

# Boatanchor Restoration

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Collins KW-1



Millen 90881



HRO-500



Ranger II



32S-3A



TX-350

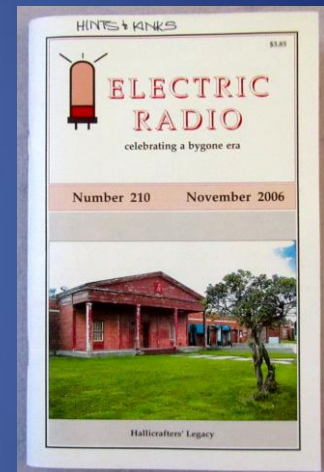
# Getting Started

- Get going ... pick SOMETHing ...
- Assess tools, test equipment, parts
- Search for information
- ***SAFETY!*** Are you qualified?



# Information & Parts

- Manuals: BAMA, [manualman.com](http://manualman.com); [ni4q@juno.com](mailto:ni4q@juno.com)
- Reflectors: [mailman.qth.net](http://mailman.qth.net)
- Electric Radio Magazine (ER): [ermag.com](http://ermag.com)
- Google
- QTH.com (reviews)
- Hamfests, Junque Box, eBay, QTH.com
- Traditional: Digikey, Allied, Newark, Mouser
- Hi-Tech Fasteners, Grainger, McMaster-Carr



