



Hamvention – 2010

Drake Forum – Slide Presentation

Part Two of Three



AC-4r Upgrade
Michael Bryce www.theheathkitshop.com





AC-4r Upgrade
Michael Bryce www.theheathkitshop.com

- Drake L7R Power Supply Board



Flea Market Space #509-510



Tony Mills, KF8MW, 740-808-1444



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Front Panels

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Drake Front Panel Reproductions

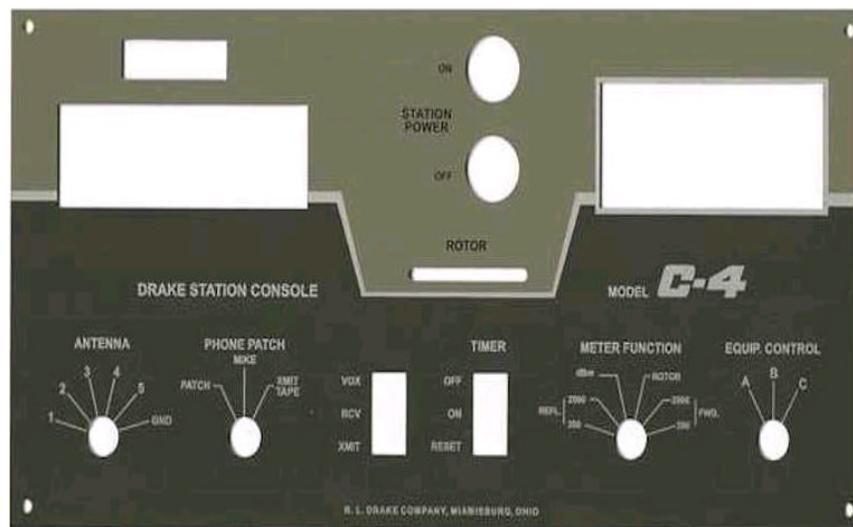
For Information and Purchases Contact: [Tony Mills](#)



Tagged as "Karen's husband" by Evan, K9SQG on the 3.865 net, here's Tony, KF8MW all smiles in the Drake Room in a corner of the cabin planted in the Hocking Hills of South East, Ohio.



<http://www.wb4hfn.com/Services/KF8MW/FrontPanels.htm>





Jeff Weinberg – W8CQ –
www.harbachelectronics.com

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**Welcome to the
Harbach Electronics, LLC Website**

**SOLID-STATE CONVERSION KIT FOR THE COLLINS
516F-2 POWER SUPPLY (SS-516)**

In response to your requests, I have revivied the SS-516 solid-state conversion kit for the Collins 516F-2 power supply. The kit has been tested and is available for purchase. The kit includes hand-built and potted solid-state replacements for the 5R4 and 5U4 tubes, a replacement for the selenium rectifier, a 200 ohm voltage dropping resistor and other associated components to upgrade the power supply. Step-by-step instructions are also be included. The price of the kit is \$40, including ground shipping in the USA.

73, Jeff W8CQ



Jeff Weinberg – W8CQ –
www.harbachelectronics.com

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PM-400 Replacement Power Module for the Drake L-4/L-4B and L-7 Power Supply



The PM-400 is a complete replacement power supply module for the Drake L-4/L-4B/L-7 remote power supply. It is designed around and features new modern 220uF 450VDC electrolytic capacitors, 1000 PIV 3A diodes, new 100K 3W bleeder resistors. The unit installs easily in the remote power supply chassis and replaces both of the old diode/capacitor boards.

Our Price \$100.00 - Shipped in the USA - International shipping cost to be added.

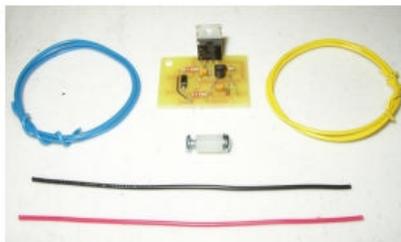
SS-400 Soft-Start Module for the Drake L-4 & L-4B Amplifier



The SS-400 limits inrush current during amplifier start-up by placing a small resistive load in series with the AC mains. The load is switched out of the circuit by the relay a few milliseconds later. The soft-start mounts on the underside of the RF deck and safely limits inrush current to protect the hard-to-find and costly-to-replace ON-OFF switch, tubes, filter capacitors and high voltage transformers.

Our Price \$45.00 - Shipped in the USA - International shipping cost to be added.

SK-401 Soft-Key for the Drake L-4 & L-4B



The SK-401 safely acts as an amplifier interface to your modern transceiver to the Drake L-4 or L-4B. This unit is mounted inside the amplifier and transforms the 24-27VDC key closure to approximately 1 VDC at 1.5 mA. Without it you run the risk of severely damaging the keying circuit in your transceiver.

Our Price \$25.00 - Shipped in the USA - International shipping cost to be added.

