

The Pickle Barrel Review



THE OFFICIAL NEWSLETTER OF THE WESTON MOUNTAIN DIGITAL RADIO ASSOCIATION

July 2026

Introduction

Greetings to one and all, and once again welcome to the Pickle Barrel Review! As in the previous issues, you'll find this issue filled with the latest happenings not only of the W7NEO system, and the NE-OREGON room, but System Fusion, Allstar, along with GMRS, from not only our system, but our partners here in the Pacific Northwest as well. All that said, as always, we invite others to contribute with articles, or if your club or organization is having an event such as a tailgate, swap meet, VE testing, or whatever, you can list it here as well. The only thing we ask is that your contribution be nonpolitical (unless it's a

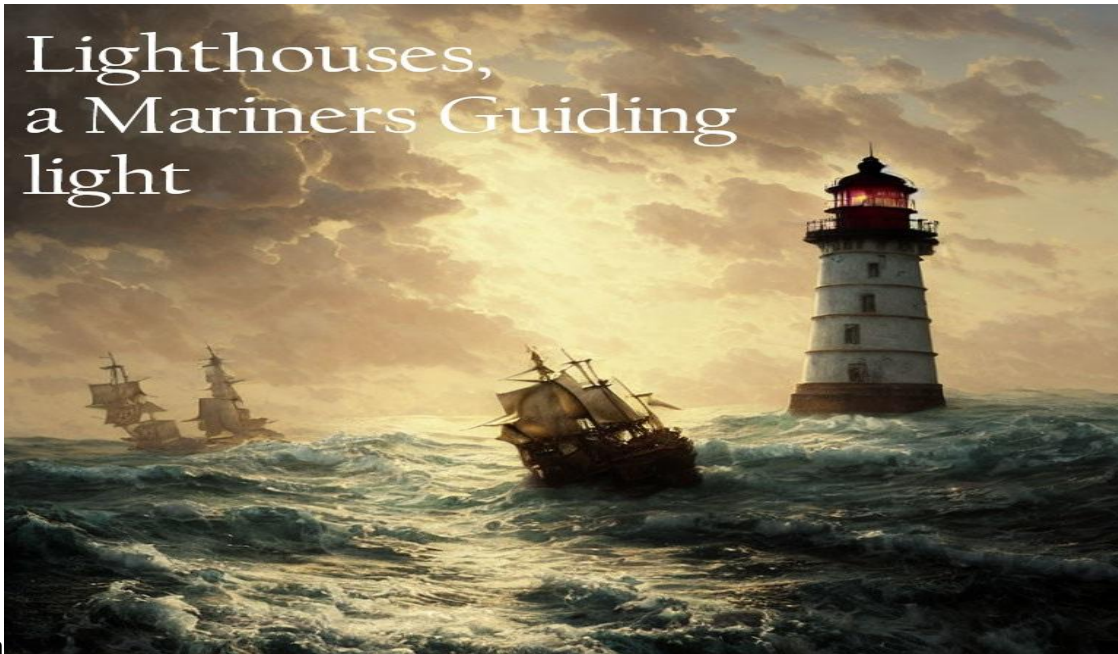
government action that directly affects Ham, or GMRS Radio), respectful of others (no personal attacks), and relatively family friendly. We realize your pretty darn proud of it, but we really don't want to hear about your new tattoo, let alone just where exactly it's located on your body. And just to be clear, we apologize, but unfortunately your brother-in-law's bachelor party still doesn't qualify as an upcoming event. So, all that said, feel free to reach in the barrel, grab yourself a pickle, pull up a chair and have ah sit for a spell as we discuss the latest happenings in Fusion, Allstar, GMRS, and Personal Radio Communications in general. And for the record, you can rest assured that every line of the PBR is a 100% AI free zone, and will remain so (As proof just look at all the mistakes!).

A word from our sponsor

Eastern Oregon Travel Service

Now that spring has sprung, and with the grip of old man winter beginning to fade, the urge to stretch beyond the bounds of your own fence-line are surely beginning to grow. That's where the folks at Eastern Oregon Travel Service are here to help. Our staff of knowledgeable, and travel savvy agents know just where to go find you the most exotic of travel experiences, with a package custom tailored to your very own particular adventure needs! Take for example our thrift store special, where our staff has traveled as far as two counties over just to find all the best in thrift store shopping, and marked each location all on maps that are carefully laminated by hand just for our valued customers! Let us provide you with your very own guide to the all the best in thrift shopping so you can spend the day searching all over town for that special something to remember your travel experience by! And once your all done shopping for the day, we'll have you booked at the finest in accommodations with exotic lodging such as the Star Light Motel conveniently located right next door to the truck stop where you can experience the very finest in dinning. As an added bonus, we'll even provide a roll of nickels for the vibrating bed to add that little bit of extra romance once the six pack is gone!

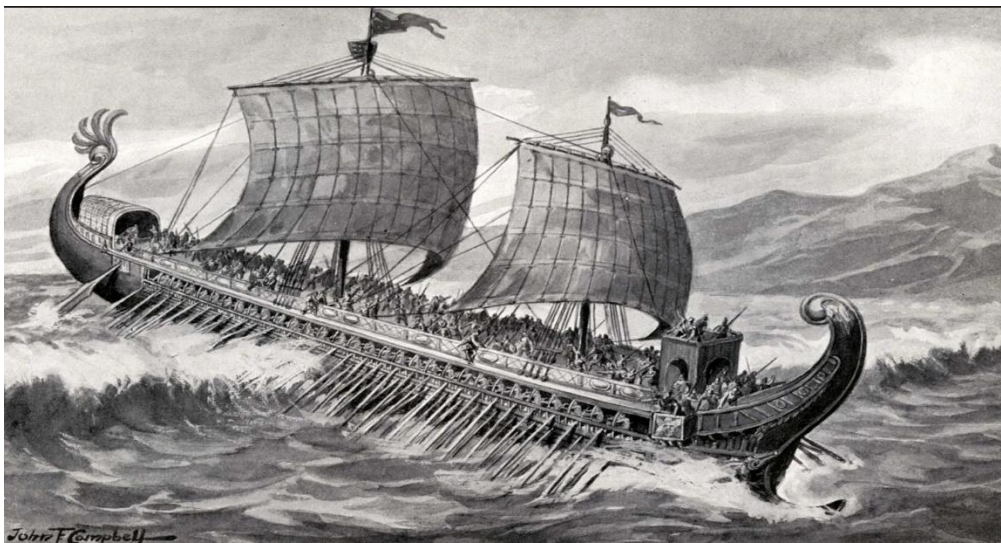
So, when you finally get tired of mowing the lawn, the fridge is empty, and there's absolutely nothing on TV, come on down to Eastern Oregon Travel and let us get your adventure started on the right track!



