

Electronic Renovation

<1980

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Why?

- Old Tube Era Gear

- Mostly caps, Res, Trans, tubes
- Tubes: reliable & cheap (\$.25 to \$2)
- Simple to understand
- Large signal
- Cheap test gear
- Cheap to buy!!!

- Modern IC Gear

- Mostly ACICS, Ics, Precision everything
- Custom parts \$\$\$
- Hard to understand
- Small signals
- Expensive test gear
- Fix by swap
- Expensive

What I will not discuss tonight

- How to pick out gear worth repair
- What it is worth, as-is & fixed
- Where to get it
- How to use it in a “modern” station
- On to the renovation NOT Restoration!

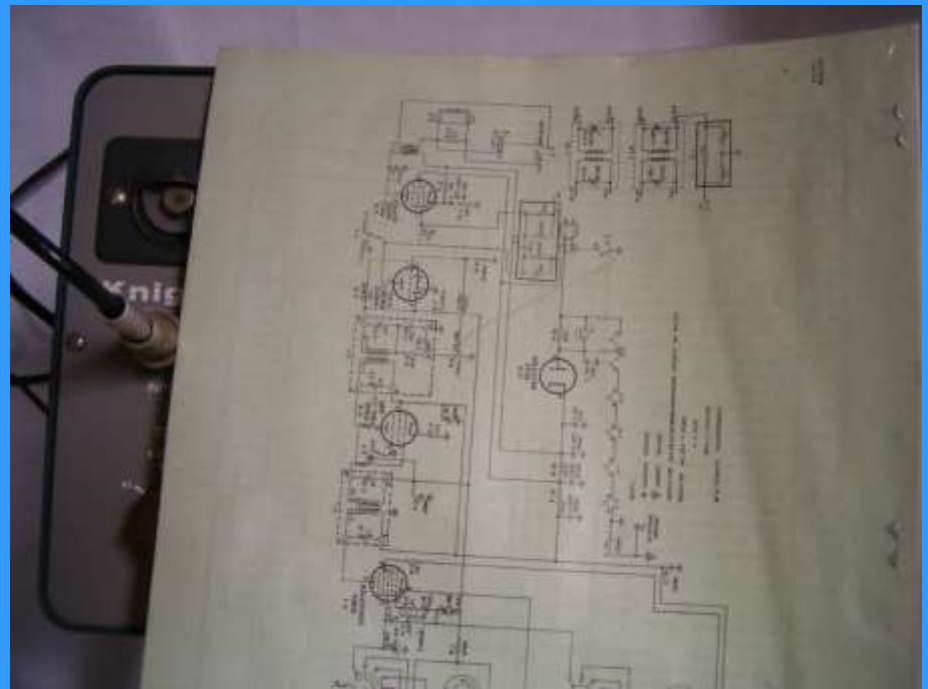
Safety

I know, real men don't wear no stinking safety glasses.!@#\$\$%^&*

- Safety Glasses
- High Voltage: -130V @ 10 ma to 3000V @ 1A
- High Current: 13.8V @ 30 A
- Chemicals: Pb to PCBs (transformer & cap oil)
- Fire & explosion: Old Capacitors & Other stuff
- Mass: dropping on your foot!
- Cuts with contamination
- Getting beat on price: All EBAY descriptions are LIES.

Critical Gear

- First is Data: Schematic
- Service manual
- VOM/VTVM/DMM
- Soldering Iron 25-60W
- Cleaning supplies
- Tube checker
- Small shop tools, etc...
- Laundry sink---Water
- Old Handbook/magazines



Process of Renovation

This is what “I” do, others have their own process!!!

- Is it an Antique or just OLD?
- Wipe off with paper towels
- Remove:
 - Knobs,
 - Case,
 - Feet,
 - Speakers
 - Meters
 - All water sensitive stuff, paper, cloth etc.
 - Plug transformer/chokes input wire hole with putty

Electronic Renovation Cont'

How "I" do it...

- Spray with "Simple Green"
- Fantastic, 409 etc contain Phosphoric acid:: **Will Etch aluminum & Eat paint & Decals**
- Use soft to stiff brushes to clean soiled areas
- Clean again and rinse,
- Use compressed air with care to "Dry" (variable Caps!)
- Wash knobs in paper cup, careful of white line marks
- Dry everything for a day or so
- Repaint case as needed. Custom spray can matched Home Depot

Old is not always GOLD

- **Capacitors:** Replace all Electrolytic (Especially leaking!)
- **Resistors:** All age high, replace >20% power resistors always suspect!
- **Transformers:** Usually OK, but test for insulation,
- **Tubes:** check conductance or at least emission, often Good!



Chemicals

Better living through Chemistry!