RES-400 Replacement HV Safety Resistor for the Drake L-4/L-4B/L7 Power Supply



The RES-400 is a direct replacement for the original IRC SPH-style safety resistors used in the Drake L-4/L-4B/L-7 remote power supply. These resistors are designed to open under conditions of high plate current draw from the power supply (tube arc or power supply short) to protect expensive tubes and power supply components. They are sold in packs of 5.

Our Price \$6.00 - Shipped in the USA - International shipping cost to be added.

Strain Relief Bushings and 5K 10W Resistor for the Drake L-4/L-4B/L7 Power Supply



The SRB-400 is a direct replacement for the original strain relief bushing for the Drake L-4/L-4B/L-7 power supply AC cord (flat). The SRB-401 is a direct replacement for the Drake L-4/L-4B/L-7 power supply remote RF deck multi-conductor cable (round). The RES-407 is a replacement for the 5K 7W resistor in the power supply. The new resistor is rated at 10W instead of the original 7W.

**SRB-400 \$1.00 SRB-401 \$1.00 RES-407 \$4.00
Shipped in the USA - International shipping cost to be added.**

RES-402 Replacement 50K 50W Bias Resistor for the Drake L-4/B & L-7 Supply



The RES-402 is a direct replacement for the 50Kohm 50W bias resistor used in the Drake L-4/L-4B/L-7 remote power supply. Over time, the old resistors change value and cause over- or under-biasing of the tubes. If they fail completely (short), plate voltage can be shorted to critical RF deck components. If they fail completely (open), the tube will lose their cut-off bias. **NOTE: There are 2 of these resistors in the power supply!**

Our Price \$8.00 - Shipped in the USA - International shipping cost to be added.

RY-L4B Replacement T/R Relay for the Drake L-4/L-4B



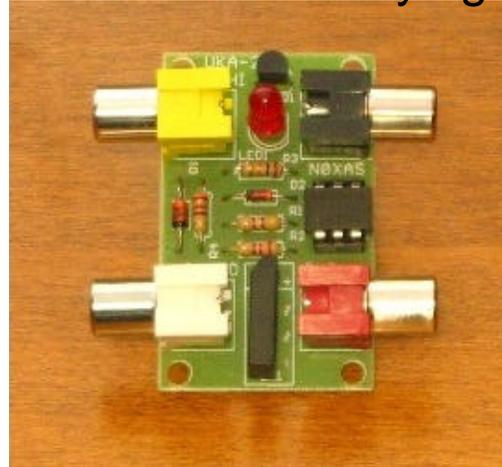
The RY-L4B is a direct replacement T/R relay for the Drake L-4/L-4B. It is a 3PDT relay with a 24VDC coil.

Our Price \$30.00 - Shipped in the USA - International shipping cost to be added.



<http://www.hamgadgets.com/>
Inside Booth No. BA0482

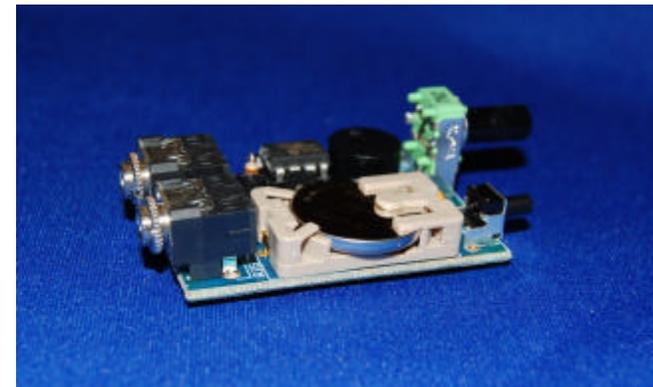
UKA-2 Universal Keying Adapter



MK- 1 Master Keyer



Low Power Iambic Keyer Kit





Other resources documented on WB4HFN.COM

- K4QU - TR-7 End Caps, Outside space #3421
- KC9YS - TR-4 Knobs and Inserts, Space #2328,2329 & 2330
- W2ENY - Drake Web Page
- Charlie Talbott TR-4 Main tuning knob inserts



Tips and Tricks



Adapting the L4B linear to modern rigs, plus some cosmetics

- Why you might not want to use the L4B with modern transceivers
- Relay's 27 vdc open circuit might be too much
- The need to sink 55 ma for the relay might be too much
- Inductive spikes are over and above steady state conditions
- RF feedback is sometimes problematic
- Ground loops might be created
- Vintage, boatanchor, vacuum tube gear is more robust



But there is hope

- Harbach Electronics has a soft-key module
- The Heathkit Shop has an AmpKeyer
- HamGadgets has an interface (UKA-2)
- Other interfaces available?
- You can homebrew an interface
- **With so many choices, what do I want?!**



My requirements:

