



Antique Wireless Association of Southern Africa Newsletter



231

October 2025



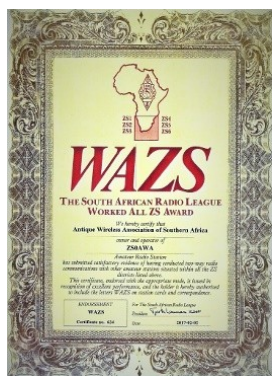
Hammarlund HX500

The Hammarlund Manufacturing Company was founded by Oscar Hammarlund in New York City, New York, United States, in 1910. When the company was dissolved in 1973, it was among the United States' very oldest producers of radio equipment.

The first Hammarlund plant was a loft operation engaged in radio component manufacturing on Fulton Street in Lower Manhattan, New York City. Their variable capacitor designs quickly became industry standards, and the component's schematic symbol was adopted as the company's logo. In the mid-1920s, Hammarlund formed a partnership called Hammarlund-Roberts Co. specifically to offer kits for AM broadcast radios using Hammarlund parts. The company opened its major manufacturing facility in Mars Hill, North Carolina in 1951.

While Hammarlund was most famous for its amateur/short-wave receiver lines such as the Super Pro series and the HQ series (which includes the HQ-100, 110, 120, 129, 145, 150, 160, 170, 180, 200 and 215), a number of transmitters were also produced. These saw only limited use.^{[2][3]}

The HX-500 Exciter-transmitter is completely self contained; employing 21 tubes. It covers 80, 40, 20, 15 and 10 meter amateur bands. The unit is capable of LSB, USB, DSB(AM), CW, FM and FSK. The power output on SSB is 70-100 watts; 70-100 watts on CW, FSK, FM and 17-25 watts on DSB(AM). The final amplifier employs a pair of 6146 pentode tubes.



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www.awasa.org.za

Chris's Musings

We're a month away from the AWA AGM which takes place in November.

This year has just flown by and I can hardly believe the breadth of topics that we covered on the regular Saturday AWA nets and on the Telegram group. We have had a real variety, the most recent being refurbishing of antennas and antenna traps.

The AWA SA is one of the most active societies when it comes to sharing and discussing technical topics.

The Saturday topics and questions from participants have inspired me to write a number of articles which I hope to continue. But, here is the thing! There is so much knowledge and experience among our members and I want to thank those who have taken the time to share.

Even though the nets are recorded and the audio is available on the website, it would be great if all this knowledge could be unlocked and committed to paper in the form of articles for publication in the AWA newsletter. If you don't have the time to produce an actual article, how about providing your thoughts and experience in note form, together with pictures and let us find someone who will be able to perform the editing. It would be a real shame if we lost all of this potential 'heritage' to the sands of time.

Tell us about your projects, what's on your bench or experiments you have conducted. The topic need not be 'antique' but can be anything which can add to the knowledge of young or old. What is contemporary today will be antique one day.

How about? Put pen to paper and send it off to andyzs6ady@vodamail.co.za and one of us will do the rest.

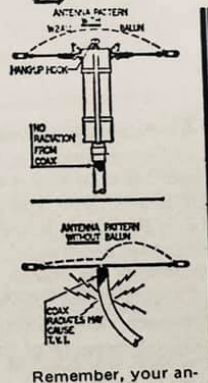
See you at the AGM, to be held at the SAIEE on Saturday 15 November.

73

Chris, ZS6GM

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Reflections:

With the year slowly drawing to a close, we have still have two important dates that lie ahead. The first being the Valve QSO Party on Sunday 05 October and the second being the AWA AGM on Saturday 15th November. (Notices in this edition)

Twenty two years and still going stronger than ever, what an achievement. All due to the foresight of a few enthusiasts who wanted to preserve our amateur heritage and see that it would not be forgotten.

I will always feel that I was quite privileged to have been there right at the very beginning, attended the first transmission that took place and have been able to play a part in keeping this association going.

There are many who have played their parts, from Cliff ZS6BOX being our founding President to all those who came after him and have put so much in to the growth and stability of the AWA.

It would be unfair of me, I think, to try and single out any particular person, as I believe every one of them have played a vital role in keeping the Association going.

We have seen many members

come and go. Many of them now SK. But even they have played a part in the growth and development of the AWA, by simply signing up to say they have "an interest in the acquisition repair and maintenance of yesterdays radio's and associated equipment".

