
Remler Model 72
Restoration Project
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Remler Model # 72 Initial Conditions

The initial condition of the radio is itemized below. Initial condition photos immediately follow along with before and after restoration photos and comments.

Chassis Restoration

1. All tubes missing.
2. Power transformer missing.
3. Speaker missing.
4. Output transformer missing.
5. Power supply inductor missing.
6. Rectifier tube socket needs replacement.
7. Broken lug strip.
8. Many wires under chassis are cut.
9. Power supply: 1 capacitor bad, the other missing.
10. Dial lamps: socket, lamp, and wiring missing. Mounts need alignment.
11. Tuning eye: tube & socket missing. All associated wiring had been removed.
12. Tuning capacitor very tight, needs serious cleaning.
13. Scale & dial mechanism: scale needs replacement. Mechanism stiff and missing parts.
14. Chassis needs cleaning and painting.
15. General troubleshooting and repair.

Cabinet Restoration

1. Cabinet needs refinishing.
2. Both back lower cabinet corners have split apart.
3. Veneer on top of cabinet split and lifting off.
4. Grill Cloth needs replacement
5. Bezel looks bad. Had been painted.
6. Wooden grill broken away from cabinet and one grill element missing.
7. Veneer on right side of cabinet damaged and small piece missing.
8. All user control knobs are missing.