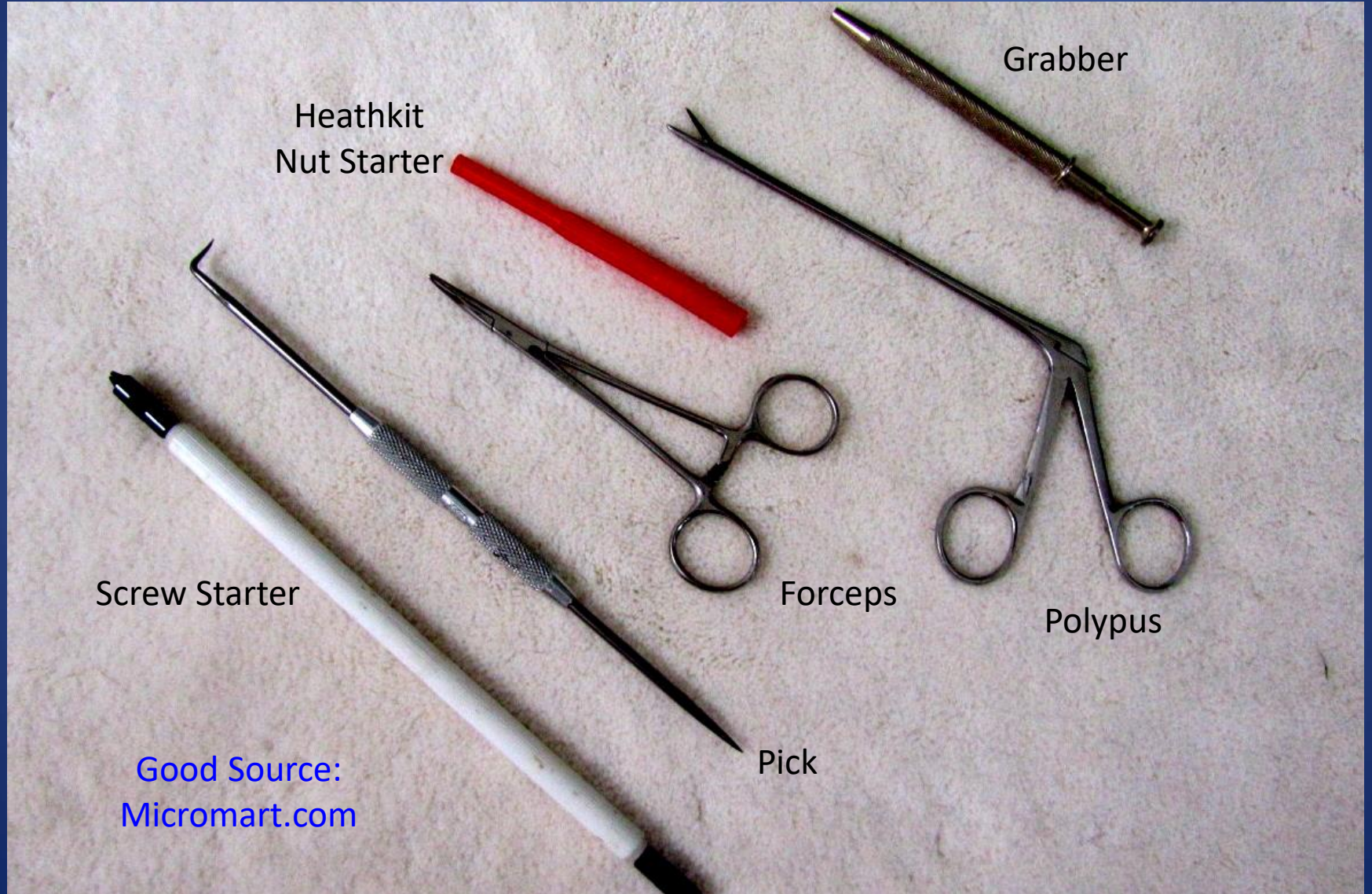
# First Steps

- Remember, there is no “right” way to restore
- Originality is in the eyes of the beholder
- Decide the extent of your restoration
- Research what others have done
- Cosmetic considerations (painting, silkscreen)
- Upgrade as you deem necessary
  - Safety related (AC caps; line cord); electrolytics, circuit changes, etc.

# The Details

- Every restoration is different
- Mandatory Tools/Supplies  
Variac, Isolation Transformer, Polishes, Cleaners, Steel Wool, Dremel, Basic Test Equipment, Tube Tester, etc ...
- “Advanced” Tools  
Bead Blaster, Air Brush, Metal working, Ultrasonic cleaner, Punch Press, etc ...
- Little things make the difference  
Polish knobs, plastic; replace hardware, etc