- **Safety:** Always in a well ventilated Area, outside or use hood,
- **Solder Flux:** Remove it by Spray & Brush
- **Lubrication:** Contact Cleaner
- **Corrosion:** NOT WD40! first on switches try Deoxit D5
- **Intermittents & Drift:** Circuit Freeze!



Parts to Replace

- “Good” Electrolytics
- All Selenium Rectifiers
- Multi-component packs
- Old wire
- Rubber parts, Grommets
- Etc.



A nice Chassis ~1950s

- Electrolytics “look” good...???
- Power cord replaced :
2 wire for 3 wire
- Fuse installed
- SO-239 replaces RCA
Phone plug
- Clean & check
Resistor



Variac

The HP Way

- Sometime I “try” to save costly electrolytic caps
- Bring up power on Variac to 30 volts, watch current, 2-4 Hrs
- Then 50v, 70v, 90v, 100v, 110v
- Slow rise in current is OK. listen to rcvr hum



Signal Tracer

Knight... a fallen flag

- This device is a tube era test set for tube era gear!
- Note winking eye tube, upper left
- Has: test speaker, af & rf injector, Pwr meas., af amplifier, etc.



The Best of all Worlds

- An original Heathkit Assembly Manual
- Large circuit diagram-foldout
- update mod list
- Hint & kicks articles
- ReKitting! Take it apart COMPLETELY!



WOW...but...

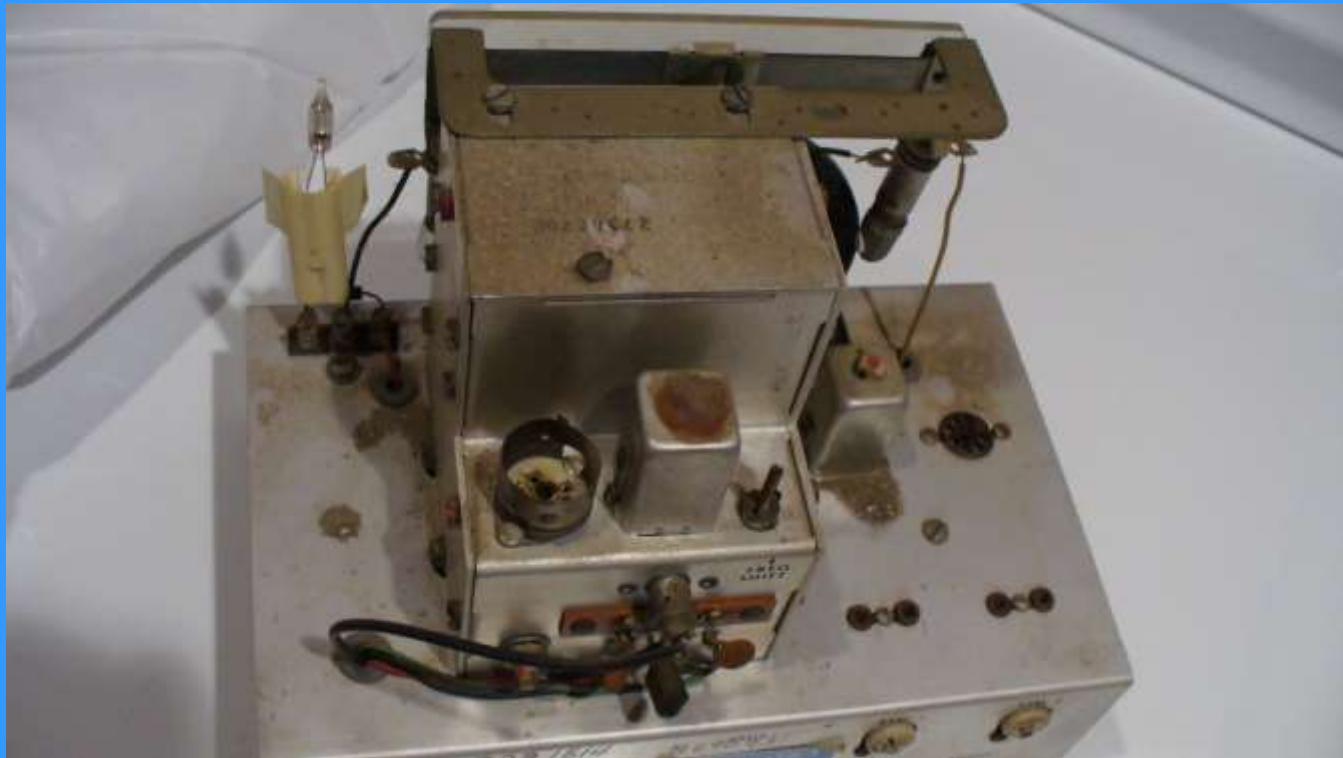
- Gear that is cosmetically great is a joy... usually



Resources

- DATA
- WEB based: ARRL.org-> QST.PDFs
- “Ham Radio” on CD
- BAMA for Schematics
- Old Hints & Kicks books
- Google
- Heathkit or Collins or Hammurland Book
- Old ARRL Handbooks ('60-'75)
- Parts & Supplies
- Fry's Electronics - > Milton, GA
- Ack Radio Supply - > Atlanta, GA
- Radio Shack
- Back of QST mail order
- Mouser Elect. Mail order
- Jameco
- Digikey (no min. order!)