It is these few words of our mission statement that bring it all together.

There are some keen collectors out there who have spent a good number of years, and nearly all of their finances, putting together some outstanding displays of this heritage we speak of. One could call them Mini museums. Maybe one day we will manage to get information and photo's of them and their displays so that we can show how much has actually been achieved.

Lets see how many will take up the challenge and send me some information ????

Looking to next year, there is going to be a change to the format of the AWA SSB QSO Party rules. There will be four categories that one can enter in and it will no longer be that "Valve" radio's will have the advantage.

You will be able to enter in one of the following categories and the highest points score in that category will be given a certificate.

- 1) All valve radio—ie 80% valve
- 2) Hybrid—valves in the final and driver
- 3) Solid state—pre 1979
- 4) Solid state—post 1979

This will hopefully give all a chance to enter the QSO party and stand a chance of winning in a category and not being favoured in any way.

We hope that this will still encourage those of you operating valve and hybrid radios to still use them. After all this is what we are all about.

The last of the old style Valve QSO Party will take place this coming Sunday 05 October and we look forward to hearing many of you on the air, with your valve rigs.

Excel Log sheets can be downloaded from the AWA Website or the SARL website mysarl.org.za

Looking forward to having a QSO with you.

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Best 73

De Andy ZS6ADY

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Antique Wireless Association of Southern Africa

AWA AGM – 2025

Notice is given for the 2025 AGM of the Antique Wireless Association of Southern Africa to be held on Saturday 15th November 2025 at the premises of the SAIEE in Observatory Johannesburg.

There will be a fleamarket and open display as well as free access to the SAIEE museum.

The SAIEE shack will be available for use.

Times will be from 09:00 until 15:00 with the AGM held at approximately 10:00, thereafter fleamarket and braai facilities and eyeball QSO. Bring along all your valuable junk that you wish to dispose of at the fleamarket.

The Shack will be on air from 08:30.

Should you wish to bring your own meat and refreshments, please feel free to do so, otherwise meat packs and cold drinks will be on sale.

Please let Andy ZS6ADY know if you would be interested in a meat pack, for planning purposes.

We look forward to seeing many of you there.

Kind regards

Andy Cairns ZS6ADY
(Secretary/PRO AWA)

AWA Valve QSO Party

1. The aim of the AWA QSO party is to create activity on the 40 and 80 meter bands. It is a phone only contest.
2. Date : Sunday 05 October 2025.
3. Time. From 15:00 - 19:00 SAST
4. Preferably, Valve radio's, or radio's with valves in them may be used.
5. Frequencies - 80m 3,600 to 3650 Mhz
40m 7,050 to 7,100 Mhz and 7.130 to 7200Mhz (The frequency between 7.100 and 7.130 is contest free)
6. Exchange - call sign, RS and consecutive serial numbers starting at 001, plus type of radio used. eg HT37 Tx.
7. Scoring , (your radio)
All valve radio 3 points per contact
Hybrid (valve & solid state) 2 points per contact
Solid State Radio 1 point per contact
8. Certificates will be awarded to the first three places.
9. Sponsor : The Antique Wireless Association of Southern Africa (AWA).
10. An excel log sheet is available on the AWA website. Copy and paste the following link : [Downloads \(awasa.org.za\)](http://Downloads(awasa.org.za))
Look in "Other Downloads"

All contact logs to be sent to:

email: andyzs6ady@vodamail.co.za

(As from next year—2026— the format of the QSO Party will change having categories that will allow people using any radio to participate against radios of same types. Scores will be for class that you enter. Details will be in the SARL Contest Manual coming out in a month or two)



All Valve



Solid State



Hybrid

Edwin Howard Armstrong

Edwin Howard Armstrong (December 18, 1890 – February 1, 1954) was an American electrical engineer and inventor who developed FM (frequency modulation) radio and the superheterodyne receiver system.

