



DON WOODWARD –
KD4APP

RE-CAPPING AND TUBE TESTING TO BRING RADIOS BACK TO LIFE

DON WOODWARD – KD4APP

- Licensed as a “no-code Tech” in the nineties – was in first “NO-CODE” class of W4QO Jim Stafford
- Initial interest “Building a repeater” (transistor era electronics)
- 443.200 “Bozo Machine” & 6M - High House Mountain 3400’ – all surrounding states
- Satellites next
- Inactive for ~10 years
- General License upgrade
- DSTAR & DMR
- Bought a cabin in North Georgia

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- Pandemic hit
- Setup my HF Station
- Setup an iGATE (APRS)
- Setup my radio/electronics lab (more on this)
- Microwave (10GHz, 122GHz)
- Bought a 60's era tube radio (NC-190) – pristine condition from original owner
- Decided to try to restore a Hallicrafters S-120 – recapped and it worked!
- 1296 & 432 SSB (Rover on both plus 432 fixed)
- Most recent projects Hallicrafters S38D RX and a Knight T-150 TX

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- <https://kd4app.blogspot.com>
- QRZ.com



OLD RADIOS - SAFETY!!!!!!!

- Many of the old radios use a chassis ground and non-polarized plugs
- You never know what the previous owner has done
- I use an isolation transformer with a built-in variac - (more on this)
- Remove power when working on the radio
- Replace faulty power cords before plugging in

OLD RADIOS - SAFETY!!!!!!!

- I use an isolation transformer with a built-in variac
- Which one is an isolation transformer and why?

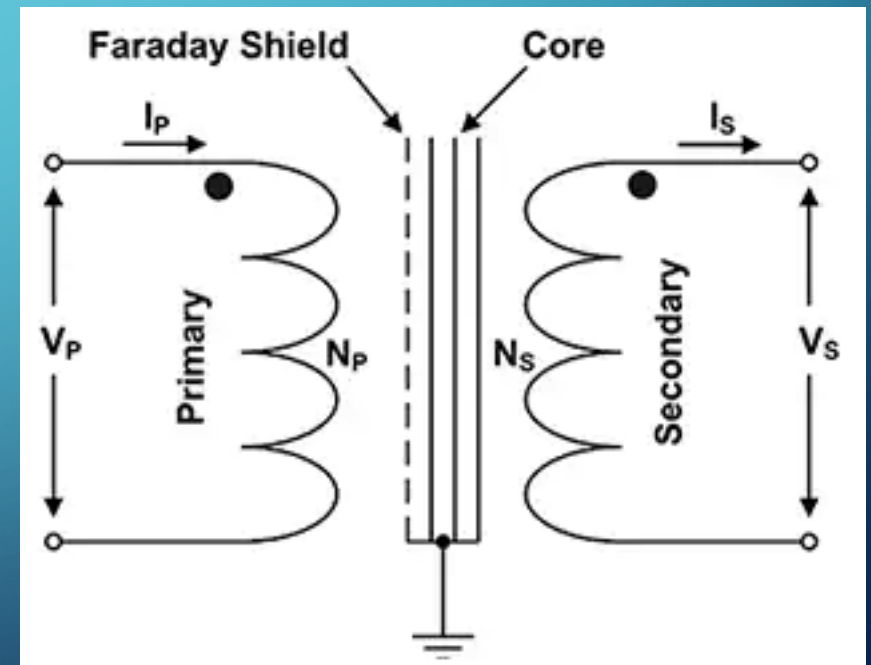


OLD RADIOS - SAFETY!!!!!!!

- An **isolation transformer** is a transformer used to transfer electrical power from a source of alternating current (AC) power to some equipment or device while isolating the powered device from the power source, usually for **safety** reasons or to reduce transients and harmonics.
- Isolation transformers provide galvanic isolation; no conductive path is present between source and load.

OLD RADIOS - SAFETY!!!!!!!