Before the development of clearly defined ports, mariners were guided by bon fires built on hilltops, much like early aviators used in order to mark the location of airports in the early 1900's. Since raising the fire would improve visibility, placing the fire on a platform became a practice that initially led to the development of the lighthouse. In antiquity, the lighthouse functioned more as an entrance marker to ports rather than as a warning signal for reefs and promontories, unlike many modern lighthouses of today. Believed to be one of the earliest known lighthouses, Kuntasi on the coast of India has revealed a square watch tower with a ramp which would have originally been 33 ~ 40 feet tall. It's believed by archaeologists to have been used to guide boats coming to Kuntasi from Rann of Kutch. The Rann of Kutch is a massive seasonal salt marsh in the Thar Desert spanning Gujarat, India, and Sindh, Pakistan. Famous as the "White Desert," it transforms from a marshy wetland during the monsoon into a dazzling, crunchy expanse of salt crystals in the winter. Although not entirely confirmed, if it was to

be confirmed as having actually been a lighthouse, the Kuntasi lighthouse would date from about 2000 BCE, making it one of the earliest known lighthouses.

The ancient Greeks were known for having a powerful navy. It was during their reign that Athens possessed a massive fleet of fast, highly maneuverable warships known as Triremes. Their rowers and commanders were intensely trained, allowing them to ram and sink enemy ships using the bronze-sheathed ram (Rostrum) attached to the bow, which was their primary offensive weapon. Proving to be extremely effective even when outnumbered.



Greek Triremes warship.

The Greek navy was the backbone of Athenian wealth and power. It secured vital grain and timber supply routes from the Black Sea, allowing Athens to collect tribute from numerous island and coastal allies. Greek dominance spanned over what is referred to as the Classical Antiquity period. This period of time spanned from the 8th century BC to the end of the Roman Empire in the 5th century AD. This encompasses the period of independent city-states (480–323 BC) and the Hellenistic period (323–146 BC) when Greek culture expanded across the Mediterranean and Near East.

During the Greeks period of maritime dominance, among their many accomplishments was the inventing of the lighthouse. The Lighthouse of Alexandria was constructed by the Ptolemaic Kingdom around 280 BCE, and was

accredited as being the first monumental lighthouse. It was commissioned by Ptolemy I Soter, successor of Alexander the Great who went on to found the Ptolemaic Kingdom centered in Egypt. Ptolemy was king and pharaoh of Ptolemaic Egypt from approximately 305/304 BC up until his death in 282 BC. The lighthouse was eventually completed during the reign of his son, Ptolemy II Philadelphus. The Greek architect and engineer Sostratus of Cnidus designed and directed the Pharos of Alexandria construction. Built in Egypt, it stood roughly 450 feet tall, and used a massive fire at its summit. It was eventually destroyed by earthquakes and to this day is still considered one of the Seven Wonders of the Ancient World.



The Greek Lighthouse Pharos of Alexandria, thought to be one of the seven wonders of the ancient world.

At its peak, Greece's modern lighthouse network was made up of over 100 stone sentinels, primarily built by French engineers in the 19th century. This network of lighthouses is still operated by the Hellenic Navy, which is the naval warfare branch of the Hellenic Armed Forces, who serve as the maritime defense force of Greece. It is primarily a green-water navy tasked with safeguarding Greece's extensive coastlines, and maritime borders across the Eastern Mediterranean, Aegean, and Ionian seas.

Roman engineers were also responsible for building a highly sophisticated network of lighthouses, known as *phari*, to guide merchant and military fleets safely across their vast empire. Powered by iron braziers at their summits, which was a heavy-duty metal basket, or open grate used in early lighthouses to hold burning wood or coal. These towers projected light at night, and thick smoke during the day, serving as powerful symbols of Roman maritime dominance.

At its high point, the Roman Empire is thought to have operated an estimated 30 lighthouses across the Mediterranean and Atlantic coasts. Unfortunately, only a handful of intact ancient structures survive today. One such surviving port beacon is the tower of Hercules located in Coruña, Spain. Built in the 1st century AD, this is the oldest surviving, and operational Roman lighthouse in the world. It originally stood 180-feet high, and remains a protected World Heritage Site, safely guiding mariners along the North Atlantic coast for nearly 2,000 years.



The Tower of Hercules in A Coruña, Spain

Following the fall of the Roman Empire, construction of lighthouses came to a halt until maritime trade was revived in the 12th century. Italy and France led this movement, with the iconic; “Lighthouse of Genoa,” established around 1128. Often known as simply; “La Lanterna,” it stands as the main light serving the Port of Genoa, the capital of Liguria.

The U.S. Lighthouse Service, first established in 1789, was established as one of the first acts of the new federal government. With its creation, it managed hundreds of beacons until it was absorbed into the U.S. Coast Guard in 1939. In the late 20th Century, with the advent of electricity, solar panels, and GPS, human lighthouse keepers were eventually phased out entirely. By the 1990s, almost all-American lighthouses had been automated. But with many lighthouses becoming national monuments, the legacy of the faithful lighthouse keeper continues to live on.

Finally, it wouldn't be a complete discussion of lighthouses, without mentioning the veritable lightship. Lightships were a specialized type of ship that acted as a floating lighthouse in order to safely guide other ships, by marking hazards in deep waters, while anchored in locations where the building of a permanent lighthouse simply wouldn't have been practical. Nonetheless, these locations still required some form of warning for hazards such as shifting sandbars, and dangerous harbors in general. Lightships were equipped with bright beacons, foghorns, and radio beacons, just as in the case of a typical lighthouse. The lightship performed the same tasks as an ordinary lighthouse by warning mariners of various hazards, while marking safe passage for ships of all types entering and leaving the various harbors they were assigned to protect. The first modern lightship was invented in England in 1734. In the United States, the U.S. Lightship Service followed suit when it deployed its first vessel in 1820 off the coast of Virginia. Eventually operating over a hundred stations along the Atlantic, Pacific, and Gulf coasts, as well as the Great Lakes.



Located at the Columbia River Maritime Museum, in Astoria OR, is the Columbia River Lightship (WLV-83).