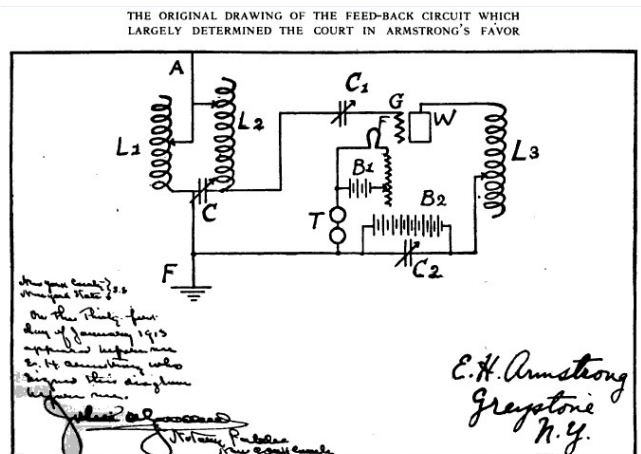
He held 42 patents and received numerous awards, including the first Medal of Honor awarded by the Institute of Radio Engineers (now IEEE), the French Legion of Honor, the 1941 Franklin Medal and the 1942 Edison Medal. He achieved the rank of major in the U.S. Army Signal Corps during World War I and was often referred to as "Major Armstrong" during his career. He was inducted into the National Inventors Hall of Fame and included in the International Telecommunication Union's roster of great inventors. He was inducted into the Wireless Hall of Fame posthumously in 2001. Armstrong attended Columbia University, and served as a professor there for most of his life.

Armstrong began working on his first major invention while still an undergraduate at Columbia. In late 1906, Lee de Forest had invented the three-element (triode) "grid Audion" vacuum-tube. How vacuum tubes worked was not understood at the time. De Forest's initial Audions did not have a high vacuum and developed a blue glow at modest plate voltages; De Forest improved the vacuum for Federal Telegraph. By 1912, vacuum tube operation was understood, and regenerative circuits using high-vacuum tubes were appreciated.



While growing up, Armstrong had experimented with the early temperamental, "gassy" Audions. Spurred by the later discoveries, he developed a keen interest in gaining a detailed scientific understanding of how vacuum tubes worked. In conjunction with Professor Morecroft he used an oscillograph to conduct comprehensive studies. His breakthrough discovery was determining that employing positive feedback (also known as "regeneration") produced amplification hundreds of times greater than previously attained, with the amplified signals now strong enough so that receivers could use loudspeakers instead of headphones. Further investigation revealed that when the feedback was increased beyond a certain level a vacuum-tube would go into oscillation, thus could also be used as a continuous-wave radio transmitter.

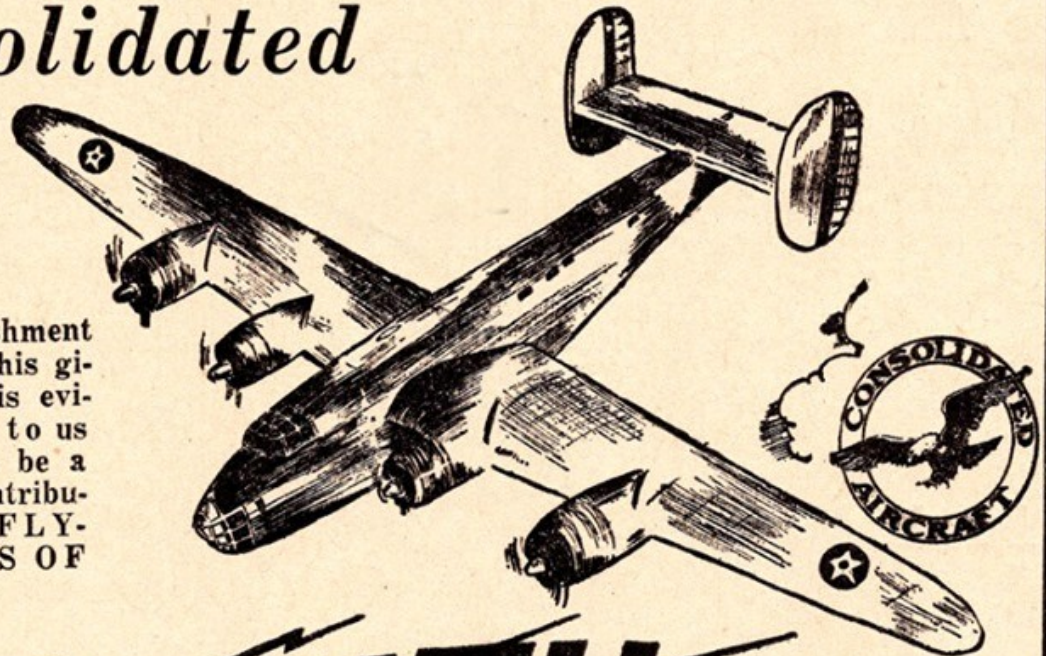
Beginning in 1913 Armstrong prepared a series of comprehensive demonstrations and papers that carefully documented his research, and in late 1913 applied for patent protection covering the regenerative circuit. On October 6, 1914, U.S. patent 1,113,149 was issued for his discovery. [19] Although Lee de Forest initially discounted Armstrong's findings, beginning in 1915 de Forest filed a series of competing patent applications that largely copied Armstrong's claims, now stating that he had discovered regeneration first, based on a notebook entry made on August 6, 1912, while working for the Federal Telegraph company, prior to the date recognized for Armstrong of January 31, 1913. The result was an interference hearing at the patent office to determine priority. De Forest was not the only other inventor involved – the four competing claimants included Armstrong, de Forest, General Electric's Langmuir, and Alexander Meissner, who was a German national, which led to his application being seized by the Office of Alien Property Custodian during World War I.