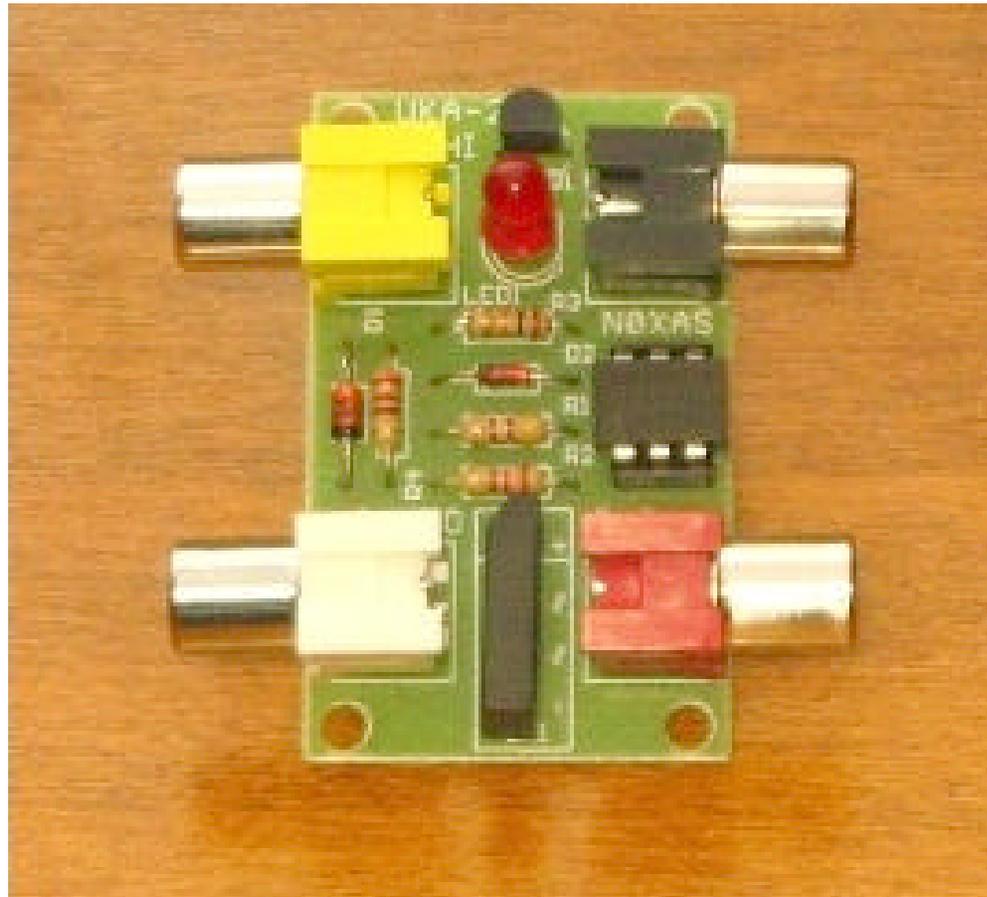
- Internal, permanent installation in my L4B
- Hardwired, no connectors, reversible installation
- Hidden, thus no visual indicators needed
- No external switches
- No external power source to be added
- Optically isolated to minimize RF and ground problems
- Inexpensive
- Simple, easy to build and repair

And the winner is...door #3...



Actually, there are no losers in that list!

- I selected the UKA-2 since we haven't treated it in previous Forums and venues.





What you get versus what you need



- Plus VOX adaptor plate from "The Man", TR-7 Dude, John Kriner
- Plus a source of power (aka Nadda Problem)



What you don't need from the UKA-2 installed in the L4B

- All RCA phono connectors
- R1, 470 ohm resistor; substitute a 180 ohm resistor
- R3, 10K resistor
- R4, 220 ohm resistor
- LED1, LED
- Q1, 2N7000 MOSFET