Initial Condition Photos

General Condition Front View

General Condition Back View

Split Back Left Corner

Split Back Left Corner

Split Back Right Corner

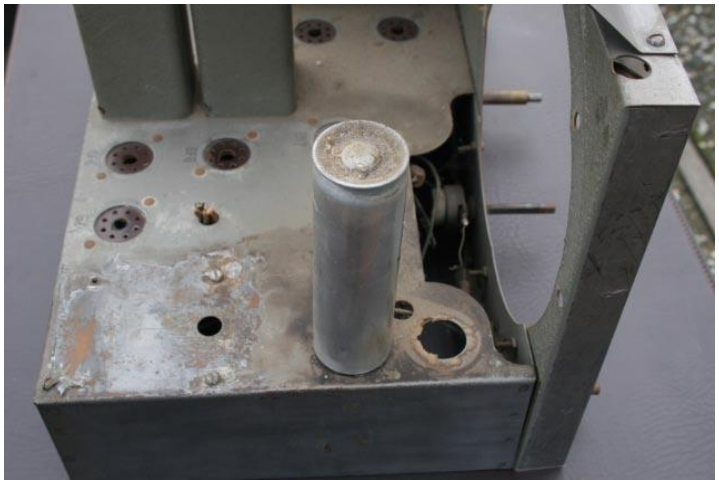
Broken Loose Grill Element

Initial Condition Photos

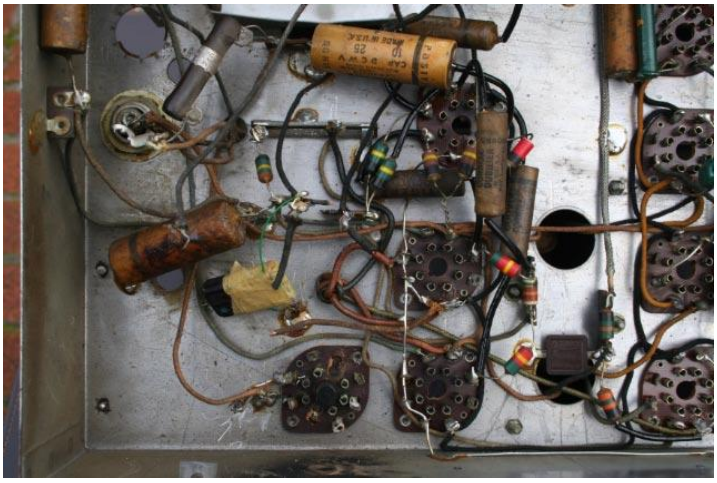
Missing Grill Elements

Dial Mechanism & Scale

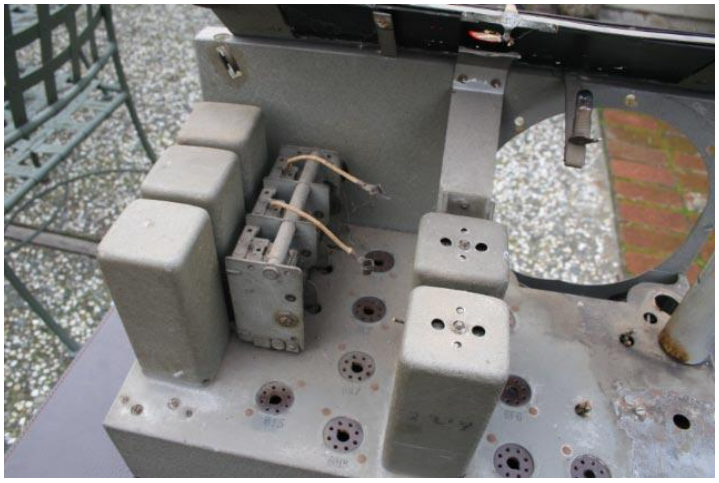
Broken Rectifier Socket



No PWR Transformer - Missing Cap

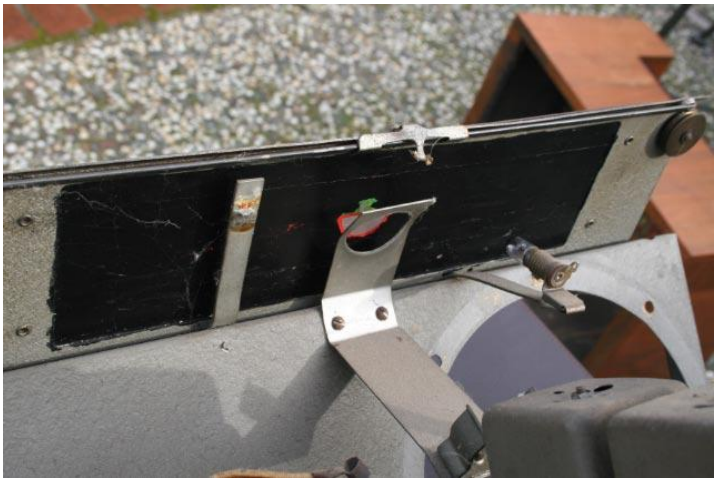


Cut Wires under Chassis

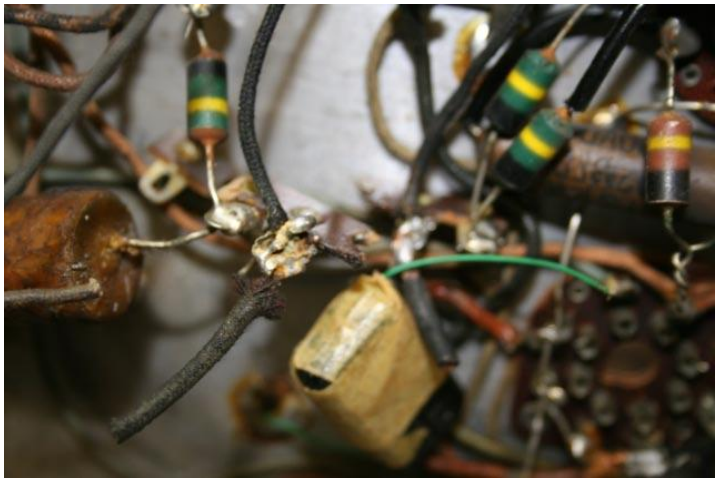


No Speaker No Tubes

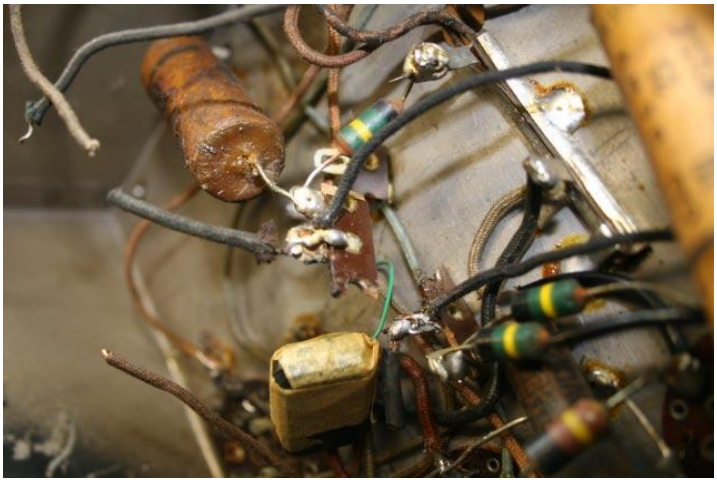
Initial Condition Photos



Pilot Lamps & Tuning Indicator

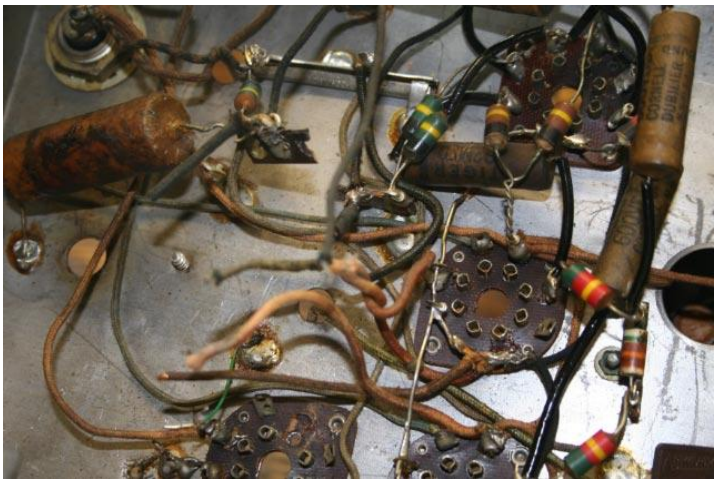


Broken Lug Strip Under Chassis



Broken Lug Strip Under Chassis

Bad Connection & Soldering



Cut Wires Under Chassis

Tubes

One of the initial conditions was that all nine of the tubes were missing from the chassis. Replacements were not hard to find. Six were found in my personal tube collection and three were found in the CHRS collection. In staying with a restoration goal of "as original as possible" the tubes were replaced with metal shield types as implied in the tube inventory list that is printed on the schematic. The tubes were tested and found to be in good condition.

Tube Photos

Tubes Missing

Tubes Replaced

Power Transformer

After looking through many transformers in my collection and at CHRS it became apparent that I was going to have to buy a transformer. Locating a suitable power transformer was made easy by the huge selection of transformers available though Hammond Electric. Sizing the transformer for the 5 and 6-volt supply was straightforward. The high voltage required some adjustment as the replacement speaker I was going to use has an inductor with more that double the resistance of the original. The transformer I used is a Model 276X (640 VCT @173ma. 5 VCT @ 3A. 6.3VC @ 5A.)

Power Transformer Photos

Missing PWR Transformer

Installed PWR Transformer

Speaker, Inductor, and Output Transformer

Locating a speaker that physically fit, has a suitable power supply inductor, hum bucking coil and output transformer proved to be a challenge. Luck turned my way when another CHRS member, Larry Drees, spotted a speaker on line that he thought might be what I was looking for. The speaker looked like a great possibility and after talking to the seller, I concluded that I wasn't going to find anything that would come as close to original as what he was selling. The replacement speaker had two issues: The chassis would have to be slightly relieved to accommodate proper mounting and in addition, the power supply inductor resistance is 2.5 times the resistance of the original.