- My isolation transformer with a built-in variac



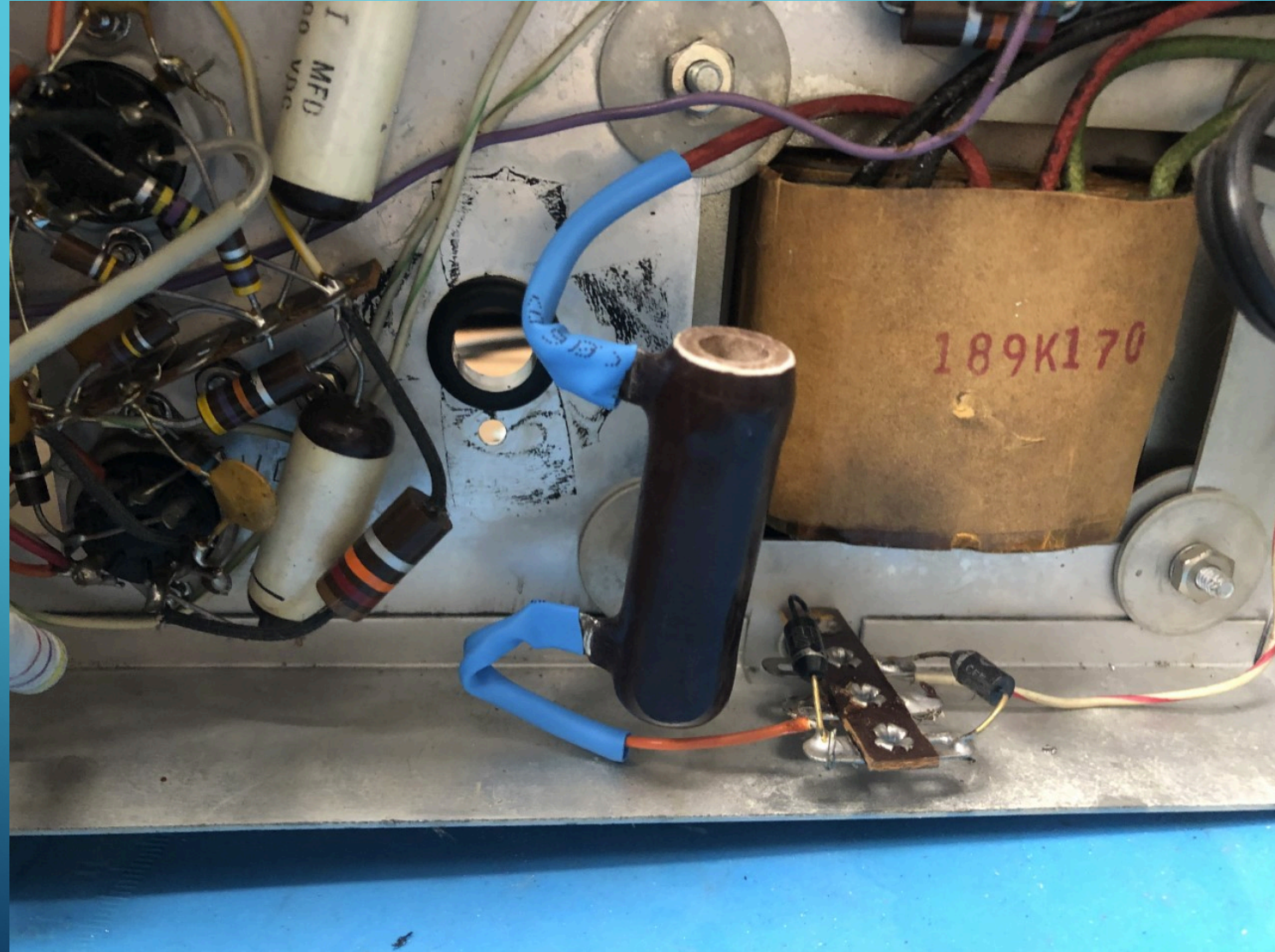
OLD RADIOS - SAFETY!!!!!!!

- Safe?