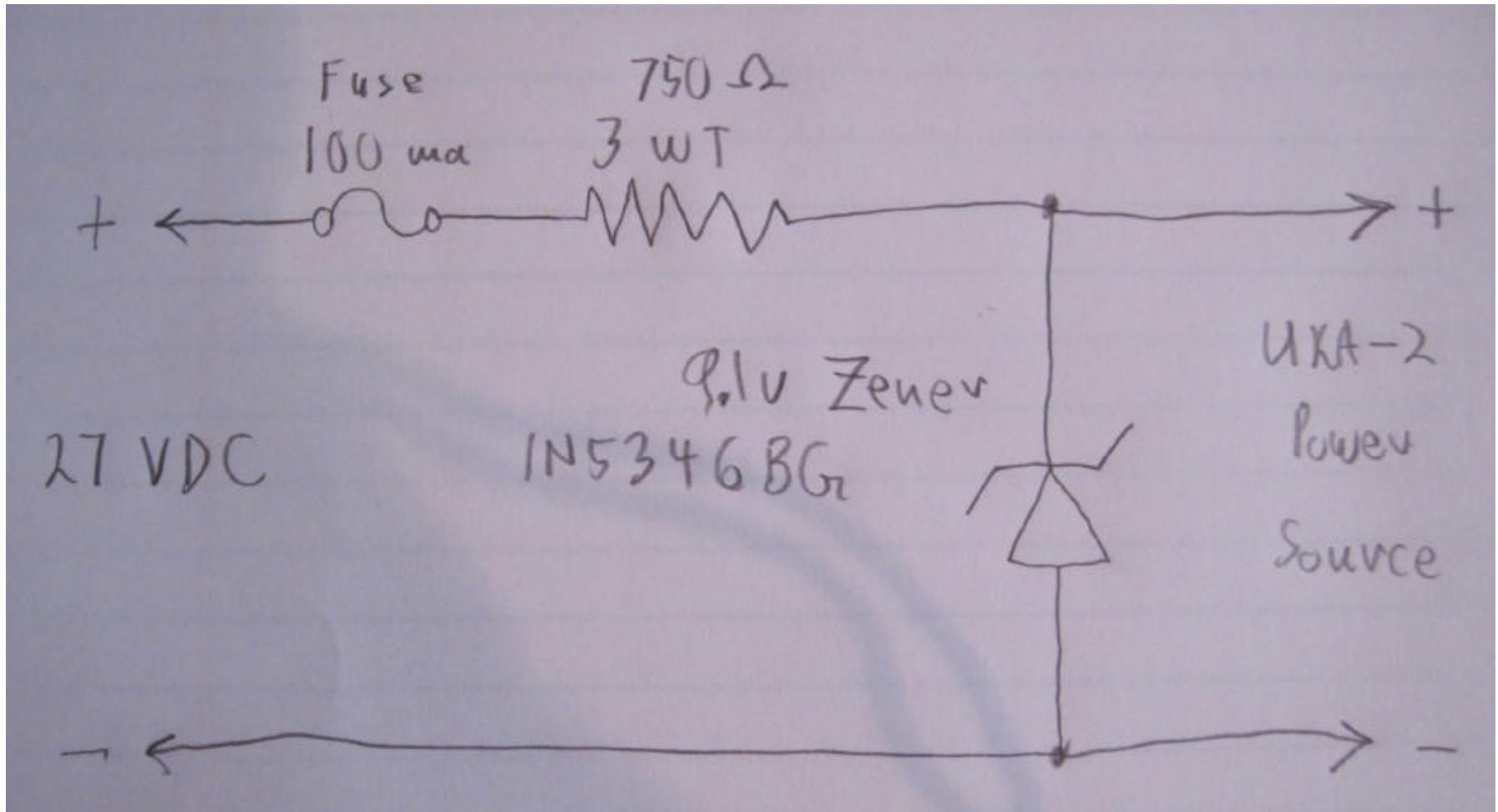


How do you proceed?

- Assemble the UKA-2 (ground circuit is important)
- Install the regulator circuit in the L4B
- Remove the 2 pin VOX plug
- Attach the UKA-2 to the VOX adaptor plate and install
- Wire the UKA-2 to the power source and relay circuits
- Test
- Enjoy your L4B with virtually any rig



Regulator Circuit for Power Source





A picture is worth a thousand words

(Hey, who put those connectors in there?)