# Useful Tools



Heathkit  
Nut Starter

Grabber

Screw Starter

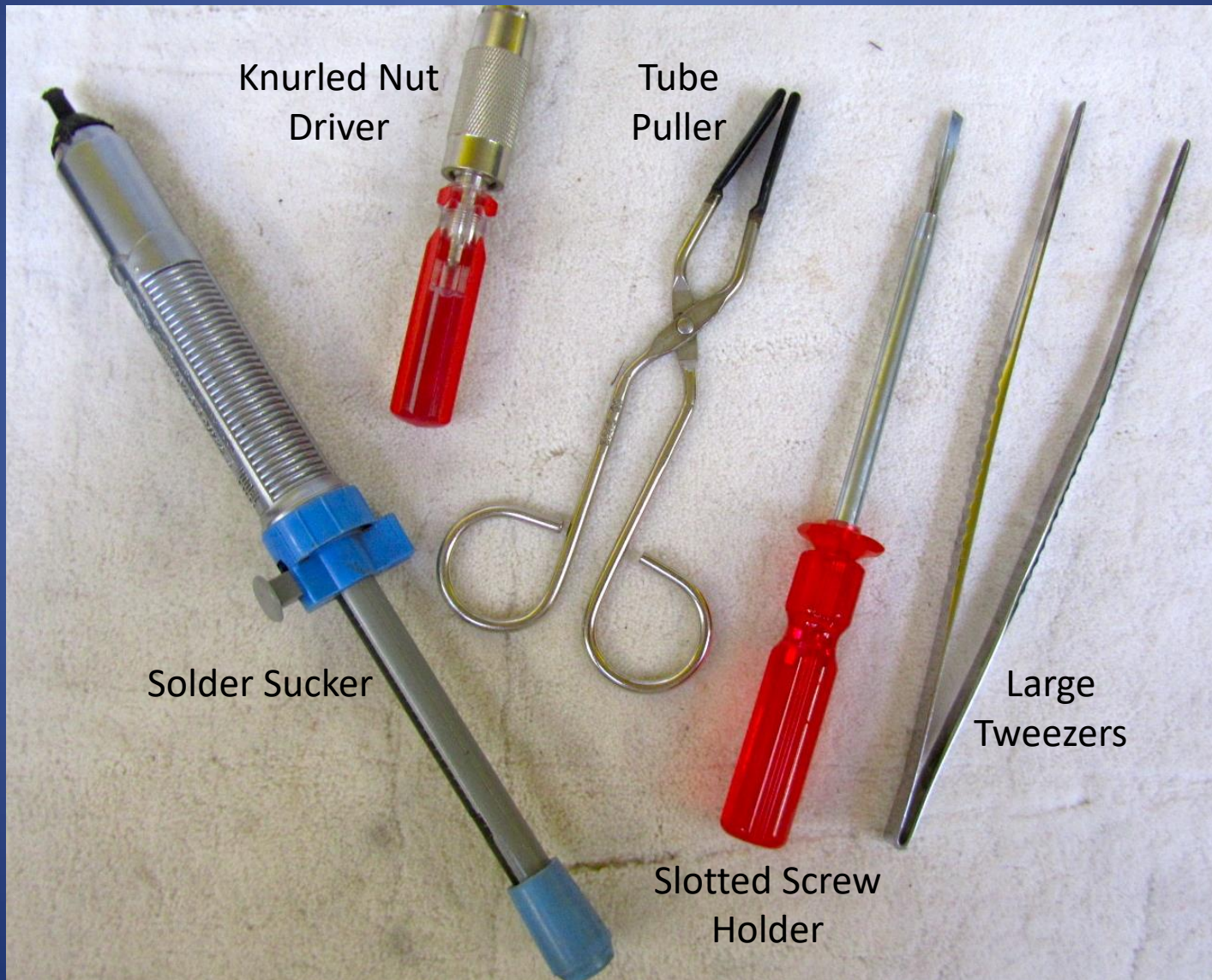
Forceps

Polypus

Pick

Good Source:  
[Micromart.com](http://Micromart.com)

# More Useful Tools



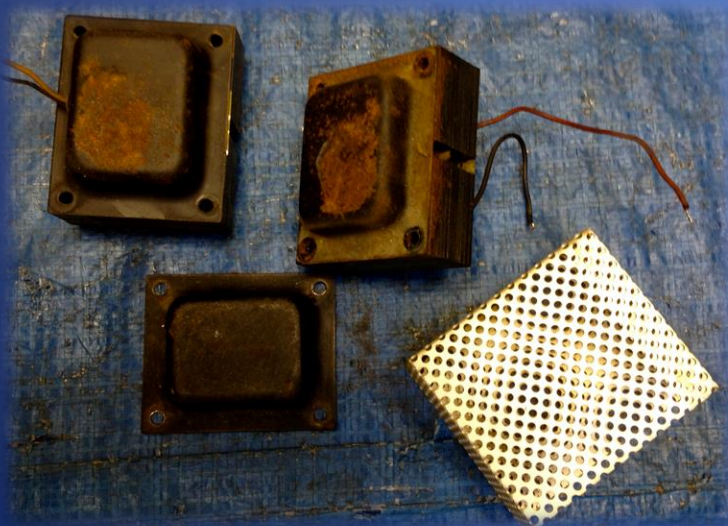
# The Process

- Take numerous “before” **photos** (and throughout)
- **Disassemble** as much as practical
- **Wash and Clean** EVERYthing
- **Polish and Paint** (Best paint: Dupli-Color)
- **Test** Tubes; Replace as necessary (Be careful!)
- **Replace** electrolytics and coupling capacitors, out of tolerance resistors, etc.
- **Test** Transformers/chokes; clean and paint
- Perform any **modifications** desired
- **Clean/lube** switches, controls (DeOxit)
- **Lubricate** mechanical assemblies (be careful!)
- **Replace** line cord, AC bypass capacitors
- **Troubleshoot** and modify; Test



# Painting

- Paint as required; transformers, panel, cabinet
- Touchup takes a lot of effort (Airbrush)
- Prep is everything (bead blast, clean)
- Excellent Spray Paint is Dupli-Color (Auto)
- Use fast drying Acrylics; Wet or Powder?
- Paint takes a few days to dry



# My Favorite “Stuff”

- Blue Magic, Metal Armor, Wenol Metal Polish
- #0000 Steel Wool
- 50/50 Mixture of 409 and Ammonia
- GooGone
- Nevr-Dull
- PB Blaster (penetrating oil)
- Dust Off (air in a can)
- Tarn-X