Because they were exposed to severe weather and ocean swells, lightships featured exceptionally heavy, specially designed anchors to prevent drifting off station. Their hulls were painted in highly visible bright red, with the name of their assigned station painted in large white letters on the sides. Manned by rotating crews of about a dozen men, these ships remained in place year-round, braving punishing conditions and often being subjected to collisions with lost or stray vessels in the fog. Ships such as the WLV-83 (Lightship *Columbia*) typically operated in dangerous locations. As in the case of the WLV-83 that operated in the treacherous mouth of the Columbia River near Astoria, Oregon—an area known as the "Graveyard of the Pacific"—from 1892 to 1979.

The U.S. Lightship Service peaked in 1909 with 56 active stations. However, with advancing lighthouse construction technology, and as maritime technology in general advanced with equipment such as automated navigational buoys (LANBY), the advent of modern GPS, and more, all served to eventually make these vessels obsolete. The last active U.S. lightship, the *Nantucket I*, (LV-112), was officially decommissioned on March 29, 1985. It had served on the Nantucket Shoals from 1936 to 1942, and now resides in Boston Harbor, MA as a floating museum. Today, only about a dozen lightships remain in the United States, all of which have been preserved as museum ships, and National Historic Landmarks.

A prominent feature of many modern lighthouses was the Fresnel Lens. First invented in 1822 by French physicist Augustin Fresnel, it soon became a standard for lighthouses worldwide. Consisting of a beehive-like glass prism lens that magnified a light source into a concentrated, brilliant beam visible for miles, it completely revolutionized maritime visibility with its use in lighthouses. From giant Fresnel lenses concentrating sunlight for solar energy, to their use in cameras and traffic signals, these lenses have found their way into many various modern applications. Their ability to produce a powerful light beam, combined with their characteristic lightweight design, makes them invaluable in many applications.



A Fresnel Lens in the Montauk Point, Long Island, NY lighthouse.

Lighthouses have guided mariners away from dangerous coastlines for thousands of years. From the beginning starting with ancient bonfires to the brilliant Fresnel lenses of the 19th century, they evolved into feats of picturesque engineering achievement before eventually giving way to modern satellite navigation and automation.

Lighthouses and Ham Radio.

“Lighthouses On The Air,” or “LOTA,” is a popular amateur radio event where Amateur Radio operators activate lighthouses, or lightships, in order to make global radio contacts, promote the preservation of lighthouse legacy, and generally foster goodwill. A very similar event that takes place along those same lines takes place annually during the third full weekend of August, called International Lighthouse and Lightship Weekend (ILLW). Typically, this is held on the third full weekend of August every year. The 2026 event will be taking place from 00:01 UTC on Saturday, August 15, to 24:00 UTC on Sunday, August 16, 2026. These events range from ad-hoc operations to major international events that attract hundreds of participating stations. The International Lighthouse Lightship Weekend is an exceptionally popular, global amateur radio event.

This all first began with a group of Scottish Hams in 1998 in order to raise awareness to old lighthouses, and by 2014 it had become a global phenomenon

throughout the world Ham Radio community. However, the major event which takes place in August, the International Lighthouse Lightship Weekend, ILLW, first came into being in an effort to raise awareness of old lightships as part of the Scottish Northern Lights Award run by the Ayr Amateur Radio Group. The ILLW in August of each year typically attracts over 500 lighthouse entries located in over 40 countries. It ranks as one of the more popular international Amateur Radio events in existence. Its thought that it's because there are very few rules, and it is not the usual contest type event. It is also free and there are no prizes for contacting large numbers of other stations. That said, there is little doubt that the month of August has become "Lighthouse Month" due largely to the popularity and growth of the ILLW.

Lynn Wilson, K7LW



Quite often you'll hear Amateur Radio operators comment that we're not allowed to make any money for the services we provide to the public as part of our hobby. There's allot of truth to that, and FCC paragraph 97.113, is quite specific with regards to operating an Amateur Radio station for profit, making it clear that any form of compensation is strictly prohibited. Specifically, Amateurs Radio operators cannot use the airwaves for commercial communications, broadcast advertising, or hire for a period of time. However, you are legally permitted to rent out your personal radio equipment to others, provided the station is operated under the individual renting the equipment's own valid call sign. I can understand why this part is important. Think about it for a moment, if you're going to let someone else

operate your station, you REALLY want to ensure they are not only licensed, but operating in full compliance with FCC rules. As some of us are aware, FCC pink slips are absolutely no fun at all. Full disclosure, I've managed to get one pink slip over the entire fifty plus years I've been in the hobby.

So just what exactly does all that mean anyway? Well lets just break it down shall we.

First off, the particular paragraphs in section 47, part 97 which cover why it is that Amateur Radio operators cannot sell their services as communicators are as follows:

As I said earlier, under FCC Part 97 rules, operating an amateur station for profit or pecuniary interest is explicitly prohibited. The primary rules covering this are 47 CFR § 97.3(a)(4) (the definition of the amateur service), and 47 CFR § 97.113(a)(3) (prohibited transmissions).

Some of the Key Rules & Regulations are as follows:

47 CFR § 97.3(a)(4) (Definitions): This legally defines the Amateur Radio Service as a radiocommunication service carried out for self-training, intercommunication, and technical investigations. In other words, its primary purpose is "solely with a personal aim, and without pecuniary interest".

47 CFR § 97.113(a)(3) (Prohibited Transmissions). This part states that no station shall transmit "communications for hire or for material compensation, direct or indirect, paid or promised." That's pretty specific, and should leave no room for interpretation.

So now that we know the specific portions of section 47, part 97.113 which address the specific restrictions of using our hobby for profit, how about we examine the actual definitions.

No Commercial Transmissions: You cannot transmit communications for hire or for material compensation, direct or indirect, paid or promised. That's pretty clear.

No Advertising: Broadcasting messages or signals intended to facilitate the regular business or commercial affairs of any party is banned. In other words, you can't be putting in a plug for your favorite watering hole over the local repeater regardless of the promise of free beer.

The "Material Compensation" Exception: Now here's where it begins to get just a little tricky. You may accept compensation for being the control operator or for the use of an amateur station only if it is strictly for *Amateur Radio Service* purposes only (e.g., teaching a class or renting time on a remote radio station). The actual transmissions themselves must still be standard amateur communications. So, if you're going to rent out your station, or avail yourself as a control operator, ensure that it's only to another licensed Amateur Radio Operator, and make sure they stay within the guidelines of the FCC the entire time during their operation.