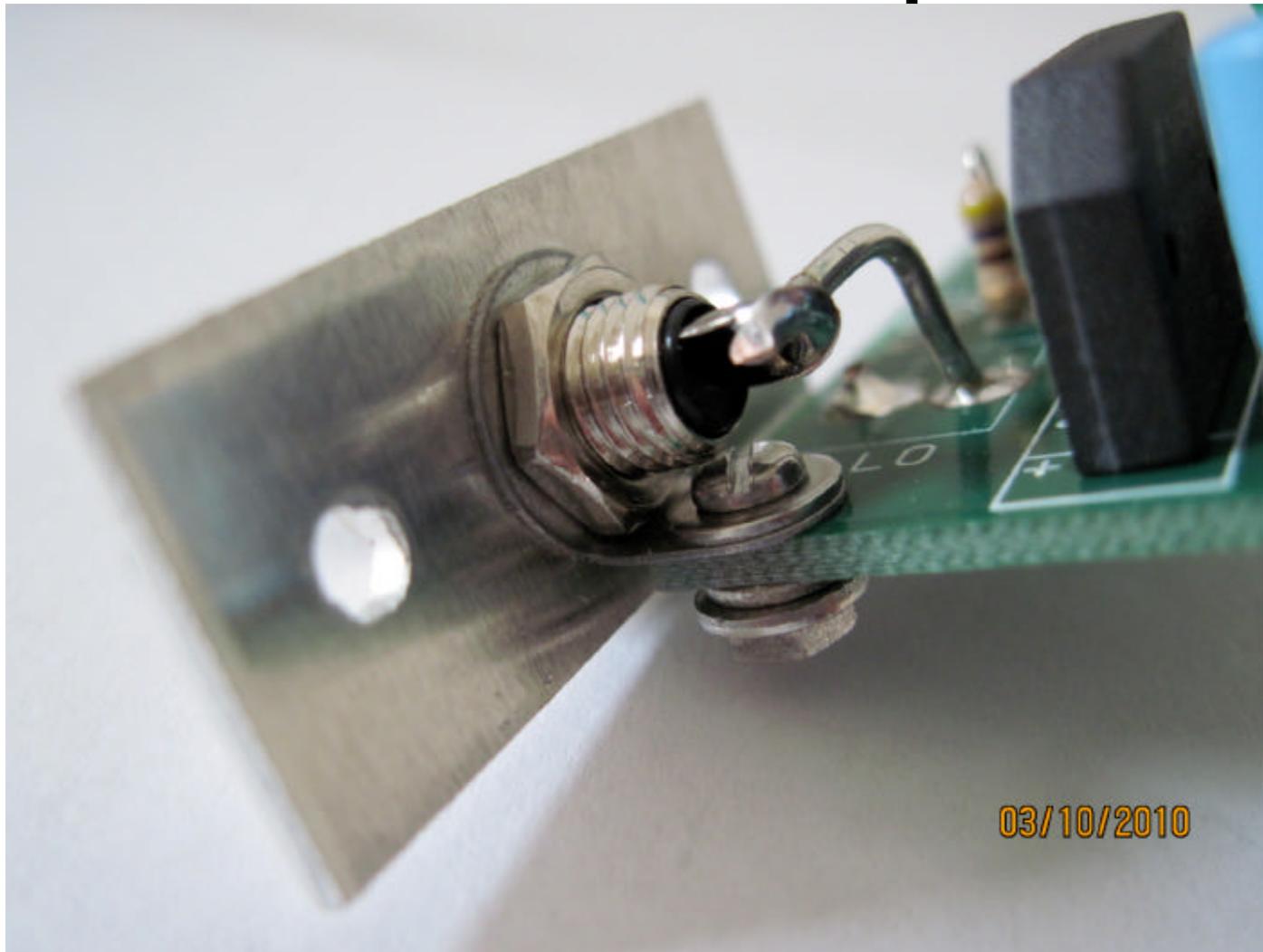
Original 2 Pin VOX Connector

(internal view)