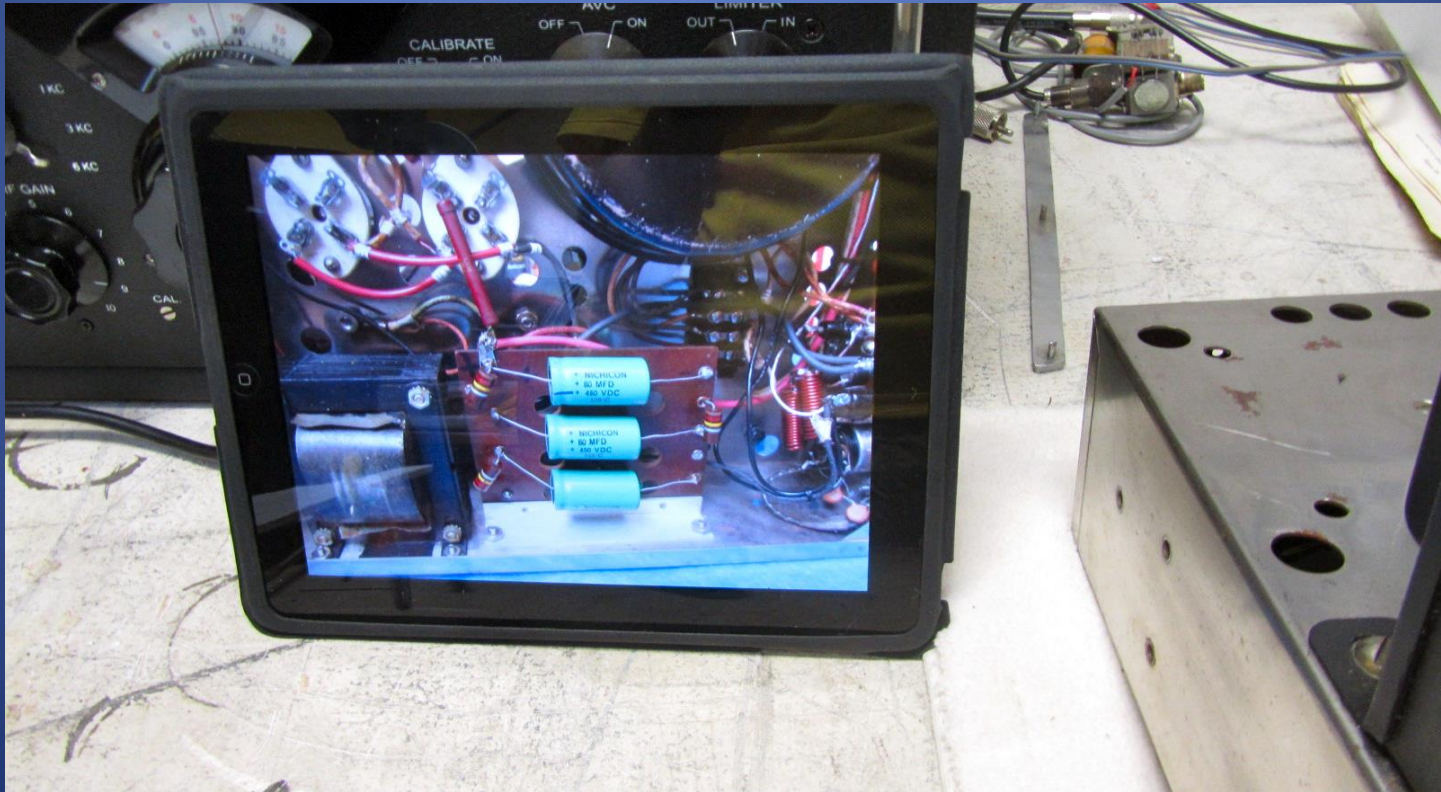
# Hints and Kinks

- Be careful unsoldering!
- Lots of photos
- Save everything
- Attention to detail
- Polishing knobs ...  
(Drill press, Blue Magic)