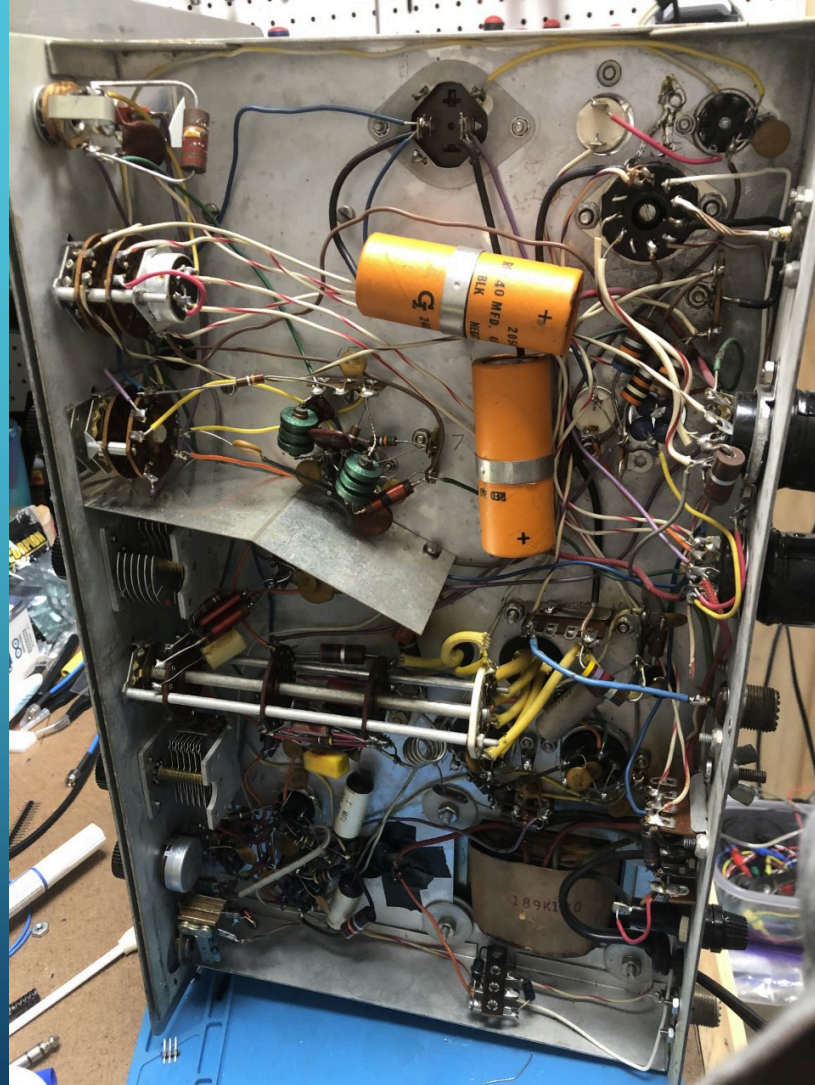
OLD RADIOS - SAFETY!!!!!!!

- Safer?