Following the end of WWI Armstrong enlisted representation by the law firm of Pennie, Davis, Martin and Edmonds. To finance his legal expenses he began issuing non-transferable licenses for use of the regenerative patents to a select group of small radio equipment firms, and by November 1920, 17 companies had been licensed. These licensees paid 5% royalties on their sales which were restricted to only "amateurs and experimenters". Meanwhile, Armstrong explored his options for selling the commercial rights to his work. Although the obvious candidate was the Radio Corporation of America (RCA), on October 5, 1920, the Westinghouse Electric & Manufacturing Company took out an option for \$335,000 for the commercial rights for both the regenerative and superheterodyne patents, with an additional \$200,000 to be paid if Armstrong prevailed in the regenerative patent dispute. Westinghouse exercised this option on November 4, 1920.

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The United States entered WWI in April 1917. Later that year Armstrong was commissioned as a captain in the U.S. Army Signal Corps, and assigned to a laboratory in Paris, France to help develop radio communication for the Allied war effort. He returned to the US in the autumn of 1919, after being promoted to the rank of Major. (During both world wars, Armstrong gave the US military free use of his patents.)

During this period, Armstrong's most significant accomplishment was the development of a "supersonic heterodyne" – soon shortened to "superheterodyne" – radio receiver circuit. This circuit made radio receivers more sensitive and selective and is used extensively today. The key feature of the superheterodyne approach is the mixing of the incoming radio signal with a locally generated, different frequency signal within a radio set. That circuit is called the mixer. The result is a fixed, unchanging intermediate frequency, or I.F. signal which is easily amplified and detected by following circuit stages. In 1919, Armstrong filed an application for a US patent of the superheterodyne circuit which was issued the next year. This patent was subsequently sold to Westinghouse. The patent was challenged, triggering another patent office interference hearing. Armstrong ultimately lost this patent battle; although the outcome was less controversial than that involving the regeneration proceedings.

Although most early radio receivers used regeneration Armstrong approached RCA's David Sarnoff, whom he had known since giving a demonstration of his regeneration receiver in 1913, about the corporation offering superheterodynes as a superior offering to the general public. (The ongoing patent dispute was not a hindrance, because extensive cross-licensing agreements signed in 1920 and 1921 between RCA, Westinghouse and AT&T meant that Armstrong could freely use the Lévy patent.) Superheterodyne sets were initially thought to be prohibitively complicated and expensive as the initial designs required multiple tuning knobs and used nine vacuum tubes. In conjunction with RCA engineers, Armstrong developed a simpler, less costly design. RCA introduced its superheterodyne Radiola sets in the US market in early 1924, and they were an immediate success, dramatically increasing the corporation's profits. These sets were considered so valuable that RCA would not license the superheterodyne to other US companies until 1930.

The regeneration legal battle had one serendipitous outcome for Armstrong. While he was preparing apparatus to counteract a claim made by a patent attorney, he "accidentally ran into the phenomenon of super-regeneration", where, by rapidly "quenching" the vacuum-tube oscillations, he was able to achieve even greater levels of amplification. A year later, in 1922, Armstrong sold his super-regeneration patent to RCA for \$200,000 plus 60,000 shares of corporation stock, which was later increased to 80,000 shares in payment for consulting services. This made Armstrong RCA's largest shareholder, and he noted that "The sale of that invention was to net me more than the sale of the regenerative circuit and the superheterodyne combined".^[29] RCA envisioned selling a line of super-regenerative receivers until superheterodyne sets could be perfected for general sales, but it turned out the circuit was not selective enough to make it practical for broadcast receivers.