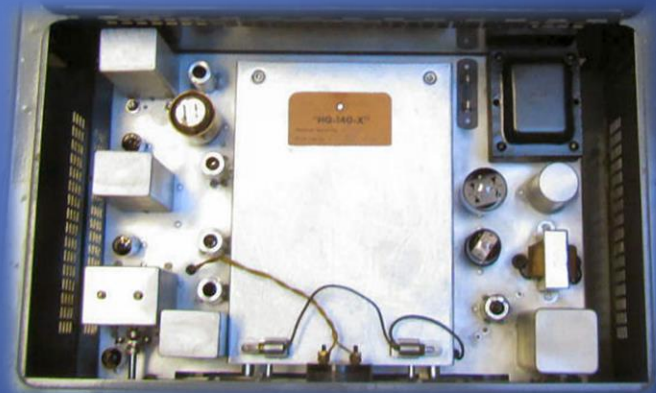
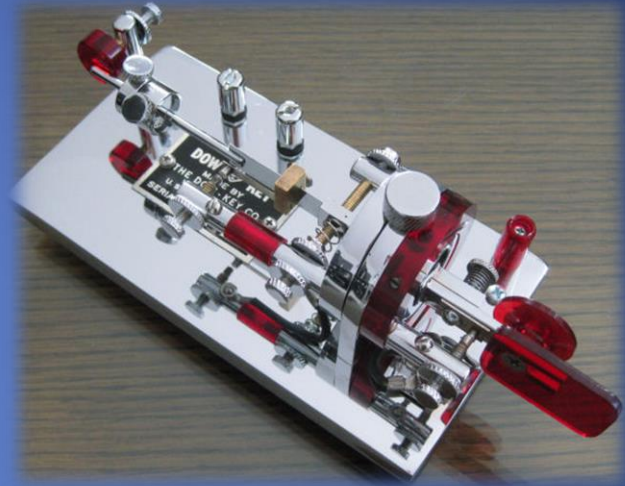
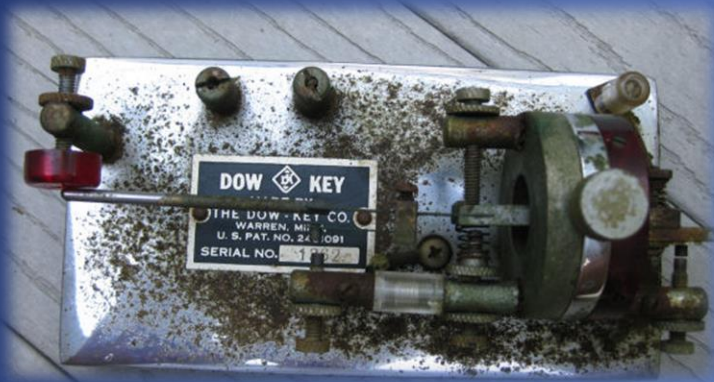


# A Great Tool ...

Get yourself an Apple iPad  
It's an invaluable "reassembly" tool



# Projects



# Projects



# Projects



Before

Visit my personal website for photos of my restorations;  
[http://www.isquare.com/personal\\_pages/ras-hardware.htm](http://www.isquare.com/personal_pages/ras-hardware.htm)