Back in the day, we used to sum all this up by just saying; you can't order a pizza over a repeater, and leave it at that since everyone got the jest of it. But nowadays we have to be a little more particular if we're to avoid the dreaded pink slip from the FCC, and break it down to more specifics. But surely there must be exceptions, right? Actually, yes there are, and here are a few of them:

Broadcasting Material Compensation: If you are employed as a legally compensated control operator for an amateur station (e.g., at a museum or educational institution), this is permitted by the FCC, provided the broadcasts remain noncommercial.

Equipment Manufacturer / Sales: Ham radio manufacturers and retailers are allowed to test or demonstrate equipment, but they cannot actively use the amateur bands to advertise or run their corporate communications for profit.

Okay, so what about providing your skills as a radio communicator to a "for profit event?" More specifically, under part 97 of FCC rules can an amateur radio operator provide communications services to a "For profit event?"

To be clear, you still can't be paid, or directly compensated for providing communications services. Under section 47 CFR § 97.113, Amateur Radio Operators are strictly prohibited from transmitting communications for hire or material compensation, direct or indirect. This applies whether the event is for-profit or non-profit. However, Amateur Radio Operators can still support for-profit events, provided these key conditions are met:

Uncompensated Service: Your communication services must be entirely voluntary. You cannot be paid by the organizers, nor can your employer coerce you into doing the work for commercial gain.

Incidental Material Reimbursement: While you cannot receive a wage, you may accept reimbursement for actual out-of-pocket expenses directly related to the event, such as food or materials required to operate the station.

No Business Communications: You still can't transmit messages that facilitate the regular business of a company, such as relaying sales figures, or business operations. The communications should be confined to non-commercial coordination, and event logistics (i.e., event safety, parking coordination, or runner tracking).

So okay, that pretty well lays it all out for Amateur (Ham) Radio, but what about GMRS. A common misconception is that since the GMRS frequencies were originally allocated to business use, there's some leeway given to businesses that were already operating on GMRS frequencies (Channels) prior to those frequencies being allocated for personal radio use. There is a school of thought driving this common misconception that those businesses that were originally on the GMRS frequencies were grandfathered, and allowed to continue operating on those frequencies since the cost required in order to replace the old equipment would have been prohibitive in order to make the switch. But even though the rules for GMRS go a little bit further than Amateur Radio when dealing with business communication, there are nonetheless some rules that are the same.

Providing communication services for profit using a GMRS radio is governed by 47 CFR § 95.1733 (Prohibited GMRS uses) and 47 CFR § 95.333 (Prohibited uses) of the FCC rules.

Under these rules, GMRS is intended primarily for facilitating activities of individual licensees and their family members. Operating a GMRS station as a common carrier or communicating messages for pay/financial gain is strictly prohibited.

Under FCC Part 95 Rules, a General Mobile Radio Service (GMRS) operator cannot provide communication services for pay or function as a commercial common carrier. We'll define just what "common carrier" means later on.

Under the FCC rules governing GMRS operations the following should serve to clarify the jest of it:

No Messages for Pay: A GMRS license does not authorize the communication of messages for pay or compensation.

For-Profit Exclusions: You cannot be compensated to provide communications services to a for-profit event. However, using the radio service to facilitate a business activity is allowed, but acting as a paid communications provider violates GMRS rules. In other words, a farmer can direct harvest equipment working in his field, but a cab company cannot set up shop on a GMRS channel.

Licensing Requirements: GMRS licenses are only issued to individuals (not entities or corporations). Licensed individuals can use the radios to coordinate their own business activities such as a farmer coordinating harvest equipment, but this does not extend to providing a paid dispatch, or event communications services to outside clients., such as in case of a cab company.

General Mobile Radio Service (GMRS) can, in limited cases, be used for business, but only under specific FCC licensing rules.

Key rules for commercial GMRS use are:

No Business Licenses: The FCC no longer grants GMRS licenses directly to corporations or businesses.

Individual Licensing: To use GMRS legally, every individual employee communicating on the radios must hold their own personal GMRS license. One license covers the individual and their immediate family members only.

No Unrelated Staff: Unrelated employees cannot use a boss's or coworker's personal license to operate. And no, your fourth cousin twice removed living six states away on an extended visit doesn't count as immediate family.

Also, you cannot operate a GMRS station as a common carrier or transmit messages for pay.

So, what exactly defines a "common carrier" anyway? Under U.S. law, common carriers are defined as companies licensed under the Code of Federal Regulations (CFR) to provide "domestic public land mobile radio services" for hire to a specified geographic area. In essence, common carrier stations must provide fair, non-discriminatory access to their network infrastructure. However, under Title 47 of the United States Code, pure broadcast services (like radio or TV stations) are

generally exempt from being classified as common carriers, as they produce content rather than merely acting as a passive transmission conduit.

The specific enforcement parameters are broken down as follows:

General Prohibition: 47 CFR § 95.333 outlines the prohibited uses for all Personal Radio Services. It explicitly forbids using the station to transmit messages in connection with any activity against the law or to transmit false or deceptive communications. Now there's a real no brainer.

Commercial and For-Profit Use: 47 CFR § 95.1733(a) expands on these rules specifically for GMRS. It explicitly prohibits transmitting advertisements or offers for the sale of goods or services.

Exceptions: While business use regarding personal or operational activities is allowed, the FCC defines communications "for pay" as operating as a common carrier. However, 47 CFR § 95.1733(b)(12) permits corporations to use a GMRS system to furnish non-profit radio communication services to parent or subsidiary corporations if authorized by their non-individual license. Because of these restrictions, providing for-profit communications services for a commercial or ticketed event (such as providing paid event security, logistics, or operations management) is not a permitted use of GMRS frequencies.