"Static" interference – extraneous noises caused by sources such as thunderstorms and electrical equipment – bedeviled early radio communication using amplitude modulation and perplexed numerous inventors attempting to eliminate it. Many ideas for static elimination were investigated, with little success. In the mid-1920s, Armstrong began researching a solution. He initially, and unsuccessfully, attempted to resolve the problem by modifying the characteristics of AM transmissions.

One approach used frequency modulation (FM) transmissions. Instead of varying the strength of the carrier wave as with AM, the frequency of the carrier was changed to represent the audio signal. In 1922 John Renshaw Carson of AT&T, inventor of Single-sideband modulation (SSB), had published a detailed mathematical analysis which showed that FM transmissions did not provide any improvement over AM. Although the Carson bandwidth rule for FM is important today, Carson's review turned out to be incomplete, as it analyzed only (what is now known as) "narrow-band" FM.

In early 1928 Armstrong began researching the capabilities of FM. Although there were others involved in FM research at this time, he knew of an RCA project to see if FM shortwave transmissions were less susceptible to fading than AM. In 1931 the RCA engineers constructed a successful FM shortwave link transmitting the Schmeling–Stribling fight broadcast from California to Hawaii, and noted at the time that the signals seemed to be less affected by static. The project made little further progress.

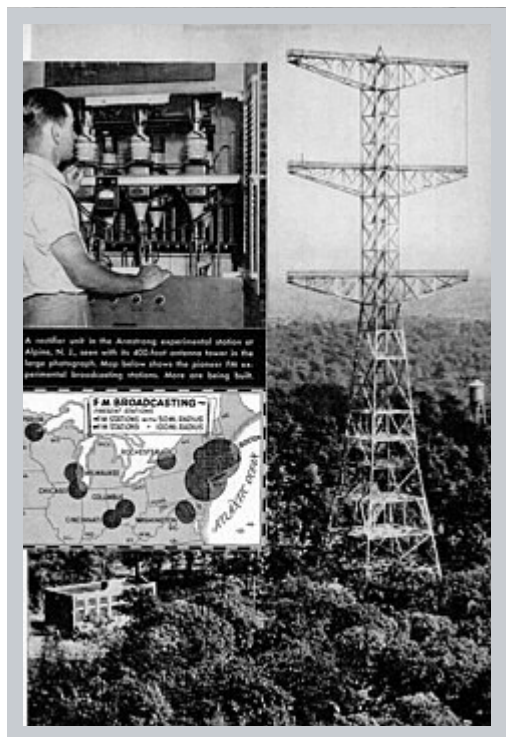
Working in secret in the basement laboratory of Columbia's Philosophy Hall, Armstrong developed "wide-band" FM, in the process discovering significant advantages over the earlier "narrow-band" FM transmissions. In a "wide-band" FM system, the deviations of the carrier frequency are made to be much larger than the frequency of the audio signal which can be shown to provide better noise rejection. He was granted five US patents covering the basic features of the new system on December 26, 1933. Initially, the primary claim was that his FM system was effective at filtering out the noise produced in receivers, by vacuum tubes.

Armstrong had a standing agreement to give RCA the right of first refusal to his patents. In 1934 he presented his new system to RCA president Sarnoff. Sarnoff was somewhat taken aback by its complexity, as he had hoped it would be possible to eliminate static merely by adding a simple device to existing receivers. From May 1934 until

October 1935 Armstrong conducted field tests of his FM technology from an RCA laboratory located on the 85th floor of the Empire State Building in New York City. An antenna attached to the building's spire transmitted signals for distances up to 80 miles (130 km). These tests helped demonstrate FM's static-reduction and high-fidelity capabilities. RCA, which was heavily invested in perfecting TV broadcasting, chose not to invest in FM, and instructed Armstrong to remove his equipment.