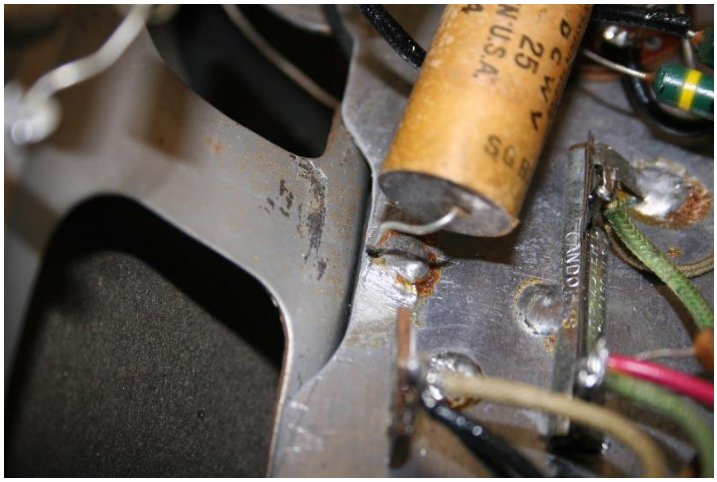
With only a little cutting and shaping of the chassis the speaker fix perfectly into position.

I needed the inductor resistance to be in the 1K-ohm range. The inductor I was using is 2.5K. The first attempt was to shunt the coil with a 2.0k resistor. I was not happy with this, as the power dissipation of the inductor was about 6 watts. What worked the best was to series a 560-ohm and a 700-ohm resistor and shunt the 700-ohm resistor with the inductor. This lowered the power dissipation of the inductor to approx. 1.5 watts and had little affect on the operation of the radio.

The surprise issue was with the output transformer. If you look at the output transformer on the schematic without looking at the rest of the circuit you can conclude a class A output amplifier. When I connected the speaker and things weren't right I then found the output amp to be class AB and that the schematic was in error, missing the center tap connection to B+. I resolved the output transformer issue by adapting an output transformer I had on hand. For the fun of it, I checked at least three other sets of Riders and found the same omission in all of them. I don't know who to send the correction to.

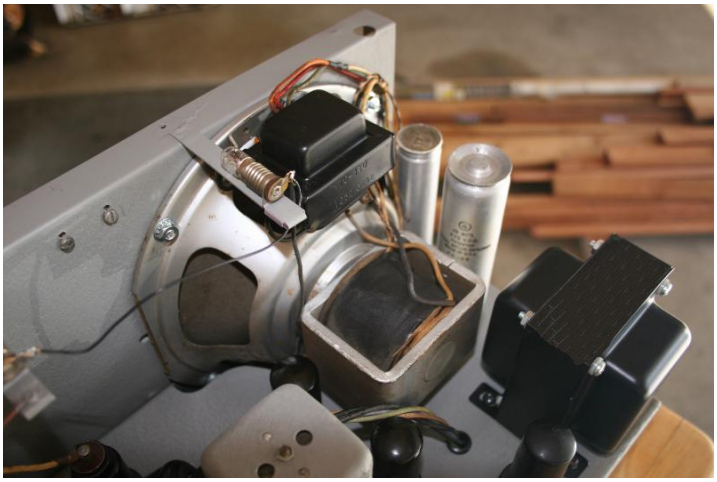
Speaker Photo(s)

Speaker Missing



Chassis relieved to Accommodate New Speaker

Speaker Photo(s)



New Speaker Installed

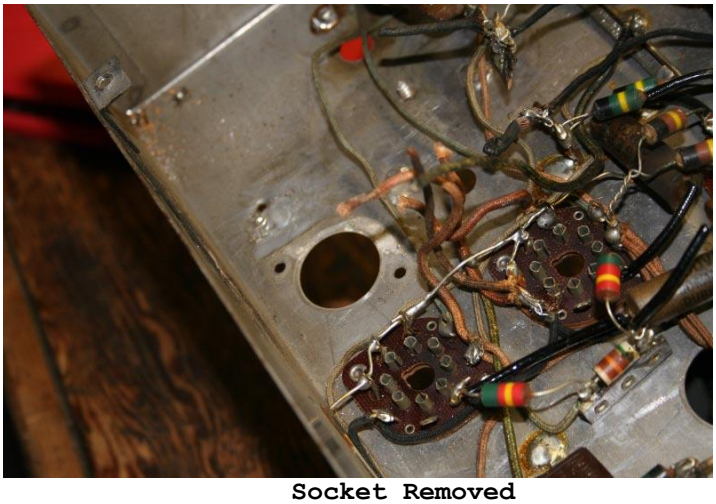
Damaged Rectifier Socket

The photos show the steps taken to replace the damaged rectifier socket.