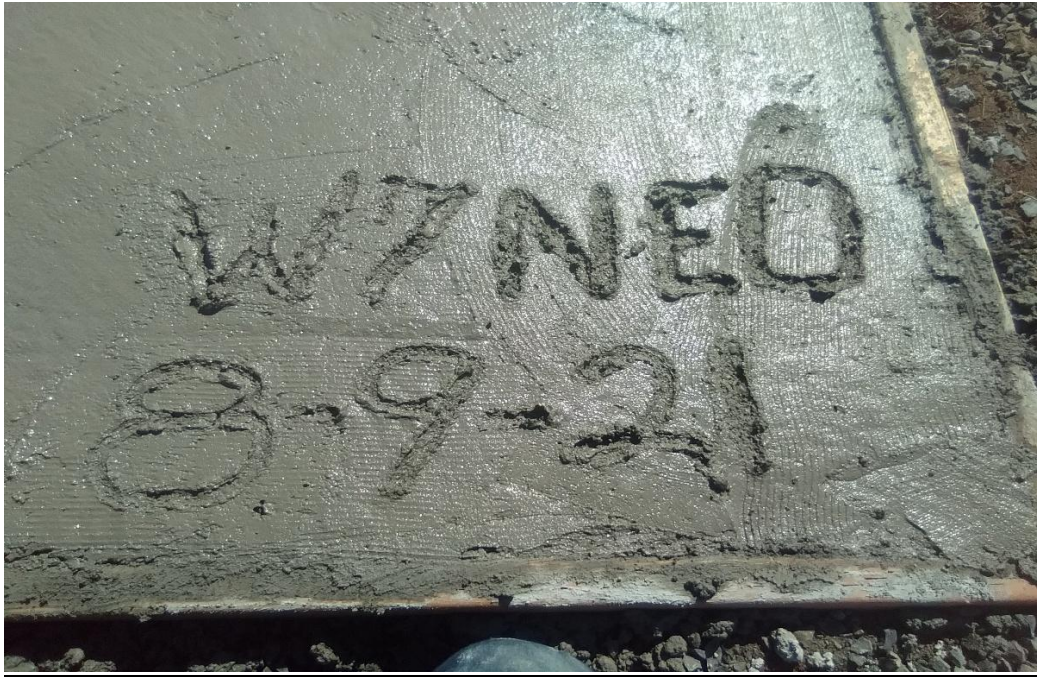
However, the good news is that Because of these restrictive individual licensing requirements, most businesses opt to use standard two-way Business Band (LMR) frequencies or MURS radios, which allow an entire business and all employees to operate under a single commercial license.

So, there you have it. Amateur "Ham" Radio operators are prohibited from any compensation for their services, but are allowed to provide communications for a "for-profit" entity provided they are not getting compensated directly for it. Unless it's presented as a token of gratitude for their service, i.e. tickets to an event, dinner gathering, etc. However, in the case of GMRS, as long as you're not getting compensated for it, you can direct entities such as farm equipment operators on your farm, provided the license is issued to just the owner of the farm, and those operating the equipment are either family members, or are operating under their own individual GMRS licenses. But in the case of a cab company, it's a definite NO. My guess is that about now your headed for the aspirin, and I don't blame

you. This is confusing, but if you just stick to the basics, and don't try to be what we used to call in the military a "Barracks Lawyer," you'll do just fine, and avoid any unpleasant run ins with the FCC.

Lynn Wilson, K7LW

Repeater Updates



Freshly poured concrete for the second tower base at Cabbage Hill.

With this year's fire season, off to a slightly earlier start than we had anticipated, some of our repeater projects have been put on hold. But along those lines, we narrowly avoided another replay of our Chandler Butte escapade a few years back when we lost that site due to fire. So, when a wild fire threatened our Cabbage Hill site memories along with the dread of possibly losing another site all returned. Fortunately, thanks to the brave fire fighters of ODF, who were able to snuff it out before it made its way to our repeater site, we're still on the air.



Cabbage Hill fire alongside I84.



Cabbage Hill fire as viewed from Pendleton OR.

Needless to say, when I was finally able to make it up to the site to survey the damage, not only was I relieved to see that the fire had never reached the site, but the fire fighters were using the site as a staging area. I assured them that I was totally okay with that, and every fire fighter I ran into I ensured to let them know just how much all of us with equipment on the site appreciated them. Surprisingly one of the comments I heard was that they didn't hear the words "Thank You," very often. I assured them that they didn't hear it often enough, and that all of us were grateful for the job they did. This was validated even more when I heard on the news that three fire fighters in Utah had lost their lives while fighting a wild fire near the Nevada border.

While I was checking out our site, I was asked by a couple of the fire fighters if I would show them what we had in the building, which I was only too happy to give a nickel tour of our site to these heroes. Although the Cabbage Hill fire is now out, as I type this out, there is a fire taking place less than ten miles away in the hills of the Blue Mountains. It's not a threat to either of our group's repeater sites, or any other local group, but it's still a concern. A fire that began on just two acres in just three days' time is now just over 4,000 acres, and local Emergency Responders have been talking evacuations. Although our group hasn't been contacted to provide emergency communications to the Search and Rescue folks, or any other emergency responders, our system is ready in the event we are called upon. Oregon governor Tina Kotek issued Proclamation number [26-10](#), as a state proclamation of emergency due to the imminent threat of wildfires. So, this just gives one more reason why it's so important that we keep our repeater systems, and our home equipment in good shape, because you never know when you're going to need it.

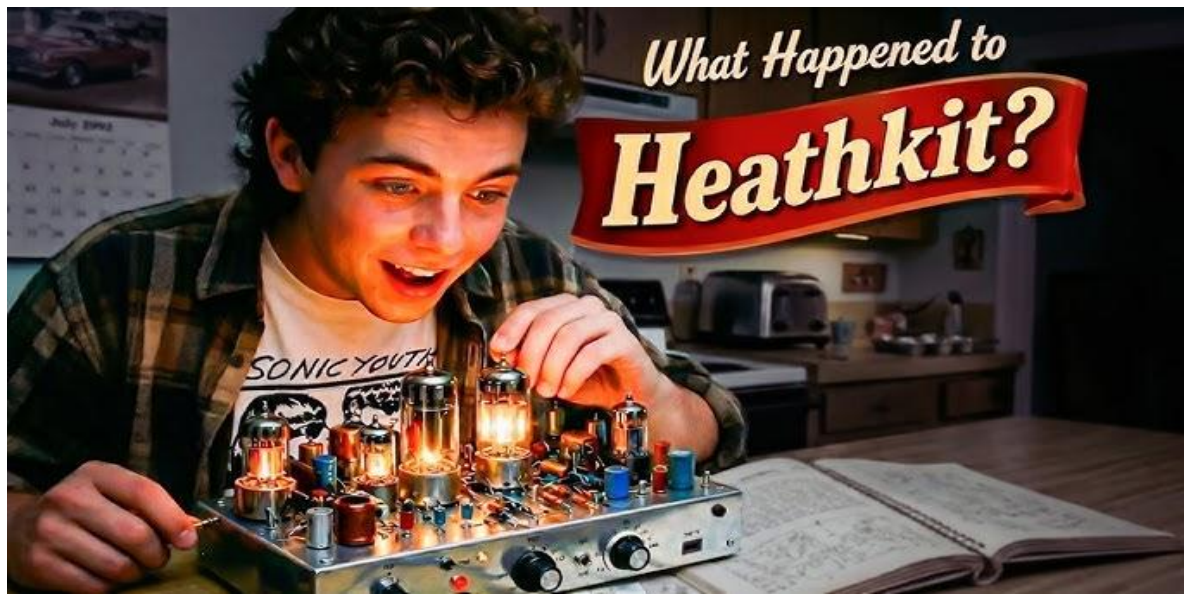
On the WiresX side of things, some of you may have noticed a slight change in the NE-OREGON room. You may recall that in June Yeasu came out with a massive update to the WiresX software, V2.00. After reviewing it, it was decided that updating the room to the new version had the potential to drop most, if not all of our users out of the room. These are folks that have stood by us throughout the time we've had the room in service, some from the very beginning. Apparently, we weren't the only WiresX users with similar concerns, because Yeasu received ALLOT of calls from users "suggesting" that Yeasu make some changes to the v2.00 software package. So, within a week Yeasu had a new version out, v2.01 that appears to have addressed most all of the concerns. So, after some thorough research to make sure this new version software wasn't going to crash the system, I was satisfied that Yeasu had indeed fixed the bugs, and so I updated the server with the NE-OREGON room on it to the new v2.01. So far it seems to be working pretty well, and it almost appears that servers running v2.0 can connect to the NE-OREGON room regardless if their configured for IP6v or IP4v, unlike with the previous version. It also may have solved a problem connecting to the NE-OREGON room some of the users were having. So, as with all software upgrades, keep your fingers crossed and we'll see how this works out.