After

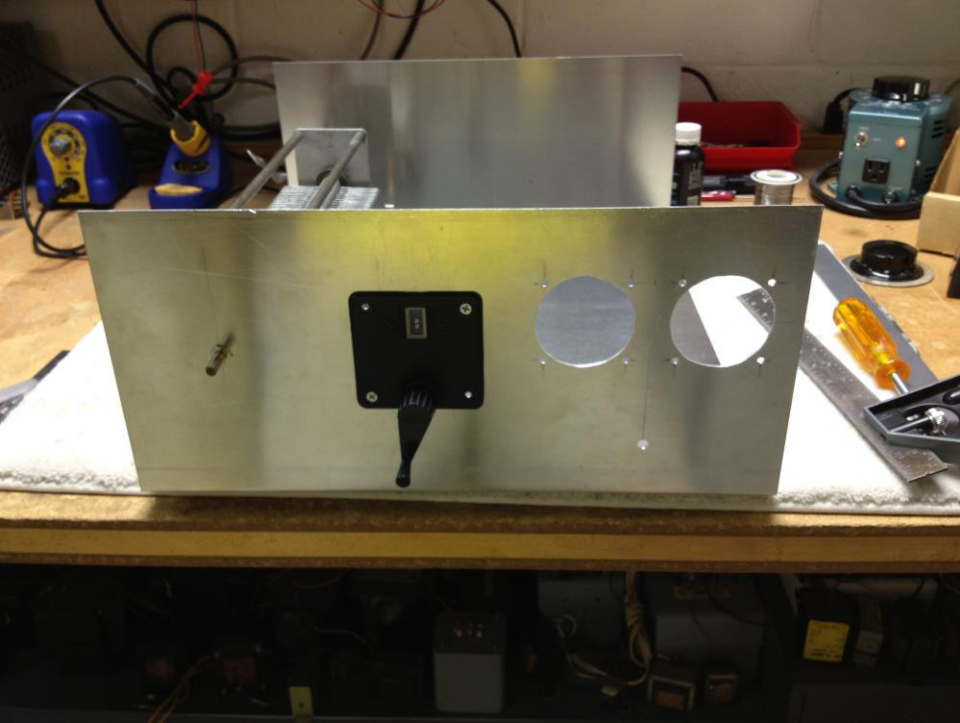


# Or ... Build Something



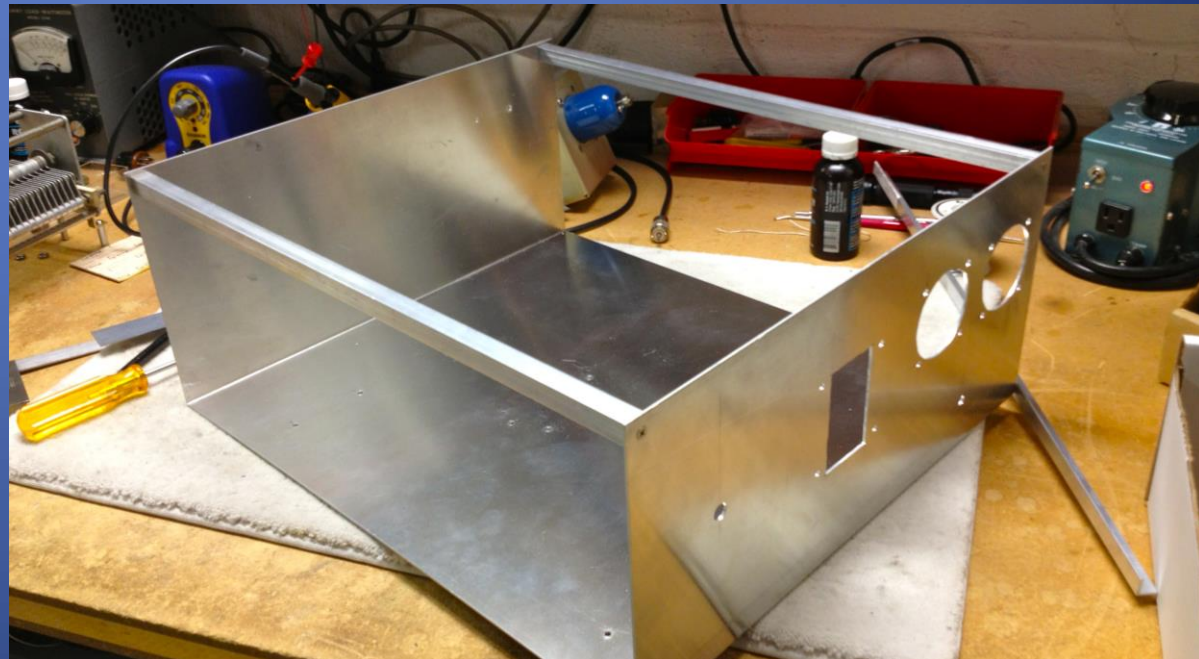
A “simple” Balanced Low Frequency Tuner

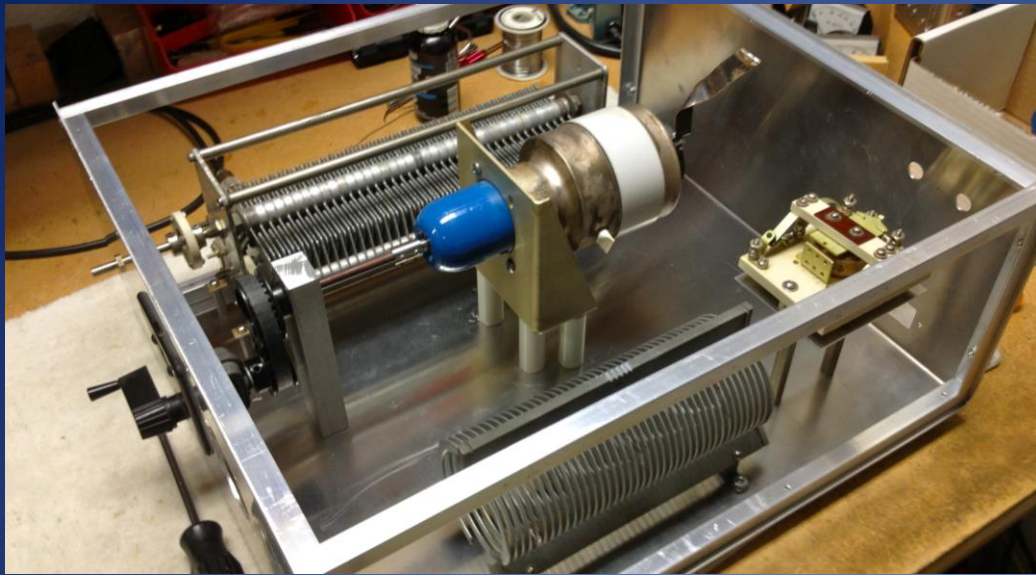




If you have metal working tools, make your own chassis. Or use a local sheet metal shop.