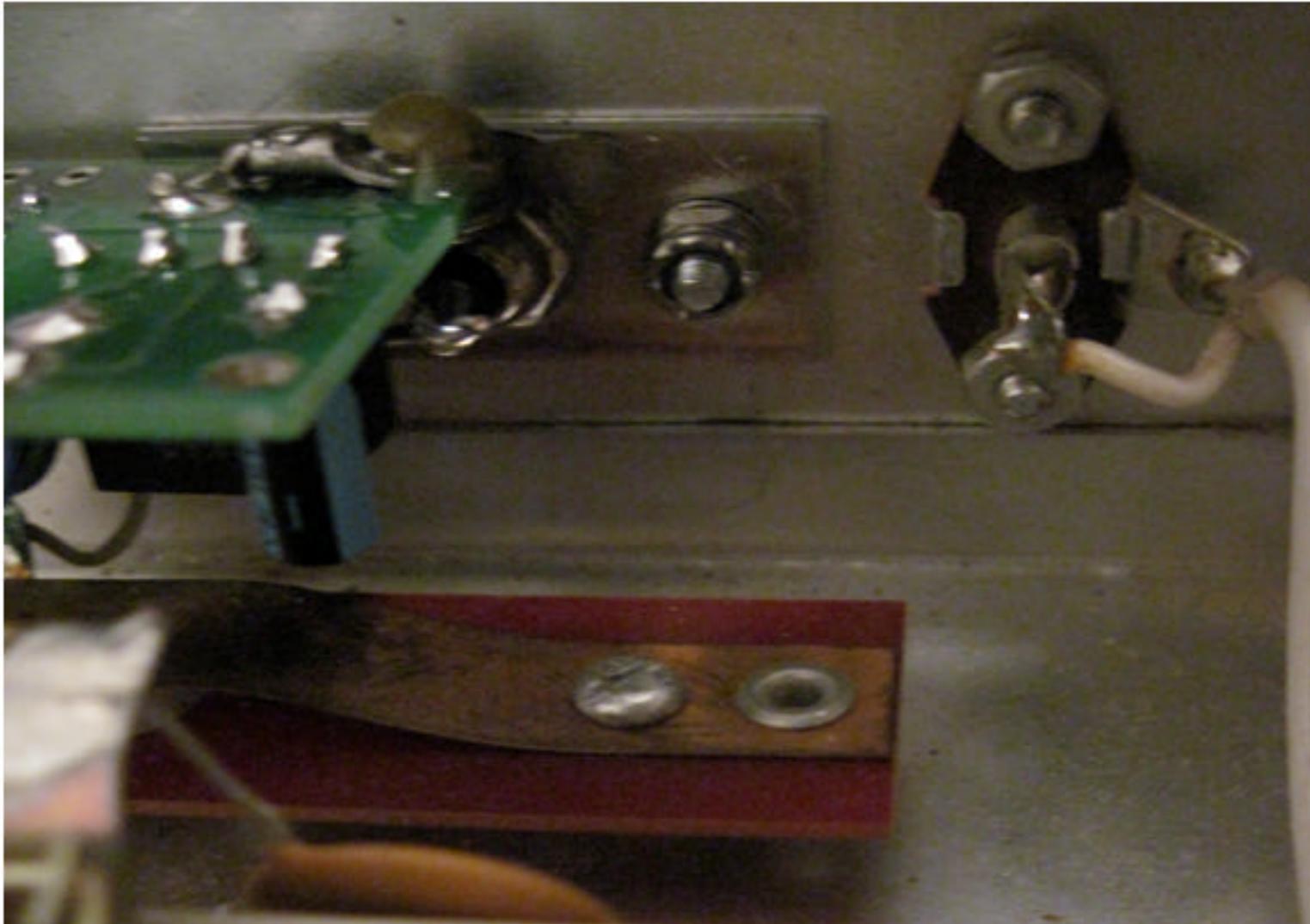


UKA-2 Mounted to Adaptor Plate





Board Installation





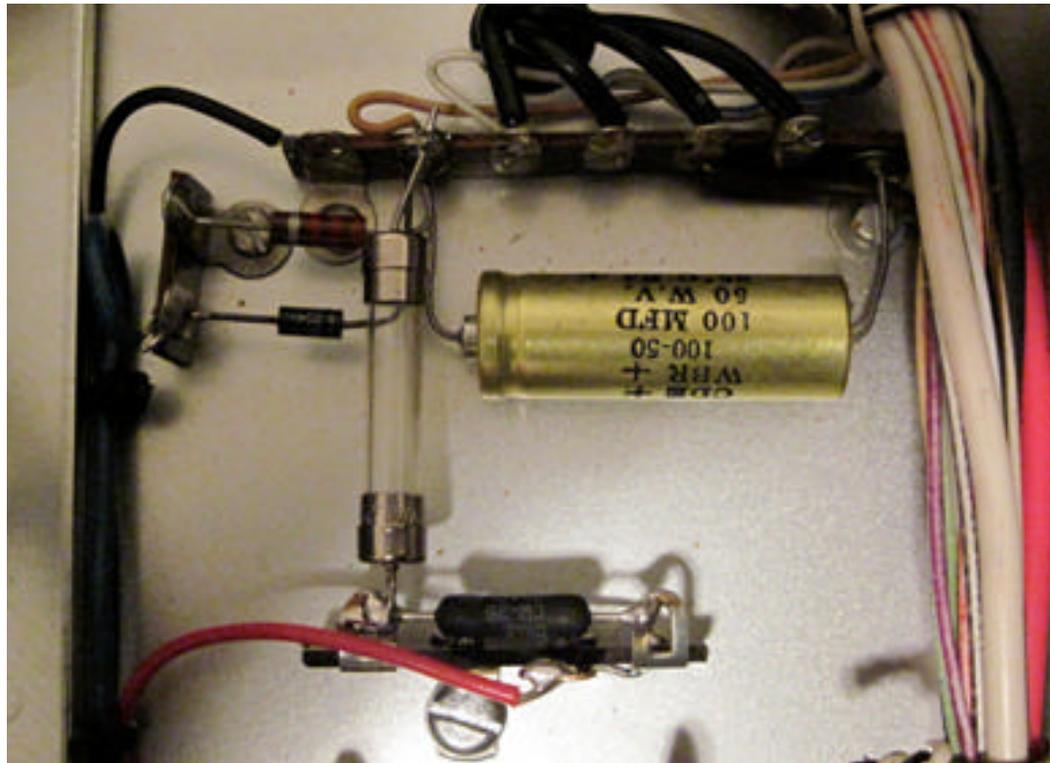
External View





Regulator Circuit for Power Source

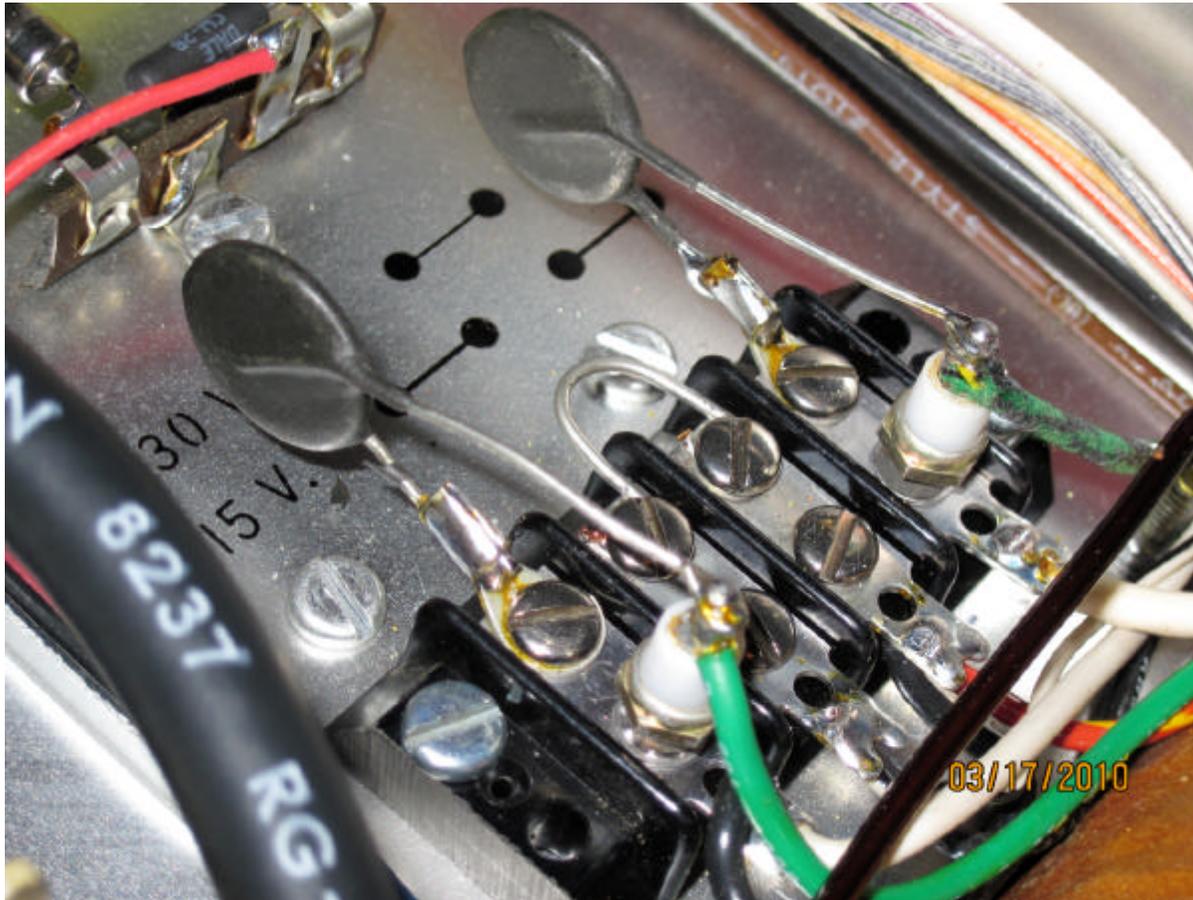