So far reports are that our recently installed packet node on Cabbage Hill (W7NEO-8) continues to exceed expectations. So, we're calling that one a success.

On another note, we're still working on the addition of another repeater site, which will include another packet node to add to our system of existing nodes. However, obtaining the necessary equipment has proven to be a challenge thanks to the tariffs. So, stay tuned!

Lynn Wilson, K7LW

Ham Radio Nostalgia



Back in the 1970's when I first got into Ham Radio, I was just a young teenager who loved electronics, and especially if it had anything to do with radio. So, each time when the new Heathkit catalog came out, that was nothing short of pure nerd porn for me and my buddies. We would always go straight to the Ham Radio section of the catalog and drool over the latest Heathkit offerings. I especially remember when the SB-220 HF amplifier first graced the pages. Two full kilowatts PEP of pure talk power, oh be still thy heart! In the years since, I eventually ended up with not one, but two of those gems. Granted they both were in need of a little TLC, but then hey, they were kits to begin with, right? But by the time I was able to own one, they had long since become classics. Although there's something about the sheer magic of a pair of 3-500Z triodes glowing on a metal chassis that just never gets old. I could go down the list of Heathkit equipment I've owned, and operated through the years, such as the SB-101 in our high school electronics class that we would spend our lunch hours tapping out code on an old J-38 strait key, or

the electronic keyer I received for my eighteenth birthday, which I promptly wore out the paddles on before my nineteenth birthday. Along with countless other Heathkit products such as the HW-101, or “Hot Water 101,” which I spent hours operating from the Amateur Radio club station in Groton CT while I was stationed at the submarine base there. I still have some of that classic old Heathkit equipment in my treasured collection of vintage boat anchors to this very day some fifty years later. But what ever happened to what was, in my day anyway, a true legend in the world of Ham Radio? Well, let’s start from the very beginning, for those of us that have been in this wonderful hobby of ours for a while, I think you just might find this walk in the past memorable, so let’s get started, shall we?

Believe it or not, the famous Heathkit company didn’t start out in the electronics business until much later in its history. The Heathkit Electronics company as we know it, was actually formed later on, and was more by accident than on purpose. The Heath Company was originally founded as an aircraft parts supply company in 1911 by Edward Bayard Heath who had been a successful American air racer prior to starting his company. But in 1926, Heath, purchased the Bates Aeroplane Co, and renamed it; “The E.B. Heath Aerial Vehicle Co.” With the idea being to produce affordable airplane kits that could be home built in a garage, or personal shop by most anyone at the time.



Edward Bayard Heath original founder of Heathkit, standing next to one of his racing planes somewhere around 1911.

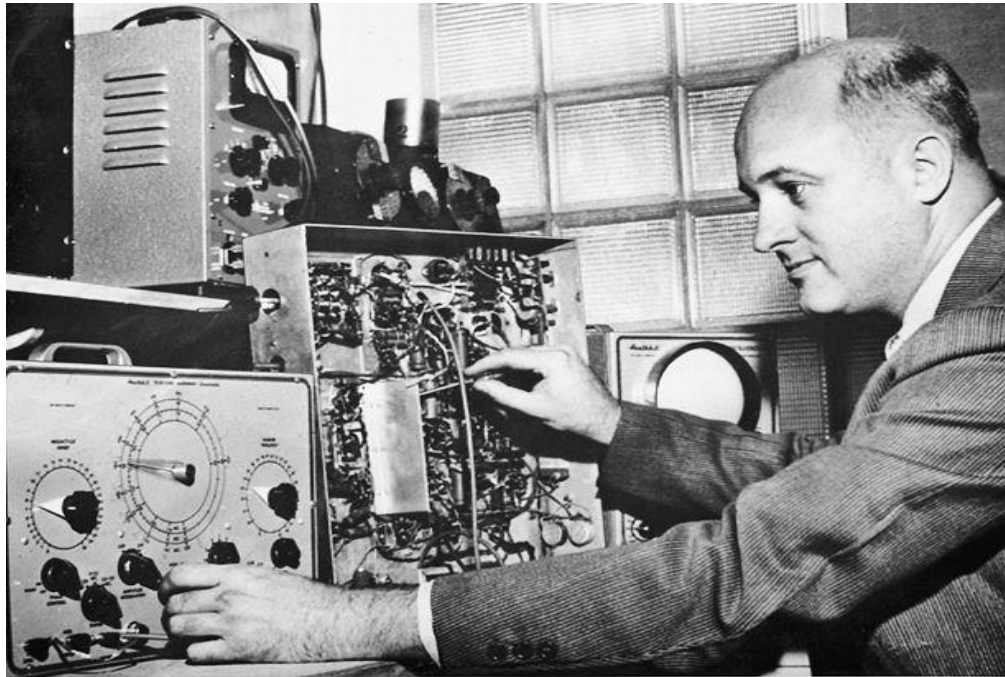
Back then the idea of personal flight was still relatively new, and the romance, and adventure of it were also still new, and exciting. Add to that, during that period personal flight - or what we refer to as “General Aviation (GA)” nowadays - had considerably fewer rules and regulations compared to what we have today given that any form of regulation to flight wouldn’t even appear on the scene until August 23, 1958, when President Dwight D. Eisenhower signed the Federal Aviation Act into law. It was later renamed the Federal Aviation Administration on April 1, 1967, when it became part of the newly established U.S. Department of Transportation. So, back then building and flying your own airplane was well within reach of most folks with the ambition and finances to peruse it. With that, the company began selling a light aircraft in kit form, called the Heath Parasol, at a price most folks could afford. In 1926, the Heath Parasol was priced at just \$575 for a fully assembled, ready-to-fly model out of Chicago. To make homebuilt aviation even more accessible, Ed Heath also sold the aircraft in varying DIY formats, such as a complete kit (excluding the engine) for \$199, or a set of blueprints for just \$5. One look at the wing and it becomes obvious why it was named “The Parasol.” Unfortunately, Heath died in 1931 during a test flight while flying an experimental aircraft. Soon after, his company eventually went bankrupt.