Denied the marketing and financial clout of RCA, Armstrong decided to finance his own development and form ties with smaller members of the radio industry, including Zenith and General Electric, to promote his invention. Armstrong thought that FM had the potential to replace AM stations within 5 years, which he promoted as a boost for the radio manufacturing industry, then suffering from the effects of the Great Depression. Making existing AM radio transmitters and receivers obsolete would necessitate that stations buy replacement transmitters and listeners purchase FM-capable receivers. In 1936 he published a landmark paper in the *Proceedings of the IRE* that documented the superior capabilities of using wide-band FM. (This paper would be reprinted in the August 1984 issue of *Proceedings of the IEEE*.) A year later, a paper by Murray G. Crosby (inventor of Crosby system for FM Stereo) in the same journal provided further analysis of the wide-band FM characteristics, and introduced the concept of "threshold", demonstrating that there is a superior signal-to-noise ratio when the signal is stronger than a certain level.

In June 1936, Armstrong gave a formal presentation of his new system at the US Federal Communications Commission (FCC) headquarters. For comparison, he played a jazz record using a conventional AM radio, then switched to an FM transmission. A United Press correspondent was present, and recounted in a wire service report that: "if the audience of 500 engineers had shut their eyes they would have believed the jazz band was in the same room. There were no extraneous sounds." Moreover, "Several engineers said after the demonstration that they consider Dr. Armstrong's invention one of the most important radio developments since the first earphone crystal sets were introduced." Armstrong was quoted as saying he could "visualize a time not far distant when the use of ultra-high frequency wave bands will play the leading role in all broadcasting", although the article noted that "A switch-over to the ultra-high frequency system would mean the junking of present broadcasting equipment and present receivers in homes, eventually causing the expenditure of billions of dollars."



Armstrong arranged for the construction of a transmission tower in Alpine, New Jersey, near New York City, and financed demonstration operation of W2XMN, the first FM radio station. W2XMN's antenna is mounted between the top two tiers, visible as a vertical line at the far upper right.

In the late 1930s, as technical advances made it possible to transmit on higher frequencies, the FCC investigated options for increasing the number of broadcasting stations, in addition to ideas for better audio quality, known as "high-fidelity". In 1937 it introduced what became known as the Apex band, consisting of 75 broadcasting frequencies from 41.02 to 43.98 MHz. As on the standard broadcast band, these were AM stations but with higher quality audio – in one example, a frequency response from 20 Hz to 17,000 Hz +/- 1 dB – because station separations were 40 kHz instead of the 10 kHz spacings used on the original AM band. Armstrong worked to convince the FCC that a band of FM broadcasting stations would be a superior approach. That year he financed the construction of the first FM radio station, W2XMN (later KE2XCC) at Alpine, New Jersey. FCC engineers had believed that transmissions using high frequencies would travel little farther than line-of-sight distances, limited by the horizon. When operating with 40 kilowatts on 42.8 MHz, the station could be clearly heard 100 miles (160 km) away, matching the daytime coverage of a full power 50-kilowatt AM station.

FCC studies comparing the Apex station transmissions with Armstrong's FM system concluded that his approach was superior. In early 1940, the FCC held hearings on whether to establish a commercial FM service. Following this review, the FCC announced the establishment of an FM band effective January 1, 1941, consisting of forty 200 kHz-wide channels on a band from 42 to 50 MHz, with the first five channels reserved for educational stations. Existing Apex stations were notified that they would not be allowed to operate after January 1, 1941, unless they converted to FM.

The numerous protracted patent fights caused Armstrong's health to suffer and his behavior grew erratic. On one occasion he came to believe that someone had poisoned his food and insisted on having his stomach pumped. According to *They Made America* – authored by Sir Harold Evans and others – Armstrong was oblivious to the toll his struggle was taking on Marion. Marion spent months in a mental hospital after she threw herself into the East River. The legal battles also brought Armstrong to the brink of financial ruin. On November 1, 1953, Armstrong told



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Marion that he had used up almost all his financial resources. In better times, funds for their retirement were put in her name, and he asked her to release a portion of those funds so he could continue litigation. She declined, and suggested he consider accepting a settlement. Enraged, Armstrong picked up a fireplace poker, striking her on the arm. Marion left the apartment to stay with her sister and never saw Armstrong again. After just under three months of separation from Marion, sometime during the night of January 31 – February 1, 1954, Armstrong jumped to his death from a window in his 12-room apartment on the 13th floor of River House in Manhattan, New York City. ^[56] The *New York Times* described the contents of his two-page suicide note to his wife: "he was heartbroken at being unable to see her once again, and expressing deep regret at having hurt her, the dearest thing in his life." The note concluded, "God keep you and Lord have mercy on my Soul."