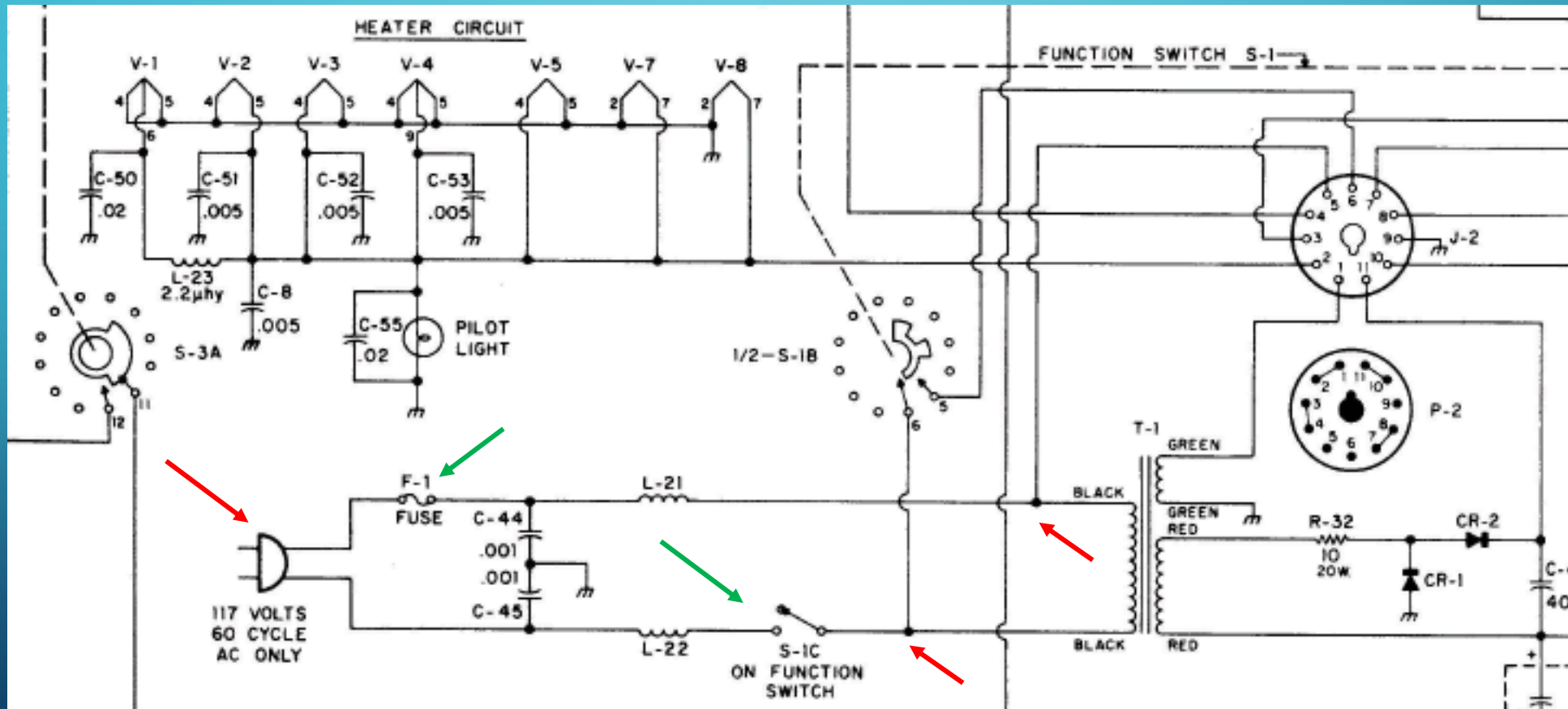
OLD RADIOS - SAFETY!!!!!!!

- Safe?