Heath Parasol Kit Plane, note the shape of the wing, hence the name “Parasol.”

In 1935, Howard Anthony, a well-known civic leader, and his wife, purchased the bankrupt Heath Aircraft Company's name, reorganized it, and moved everything from Chicago to Niles, Michigan. From there, the focus was shifted to selling

accessories for small aircraft. Anthony was having little success until the start of World War II, which brought the company a military contract to make aircraft parts. Ironically, many of the parts manufactured by the new company were electronic parts. Over the course of the war, the company quickly grew from five to 125 employees. However, after the war, contracts were canceled, the Heath company soon shrank back to just five employees.



Howard Anthony, credited for having turned Heathkit into an electronics kit company.

After the war ended, there was a lot of war surplus equipment that came up for bid. Anthony made what he considered to be a fair bid on some random electronic parts. One day he received a call from the Station Master at the Benton Harbor railroad yard to inform him that several railroad cars loaded with various military electronics surplus had been delivered, and was waiting for him to pick them up. The Station Master went on to inform Anthony that if he didn't pick them up soon, he would be charged a daily service fee for the storage of each railroad car. Anthony had forgotten that he had even originally bid on the items, and frantically began calling friends, and anyone else that he knew who might have a space available in order to store the surplus electronics items. The original plan Anthony had by purchasing the surplus electronics parts was that perhaps entering into the electronics industry might just be a good idea.



Railroad cars filled with WWII surplus electronics parts.

By purchasing a large stock of surplus wartime electronic parts, Anthony's intention was to use them in order to build kits. Within the stock pile of military surplus parts was a large quantity of cathode ray tubes which incorporated a 5-inch display area originally used for military RADAR displays. Anthony was able to repurpose the CRT's, and in 1947 Heath introduced its first electronic kit, the O1 oscilloscope, coincidentally with a 5-inch diameter cathode-ray tube (CRT) display. In the now post-war world, there were a lot of returning military folks that were going back to college, and many of them were studying engineering. Even back then oscilloscope test equipment carried an average price well beyond what the average student could afford. The Heath company sent out a total of 500 flyers offering the kit for \$39.95, which resulted in 350 orders. With the low price, the O1 became very successful, not only for its use as a valuable piece of electronic test equipment, but given the new owner had to build it themselves, it was also a means to gain practical electronics experience. This provided the funds making it necessary for Anthony to hire additional employees in order to produce the new product.



The Heathkit O-1 (or OL-1) classic 5-inch vacuum tube oscilloscope produced by the Heath Company.

By 1954 Heathkit had \$10 million in annual revenue, which Anthony successfully invested in the natural gas business. Unfortunately, also in 1954, Anthony became the second head of Heathkit to die in a plane crash. Anthony was about to buy a DeHavilland Dove twin engine business aircraft, with the intention of testing it before buying it. Howard and four other passengers took off from Ross Field in Benton Harbor. Unfortunately, they entered into a violent storm that broke the aircraft apart, and tragically all five passengers aboard perished in the crash.



DeHavilland Dove similar to the model that Howard Anthony crashed in.

In 1954 the 39-page bi-annual catalog contained only two pages of Amateur Radio gear. This consisted of an antenna coupler, which was the only piece of equipment specifically intended for amateur radio use. The other two items were a general coverage short wave receiver, the AR-2, and an impedance meter. A VFO for the AT-1, and the model VF-1, came out the following year. The AT-1, was a simple, three tube, crystal-controlled transmitter. It was capable of operating CW on the six most popular amateur short-wave bands, and at the time sold for just \$29.50.



The AT-1, a three-tube CW transmitter introduced in 1955.

After the success of the oscilloscope kit, Heath went on to produce dozens of Heathkit products. Heathkit soon became influential in shaping generations to follow of young electronic hobbyists, such as myself. The primary idea behind Heathkit was that by investing the time to assemble a Heathkit, the purchasers could build something that, in most cases, was every bit as good as a factory-built product, but at a significantly lower cost. Commercial factory-built electronic products at the time were typically constructed using generic, discrete components such as vacuum tubes, tube sockets, capacitors, inductors, and resistors, and were assembled mostly using hand-wired and point-to-point construction technology. The home kit-builder could perform these labor-intensive assembly tasks themselves, and if careful, attain at least the same standard of quality as equivalent factory-built products. In the case of Heathkit's most expensive product at the time, the Thomas electronic organ, building the kit version represented substantial savings. In addition, given that it was basically home built, if it malfunctioned, it could be repaired by the builder themselves. During the time period Heathkit was

producing electronics kits this concept continued to hold true, and was the main motivating factor behind the idea of electronic kit building.

One particular category of Heathkit's many electronic products in which I can personally vouch for as having had great popularity, was its Amateur Radio product line. Before the advent of kits Ham Radio operators frequently built their equipment from scratch using parts scavenged from old tube radios and TV's, or from parts collected from various places, gathered together in what we used to call "junk boxes." For circuit design information Amateur Radio hobbyist would typically rely on experimental designs from sources such as the Ham Radio Handbook, or various electronics magazines. My first transmitter was a single tube 80-watt transmitter that I had built from hand wound coils, and various parts I had scavenged from an old television. Coincidentally, that was also when I received my first RF burn. Kits brought the convenience of having all of the parts being supplied together, with the assurance of a predictable finished product.