Following her husband's suicide, Marion Armstrong took charge of pursuing his estate's legal cases. In late December 1954, it was announced that through arbitration a settlement of "approximately \$1,000,000" had been made with RCA. Dana Raymond of Cravath, Swaine & Moore in New York served as counsel in that litigation. Marion Armstrong was able to formally establish Armstrong as the inventor of FM following protracted court proceedings over five of his basic FM patents, with a series of successful suits, which lasted until 1967, against other companies that were found guilty of infringement.

It was not until the 1960s that FM stations in the United States started to challenge the popularity of the AM band, helped by the development of FM stereo by General Electric, followed by the FCC's FM Non-Duplication Rule, which limited large-city broadcasters with AM and FM licenses to simulcasting on those two frequencies for only half of their broadcast hours. Armstrong's FM system was also used for communications between NASA and the Apollo program astronauts.

In 1917, Armstrong was the first recipient of the IRE's (now IEEE) Medal of Honor.

For his wartime work on radio, the French government gave him the Legion of Honor in 1919. He was awarded the 1941 Franklin Medal, and in 1942 received the AIEEs Edison Medal "for distinguished contributions to the art of electric communication, notably the regenerative circuit, the superheterodyne, and frequency modulation." The ITU added him to its roster of great inventors of electricity in 1955.

He later received two honorary doctorates, from Columbia in 1929, and Muhlenberg College in 1941.

In 1980, he was inducted into the National Inventors Hall of Fame, and appeared on a U.S. postage stamp in 1983. The Consumer Electronics Hall of Fame inducted him in 2000, "in recognition of his contributions and pioneering spirit that have laid the foundation for consumer electronics." He was posthumously inducted into the Wireless Hall of Fame in 2001. Columbia University established the Edwin Howard Armstrong Professorship in the School of Engineering and Applied Science in his memory.

Philosophy Hall, the Columbia building where Armstrong developed FM, was declared a National Historic Landmark. Armstrong's boyhood home in Yonkers, New York was recognized by the National Historic Landmark program and the National Register of Historic Places, although this was withdrawn when the house was demolished.

Armstrong Hall at Columbia was named in his honor. The hall, located at the northeast corner of Broadway and 112th Street, was originally an apartment house but was converted to research space after being purchased by the university. It is currently home to the Goddard Institute for Space Studies, a research institute dedicated to atmospheric and climate science that is jointly operated by Columbia and the National Aeronautics and Space Administration. A storefront in a corner of the building houses Tom's Restaurant, a longtime neighborhood fixture that inspired Susanne Vega's song "Tom's Diner" and was used for establishing shots for the fictional "Monk's diner" in the "Seinfeld" television series.

A second Armstrong Hall, also named for the inventor, is located at the United States Army Communications and Electronics Life Cycle Management Command (CECOM-LCMC) Headquarters at Aberdeen Proving Ground, Maryland.

In 2005, Armstrong's regenerative feedback circuit and superheterodyne and FM circuits were inducted into the TECnology Hall of Fame, an honor given to "products and innovations that have had an enduring impact on the development of audio technology."

(Excerpts have been taken from the Wiki article on Edward Howard Armstrong and condensed for this article. To read more, go to Wikipedia and look up the full history)

Re-Furbishing Trap Antenna's



Good morning, any advice on how to unfuse Alluminium joints? Refurbing TH3 with lots of fused joints....

This was a question posed by Craig ZS5CD.

This elicited quite a lot of discussion and turned in to one of our Saturday morning net topics, which you will find on the AWA website under "Net Audio Files" should you want to hear a lot more on the subject.

Reply from Richard F4WCD:

Hi Craig. The oxide(+carbonate + silicate) layer between the inner surface of the outer tube and the outer surface of the inner tube forms a mechanical bond stronger than the aluminium material so some patience and cunning is necessary to avoid destruction. The bond has to be broken mechanically. I would make some hardwood blocks drilled to the OD of the outer tube. Saw them across the diameter of the hole which will give you a clearance so you can use one half to support the tube and the other on top to transmit shock evenly. Tap the top block with a reasonably heavy hammer using its weight rather than force while rotating the assembly through 360 degrees. This should have weakened the bond enough to take the next step. Screw 2 jubilee clips either side of the

joint to give you purchase to contra-twist the 2 tubes. Soak with ACF-50 spray (what aircraft engineers use to de-corrode aluminium parts before disassembly-expensive) alternatively Coca-Cola for half an hour before working it back and forth.