- Terminal strip
- 100 ma fuse
- 750 ohm 3 watt resistor
- 1N5346BG, 9.1 volt Zener diode, 5 watt, 5%





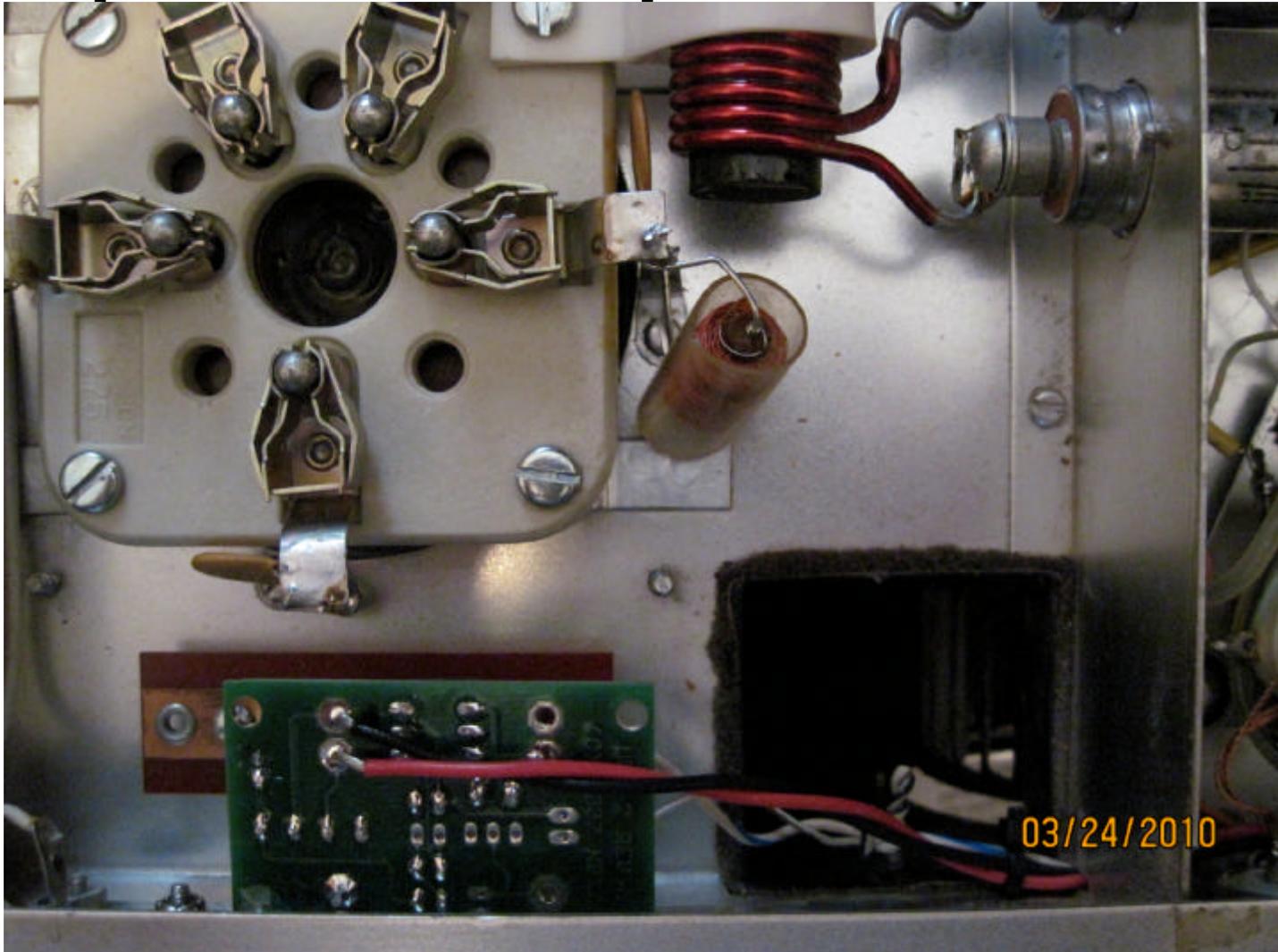
Thermistors in the primary of the filament transformer