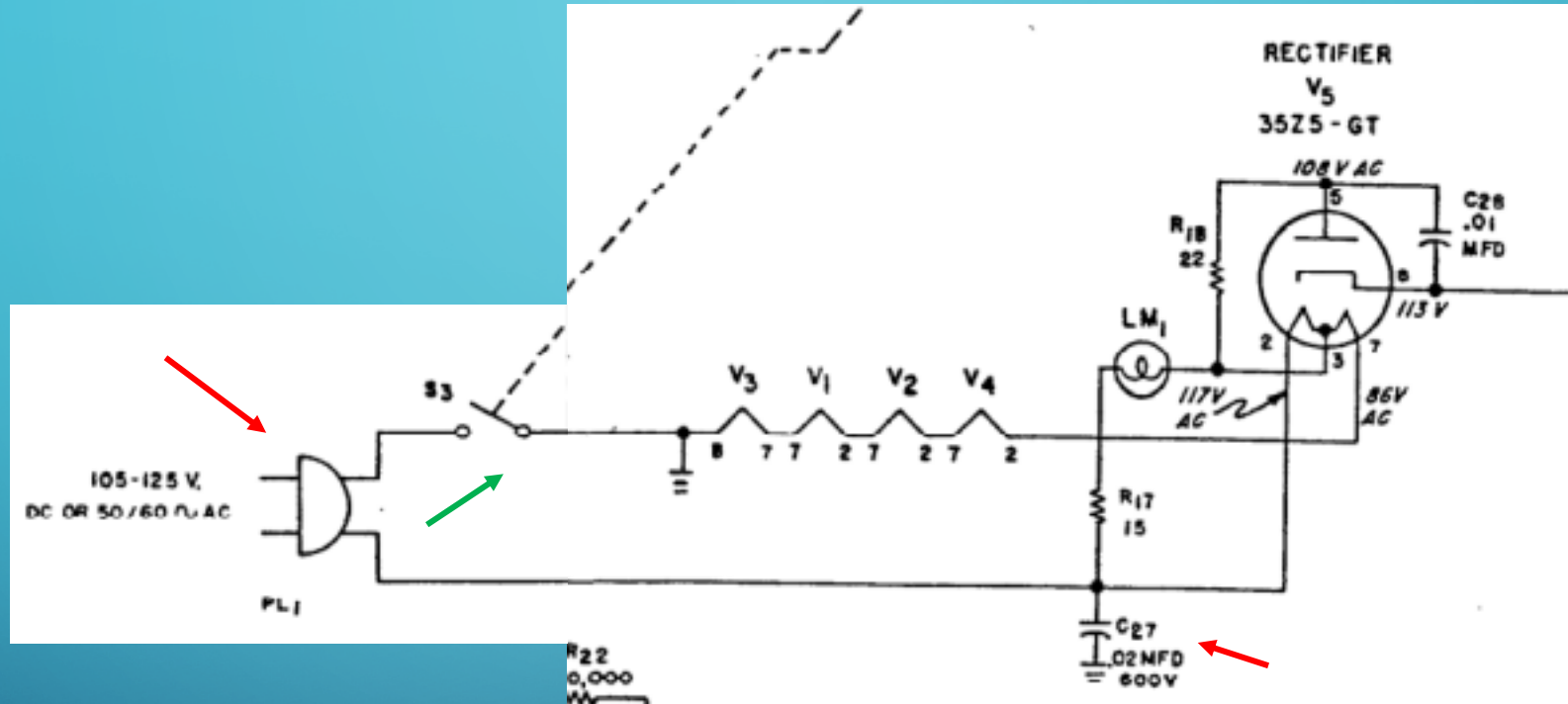
OLD RADIOS - SAFETY!!!!!!!

- Safe?



OLD RADIOS - SAFETY!!!!!!!

- Safe?



OLD RADIOS - COMPONENTS

- Capacitors
- Tubes
- Resistors
- Selenium Diode (what?)