Heathkit SB-640 “As-is” from EBAY



Heatkit SB-64- From “As-Is” from EBAY



Original Knight Grid Dipper

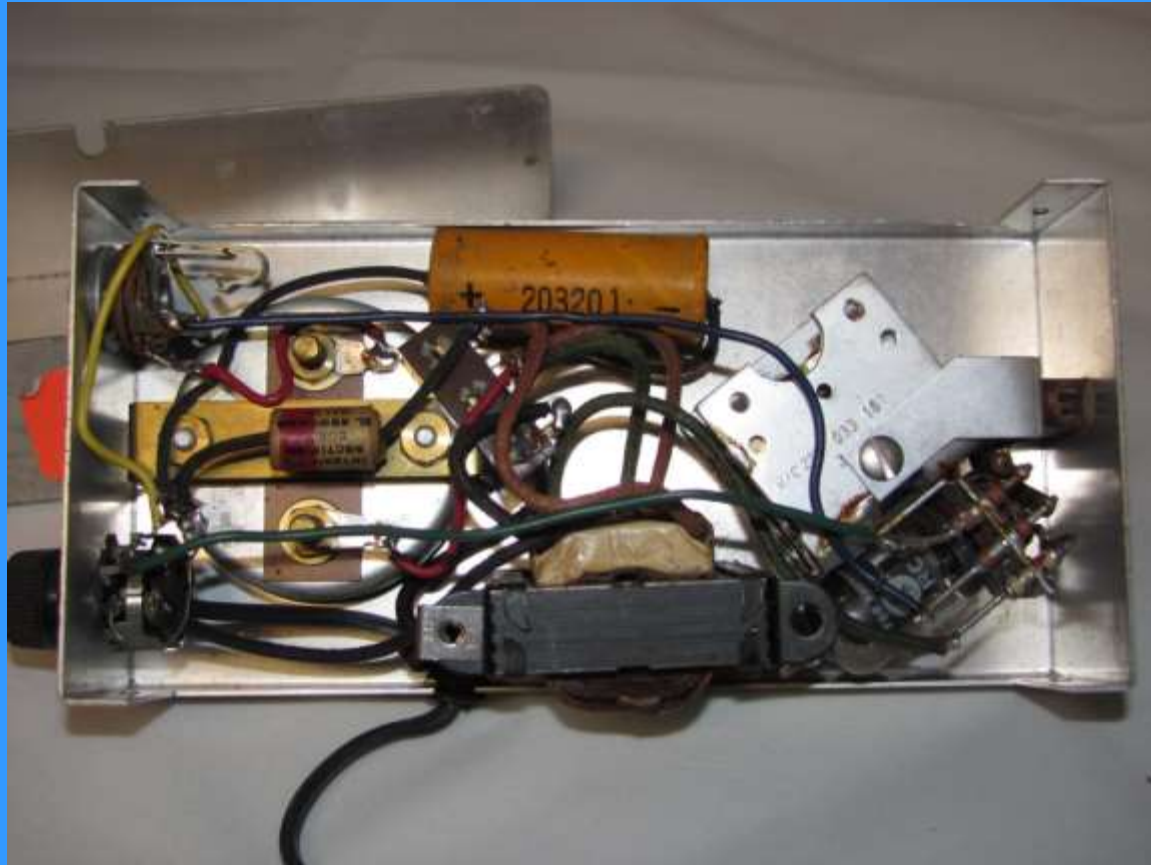




After some cleaning



Internal cleaning: What 2 parts to replace with no discussion?



Original Ring knob on Heathkit Bridge



Bridge after “Cleaning” Letters GONE!... Not Good!



Ring Knob after use of paint pencil



Typical Collins depressed lettering



Repaired Collins lettering!



Repair of yellow-brown Collins trim rings



What is in the paste?

- 1 Pint Hydrogen Peroxide
- 2 heaping tablespoons of Xanthan Gum
- 1 teaspoon Glycerin
- ¼ tablespoon of Oxy Detergent
- 1 tablespoon of HOT water.
- UV Light from Home Depot

So... What is the Website?

- retr0bright.wikispaces.com/





IGAN

