left another brand of Greenie/XLR. On the right, a Greenie compatible 3 conductor phone plug, with cable



How about a- Greenie compatible- 2-conductor, 1/4 inch Phone Plug



Greenie compatible RCA type Audio Connector



Perhaps a Greenie compatible 1/8 inch or Mini 3-conductor phone plug



DC Power connectors come in various types – Here's the answer for them



Not only will these little critters make life easier in wiring equipment that is not subject to human interaction...But I can think that having a collection of these in your tool box, ready to go, for surprise challenges would be a good idea.

If you have some other 'finds' in the area of 'Greenie Compatibility' Please send them my way.

B&H Photo has been around for a very long time. Perhaps, at one time or another, you thumbed through their extensive catalog? Evidently, they have been selling things they should not have...Namely, FM Transmitters that we – NOT- authorized to operate on the FCC's controlled FM Bands. Now these were not, big and powerful, transmitters but little ones that could be used to connect, perhaps, a smart phone to a car radio (something you would normally do via Blue-Tooth) An example was the Rolls Model HR 70, pictured here –



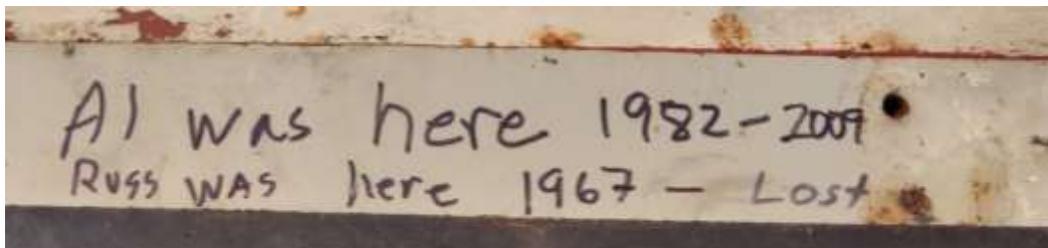
Apparently, this was just one of several they were selling. The FCC was not amused and told them to stop selling them. If they don't – expect to pay \$22,000 for each one sold. In another action, the FCC hit Pyle USA with a \$685,000 fine because some of their wireless microphones interfered with FAA spectrum (A big no-no)

Over the past 10 or so years I've been visiting the Crego Hill transmitter site (SW of Chehalis) I never stopped to look over the door, until recently. And that was when I spotted this item – I quickly grabbed my phone and shot this picture.

I assume the 'Al' referenced here was the late Al Bednarczyk that worked at this location with the installation of KCKA-TV.

Russ? My guess, this was Russ Hill.

Anyone have some background?



This item has, absolutely, nothing to do with Broadcasting...but everything to do with answering a question that, perhaps, many of you have had ...

WHAT ARE THOSE LITTLE BLACK DOTS FOR ON THE EDGE OF YOUR WINDSHIELD?



Here's an even better question to ask the person that usually has an answer for everything – What are they called ?

Answers -

- Back in the last century they started using an adhesive to hold the windows in place. Previously they used a metal trim (Remember?). The edges of the glass nowadays have a black 'rim' around the edges to hide the adhesive.
- They wanted to have a 'pleasing transition' from that black rim around the edge to the clear glass....so they decided to use a series of 'Dots' with decreasing frequency to soften the transition using what's technically called a 'Half-Tone' pattern. Oh yes, those Dot's have a name – They are call '**FRITS**'

There are some other technical reasons for the 'Frits' ...but that's another story.

Now you have a question for 'Mr. know it all 😊

Once again Copper Prices are expected to rise in '23 due to the War in Ukraine, Covid in China and other economic factors. Why am I saying this? Because those that would like to claim some of the copper items in your broadcast plant will have some additional incentive for doing so.

Pretty Picture time - Here are some, late in the day, pictures from the AccelNet Cameras on West Tiger Mt. In this one, the sun is just setting over Tacoma.



The tower in the middle belongs to AccelNet, the one on the far-right top corner (partially out of view) is one of the American Tower facilities – Home of KIRO & KING-FM, KNKX and others. On the far left, you can see a portion of the lower slopes of Mt Rainier



This is a look at the road, just to the east of the above pictures. The ruts in the snow were created by an ATV, with tracks, going up to the site for maintenance. Behind the trees you can make out the entire Olympic Mountain Range.



If you were to go to –

[Hiking West Tiger Mountain #3-2-1 - Ordinary Adventures \(ordinary-adventures.com\)](http://ordinary-adventures.com)

And scroll down, you will find this picture -



There's a story behind this place, located just west of the Broadcast Site on West Tiger...This 'hut' was naval surplus having been used to mothball gun emplacements on ships, perhaps in Bremerton. The late John Collins gathered several of them, hauling them to West Tiger to be used as 2-way radio equipment shelters. This location was known as the 'GE Site' and was used back in the days that GE made and sold 2-way radio equipment. (Note the piece of tower to the right was used to support antennas). By the time we built the broadcast site on the summit of the mountain in 1987/88, it was no longer in use. I noticed, on one stormy day, hikers huddled inside out of the weather. Shortly after I was having some signs made and decided the place needed a name and bolted the sign you see here to the side of the 'hut'. Now everyone that hikes West Tiger knows the name of the location. I had a spare sign made and, about a month ago, gave it to a fellow that deals with trails in the area for DNR. Now you know how this location got it's name. As I pass on, something else to remember me for at West Tiger.

Looking inside the Hikers Hut'... At least there is a place to sit and dry out.

Am surprized no one has built a fire inside to keep warm. Understand that someone recently contributed some blankets and other items, however.



On the left, the Hikers Hut, beyond the gate is the Weyerhaeuser communications site on West Tiger. The big tower is the home of – KIRO-FM, KISW, KKWF, KNDD, KNKX, KHTP and KING-FM (Picture taken prior to recent logging)



Here's one of my favorite pictures, taken from about the same spot during the winter. Here the 'Hut' is wearing a White Hat.



Looking west from near the Hikers Hut, you get this wonderful view

In the distance, the Olympic Mountains, below them and left of center is Downtown Seattle and near the right edge, Downtown Bellevue. The hill-top just below downtown Seattle in this shot is Cougar Mt, also home to a number of broadcast Radio operations.



Yes, Towers can collect Ice. I don't recall when or where this was taken, it's been around for a while. Like I've said, you don't want to be around these when they 'defrost'. And...As I've pointed out earlier in the column, too much ice and these structures do, occasionally, come down. In this case, the prevailing winds were blowing from right to left as indicated by the ice that has built up on the 'leading edge'.



That's it for this month – Hope the Holidays were good to and for you.

Lord willing, I'll see you here next month.

Clay, K7CR, CPBE

SBE Member # 714

Since March 1968