OLD RADIOS - COMPONENTS

- Capacitors



Hallicrafters S-120 Re-Cap Kit

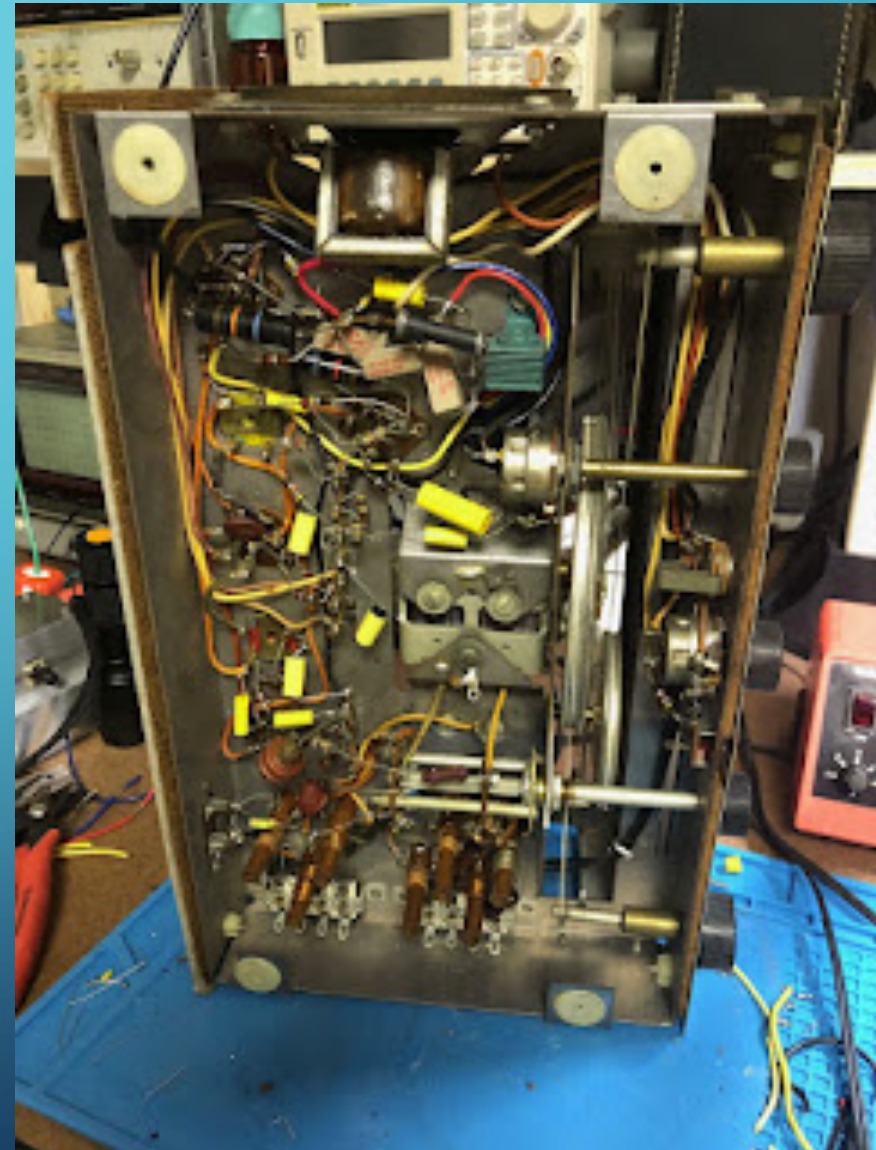
\$ 26.95

CHOOSE ONE::

Complete Re-cap Kit - \$26.95

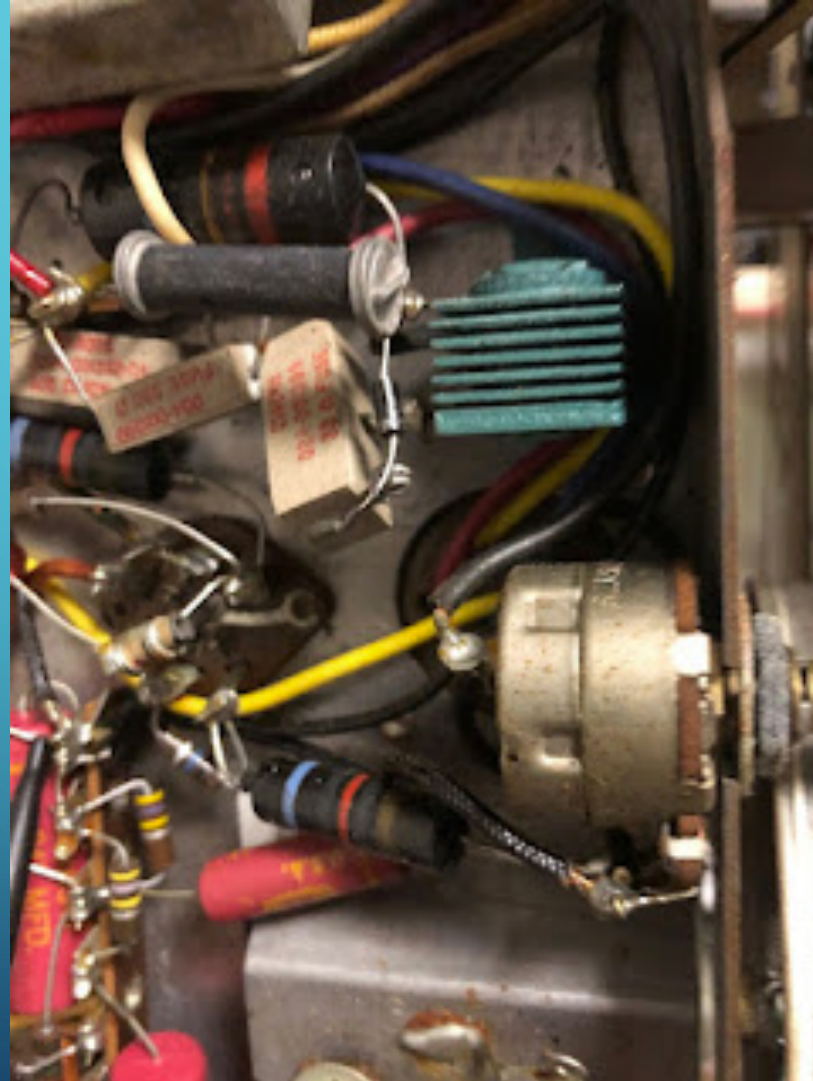
4-Section Electrolytic Cap only - \$22.25