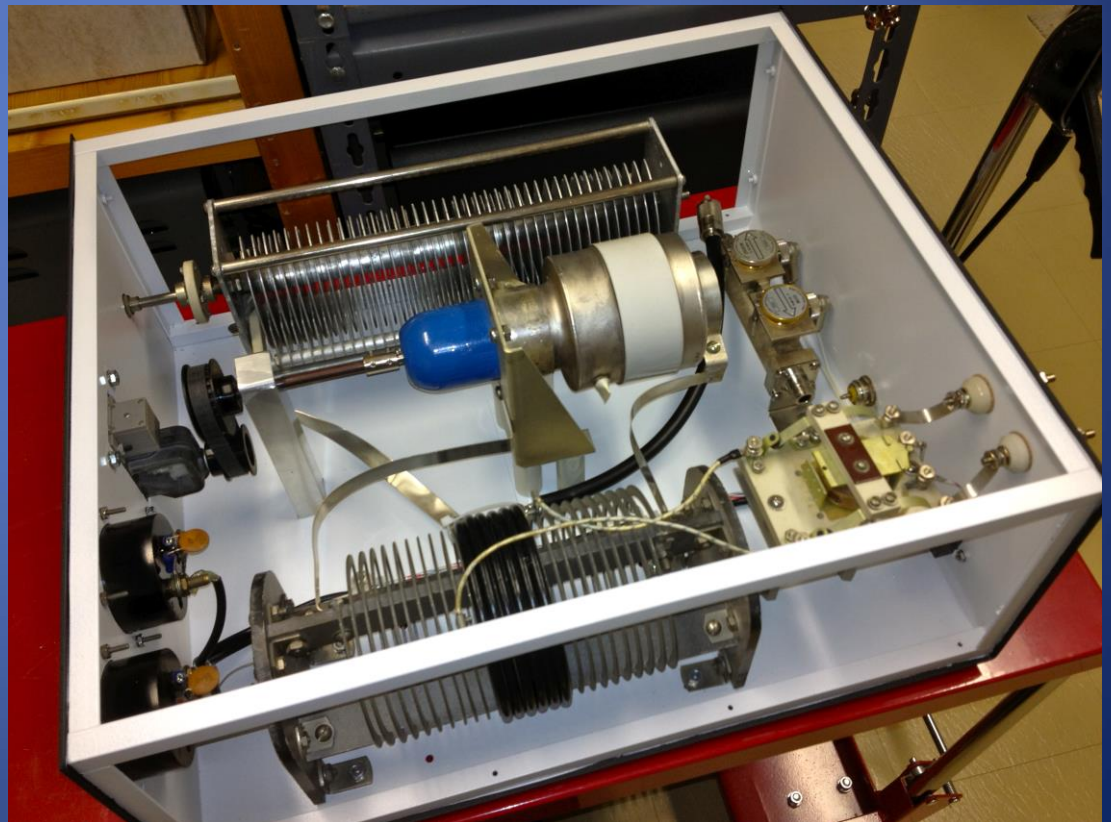
Build the frame using aluminum angle and square stock.





Test fit parts

Paint chassis, inside and outside to your preference. Auto paint shops can be helpful.





Label using engraved plastic and double-sided tape.

The final product with clear plexiglass cover in place.