Heat can be used to break the bond as well but the risks of changing or melting the Ali make it more risky and it is difficult to avoid heating the inner tube as well plus proximity to traps means risk of damage. A heat gun would give you more control. When you have got it apart and cleaned it up for re-assembly, grease the inside faces with coppercote when you insert the tubes. Last tip, do not use rubber cable gland covers to replace the trap covers. They are carbon loaded and will be a dead short to RF.

Reply from Craig:

I would have to temper myself somewhat with the hammer given I ordinarily work on big heavy pieces of kit and can be overly energetic with the hammer...I would use a different penetrant (WD-40) just because its what I have and have never heard of the one Richard recommends....I have no doubt his penetrant is better than WD40. I would emphasise his advice to take it easy, take your time and minimal force.

As a coating before reassembly....my go to product is Ches-terton 785(E) parting lubricant...again, its what I have on hand from marine environment.

Maybe Richard or a chem guy can offer an opinion on differences between Copper and this stuff (I think molybdenum disulphide with other stuff mixed in)....its expensive though....

Nice problem to tackle....gently does it!



Greg ZS1EZ:

When sealing joints on antennae first wrap well with PTF tape/plumbers tape. Then over wrap with Red or yellow insulation tape then wrap with self vulcanizing tape this forms a good seal good for many years (the reason for the red or yellow insulation tape is that if you have to take apart cut the self vulc and you will easily see where the insulation tape is thus not scoring the tubing with the knife the PTF tape acts as an insulator as well as preventing the metal becoming all gummy with insulation tape glue.

A long tedious way of going about it but we'll worth while in the long run.

My 5 cents worth

This from a google search: Safe alternatives to copper-based lubricants

If you need an anti-seize compound for aluminum parts, use one that is explicitly safe for non-ferrous metals.

Richard F4WCD:

Important thing is to grease the tube inner faces with conducting grease eg coppercote, and seal the joint external water access points . A bead of silicone, after degreasing with kitchen paper moistened with UL petrol, is quick and lasts well

Chris ZS6GM:

This from a google search: Safe alternatives to copper-based lubricants

If you need an anti-seize compound for aluminum parts, use one that is explicitly safe for non-ferrous metals.

Aluminum-based anti-seize: These lubricants use aluminum as their filler material and are designed to be compatible with aluminum parts, preventing corrosion and galling.

Nickel-based anti-seize: These are safe for use on aluminum and can handle higher temperatures than aluminum-based lubricants.

Non-metallic anti-seize: Some high-quality greases use ceramic or other non-metallic solids that are safe for use on aluminum.

Answer from ChatGPT: No, copper-based compounds like copper grease or copper slip should not be used to join aluminum tubes, as doing so will cause severe corrosion. Copper and aluminum are dissimilar metals, and when they come into contact, especially in the presence of moisture, they create an electrical reaction called galvanic corrosion.

Greg ZS1EZ:



Joints properly sealed after 4.5 years no fancy additives to

aid conductivity look like this.

Rad ZS6RAD:

Rad listed a number of websites where information was available around re-furbishing trap antennas on the Telegram group. You can always Google these and look them up.

Do listen to the recording of the discussion on ...

[Antique Wireless Association of Southern Africa - NET AUDIO FILES](#)



CONTACT US:

WA/Telegram +27824484368
email: andy6s6ady@vodamail.co.za
www.awasa.org.za

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**Antique Wireless Association
of Southern Africa****Mission Statement**

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yester-days radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website.

Notices:**Net Times and Frequencies (SAST):**

Saturday 07:00 (05:00 UTC) —Western Cape SSB Net —7.140; Every afternoon during the week from 17:00

Saturday 08:30 (06:30 UTC)— National SSB Net— 7.125;

Echolink—ZS0AWA-L;

ZS6STN Sandton repeater—145.700

Kempton Park Repeater—145.6625

Relay on 10.125 and 14.135 (Try all and see what suits you)

Saturday 14:00 (12:00 UTC)— CW Net—7025

AWASA Telegram group:

Should you want to get on the AWA Telegram group where a lot of technical discussion takes place, send a message to Andy ZS6ADY asking to be placed on the group. This is a no-Nonsense group, only for AWA business. You must download the Telegram App first.+27824484368