In the case of electronic test equipment, Heathkits often filled a low-end entry-level niche, giving hobbyists not only access, but at an affordable price that many electronics hobbyist, an students could afford.

As the years progressed, an Heathkit became more prominent in the world of Ham Radio. This resulted in many Heathkit model numbers became well known in the ham radio community. The HW-101 HF transceiver which I mentioned earlier, became so ubiquitous that even today the "Hot Water One-Oh-One" can be found in use, or purchased as used equipment at Hamfests, decades after it went out of production.



The HW (Hot Water) – 101.

In the 1960s, a team of engineers—some of whom were recruited from Collins Radio Company following defense contract layoffs—helped Heathkit design the legendary SB-series Amateur Radio line. These former Collins engineers brought their industry expertise to Heathkit, resulting in high-performance transceivers that hams affectionately dubbed "the poor man's Collins," or simply as “Green Faced Collins,” in reference to the SB series bearing an uncanny resemblance to the Collins S-Line series.



The veritable Collins KWM-2, HF transceiver.



Heathkit SB-101HF SSB transceiver.

While the Heathkit SB-line closely mimicked the styling and features of the highly regarded Collins S-Line, the engineering approach differed significantly. The engineers from Collins—famous for their high-quality, top-tier S-Line gear—helped Heathkit design high-performance amateur radios that offered similar specs at a fraction of the cost. For example, instead of the expensive, permeability-tuned oscillators (PTOs) that Collins used, the former Collins engineers helped Heathkit design the "LMO" (Linear Master Oscillator). These custom-designed, pre-assembled VFOs kept the SB series highly stable and linear while keeping the kits affordable.

One of the more notable engineers from Collins that left his mark on Heathkit was Mike Elliot. Elliot left Collins Radio following Rockwell International's acquisition of the company. He began working at Heathkit and quickly made an impact on their solid-state radio lineup, including the HA-202 VHF amplifier.

Other former Collins employees brought with them many additional innovations in various communications technology. One such innovation was in the famous quality of their legendary Collins receivers. While Collins utilized elaborate mechanically linked tuning slugs and extensive multi-band general coverage, the engineers helped Heathkit adapt those mechanical layouts into band-specific circuits that were much easier for a kit builder to assemble and align.

Heathkit's instruction books were regarded by far as among the best in the kit industry. They were credited as being models of clarity, beginning with basic lessons on soldering technique, and proceeding with explicit step-by-step directions, illustrated with numerous line drawings. The drawings could even be folded out in order to be visible next to the relevant text (which might be bound several pages away) and were aligned with the assembler's viewpoint. Also in view was a checkbox to mark with a pencil as each task was accomplished. The instructions usually included complete schematic diagrams, with block diagrams depicting different subsystems and their interconnections, along with a "Theory of Operation" section that explained the basic function of each section of the electronics project. I can personally attest to the detail within each instruction book, given that we would keep them in our personal technical libraries as reference.

Sadly, in 1983 Heathkit came out with their last ham radio kit, the HW-5400 transceiver. It was all solid state with 100 watts output on 160 through 10 meters including the newly-available WARC bands. Also available at the time was a matching power supply for pairing up with the HW-5400.

Heathkit manufactured electronic kits from 1947 until 1992. After closing that business, the Heath Company continued with its products for education, and motion-sensor lighting controls. The lighting control business was sold around 2000. The company announced in 2011 that they were reentering the kit business after a 20-year hiatus but then unexpectedly filed for bankruptcy in 2012. Under new ownership Heathkit began restructuring in 2013. In May 2013, Heathkit's corporate restructuring was announced on their website. An extensive FAQ accessible from their homepage stated clearly that Heathkit was back, and that they would resume electronic kit production and sales.

In October 2015, Heathkit circulated an email to its "insiders", who had indicated an interest in the company's progress by completing its online marketing survey. It had now secured the rights to all Heathkit designs and trademarks, secured several new patents, established new offices, warehouse space, and a factory in Santa Cruz, California. All this, and they had managed to introduce the renewed company's first new electronic kit in decades.

Since then, Heathkit has announced and sold further kits in its new lineup of products. Some of the products include limited repair service on vintage products, reprints of manuals and schematics, remaining inventories of original parts, and upgrades of some vintage models are also available. As of 2015 the company has a website, and in looking it over it appears to be a much scaled down version of what once was. In addition to the above-mentioned products and services, it also has items such as home weather stations, clocks, and home experimental Cube Sat. Although I must caution you on the Cube Sat, although it carries with it a hefty price tag of \$995.00 it's for demonstration only, and as much as I hate to disappoint, it is incapable of space flight.

In its heyday, Heathkit was the number one manufacturer of electronic kits, and especially Ham Radio kits. Many of us now "Vintage Hams" can recall many hours carefully assembling what would become a center piece to our station once completed. After successful completion of our precious project, spending many ah

late night tuning around the bands in search of a contact on our treasured Heathkit radio. Those were indeed good times...

Lynn Wilson, K7LW

VE Testing

There is no VE testing going on that we're aware of, but if you check the Links section of our website, there may be information on some of our friend's websites as to where you might find a test session going on near you. But in the meantime, if you do have a regular test session taking place, feel free to let us know, and we'll post it here in the next issue of the Pickle Barrel Review.

The End

Before I draw this month's issue to an end, I want to give a sincere thanks to both the Walla Walla Amateur Radio Club, and the Hermiston Amateur Radio club for their great hospitality during my visit to each of their Field Day sites. You folks are truly what make this hobby so great!

Thanks also goes out once again to John Vocht (KA7DRE) for this month's Nostalgic Radio suggestion. Thanks John!

Well, that's about it for this edition of the Pickle Barrel Review. But, in the meantime, we'll continue to work hard to keep each and every issue as informative, fun, and at least as interesting as the previous issues.

So, until next time, we here at the WMDRA (W7NEO) hope everyone is enjoying summer, while getting out working on those antenna projects you've been thinking about all winter. But remember to stay hydrated while outside in the heat!

As always, in the meantime, feel free to reach in the barrel and grab another pickle. There's plenty to go around, along with plenty more great conversation, and maybe even a touch of rhetoric here and there!

73!

Weston Mountain Digital Radio Association,
W7NEO



"In peace, sons bury their fathers. In war, fathers bury their sons." - Herodotus, ancient Greek historian.