(Not part of interface circuit!)



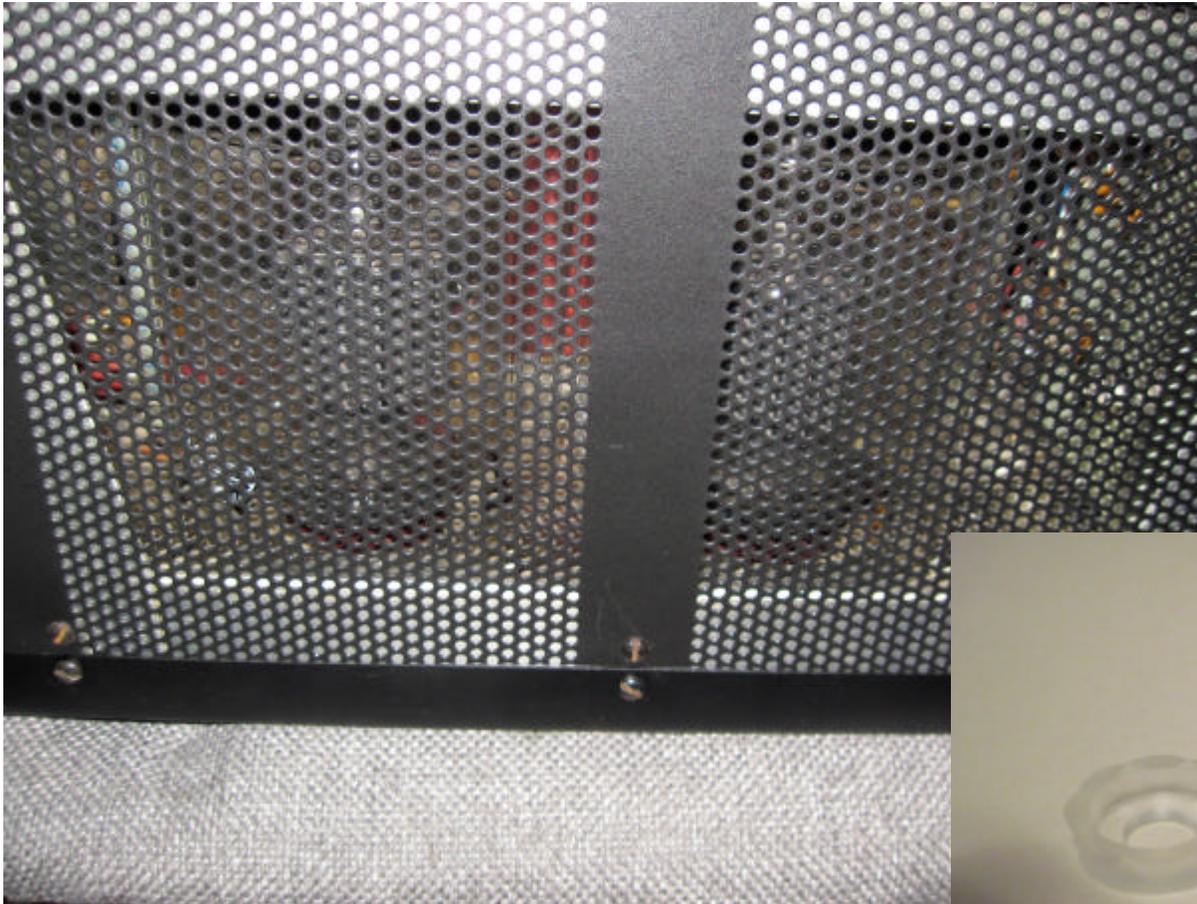


Top View of Completed Installation





Cosmetics: A Problem and a Solution





Completed Installation

(Notice asymmetry from side to side.)