<https://hayseedhamfest.com>



OLD RADIOS - COMPONENTS

- Selenium Diode



Selenium diode (green device) replaced with 1N4007 diode - the large black component is a "glowbar".

OLD RADIOS - COMPONENTS

- Tubes



OLD RADIOS - COMPONENTS

- Feet
- Decals
- Glass
- Backs & Bottom
- Dent remover
- Paint
- Contact cleaner
- Screws – “Gun Blue”



OLD RADIOS - TIPS

- Look for manuals/schematics
 - Hallicrafters
 - National
 - Knight
- Heathkit



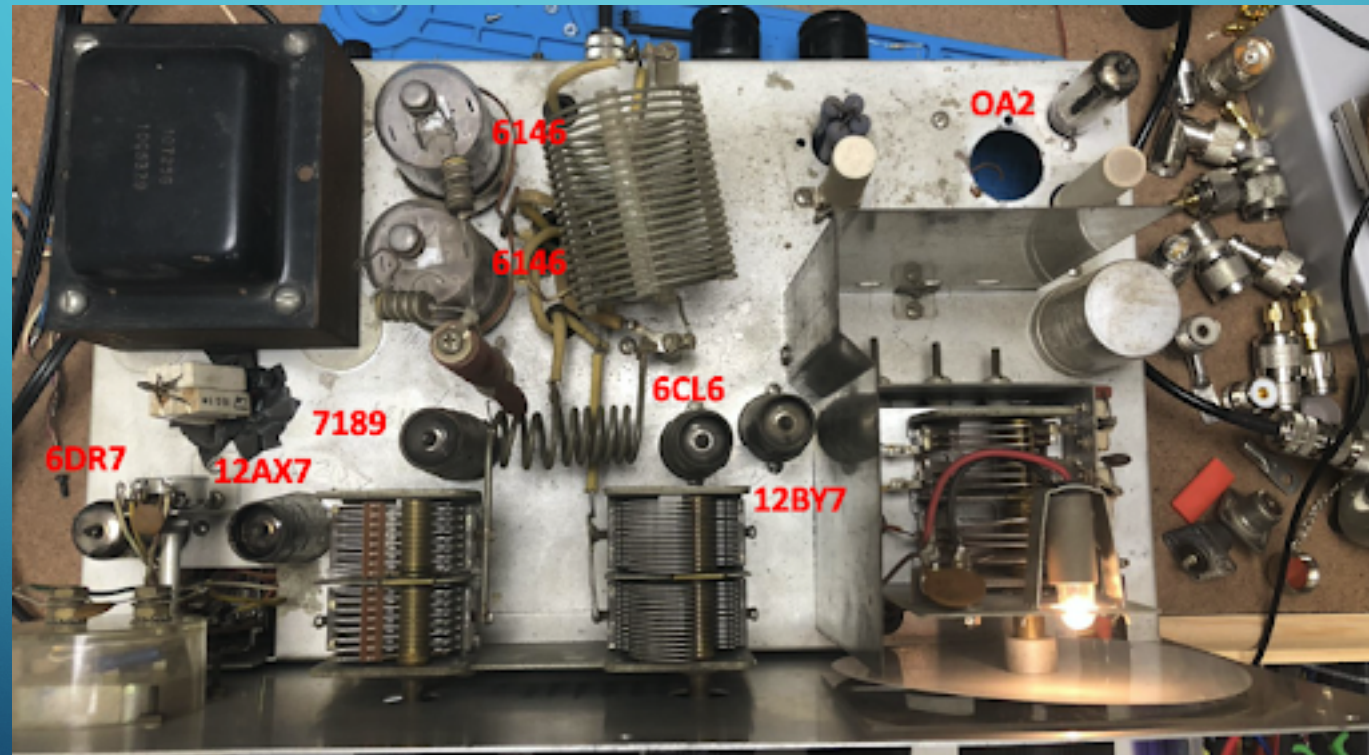
OLD RADIOS – LATEST PROJECT

- Allied Knight T-150 80m-6m AM/CW Transmitter



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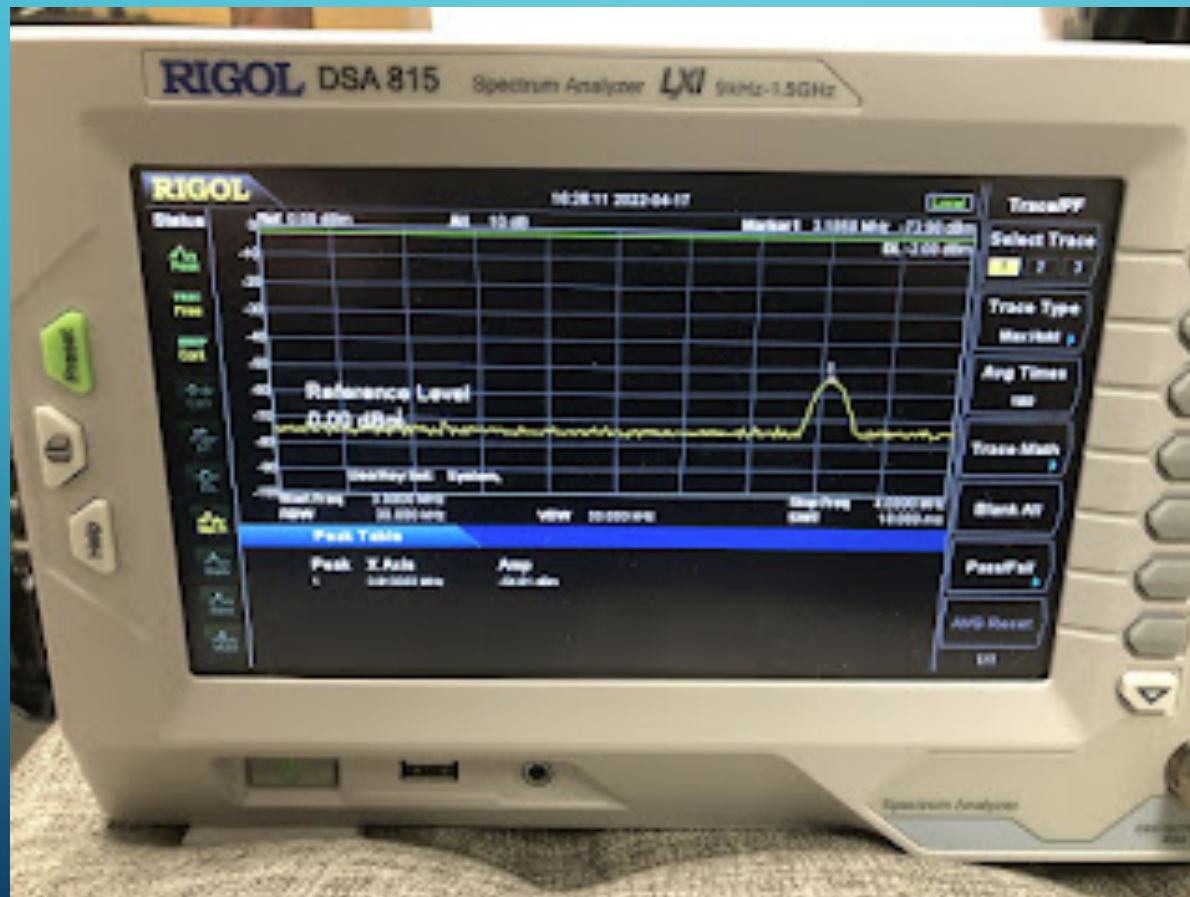
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OLD RADIOS – “THE LAB”





OLD RADIOS

Questions?