Damaged Rectifier Socket Photos

Damaged Socket

Removing Socket



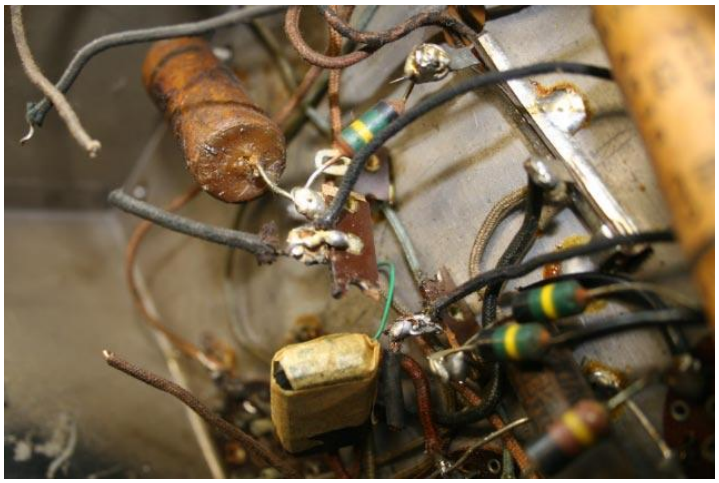
Socket Removed

New socket installed & wired

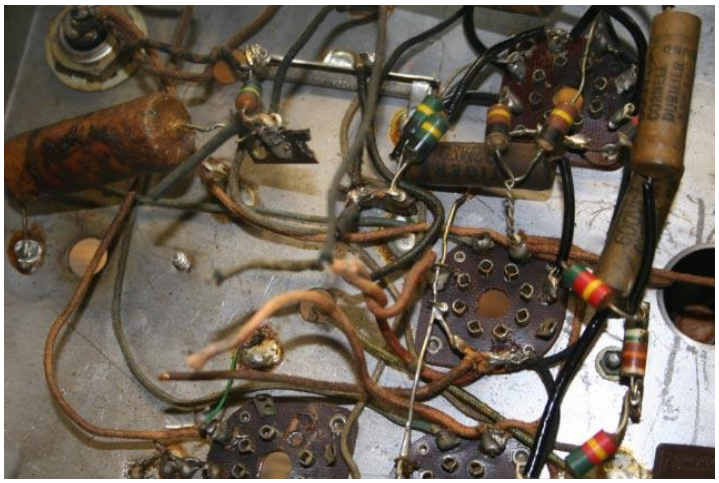
Broken Lug Strip

The repairs and replacement of the broken lug strip are shown in the following photos.

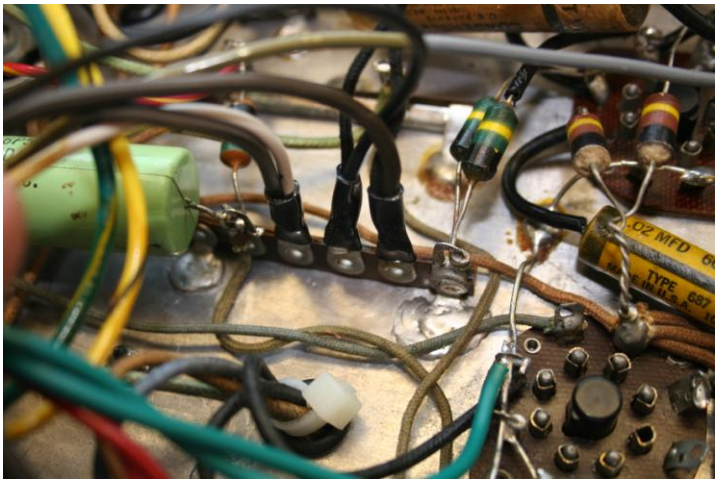
Broken Lug Strip Photos



Broken Lug Strip



Broken Lug Strip

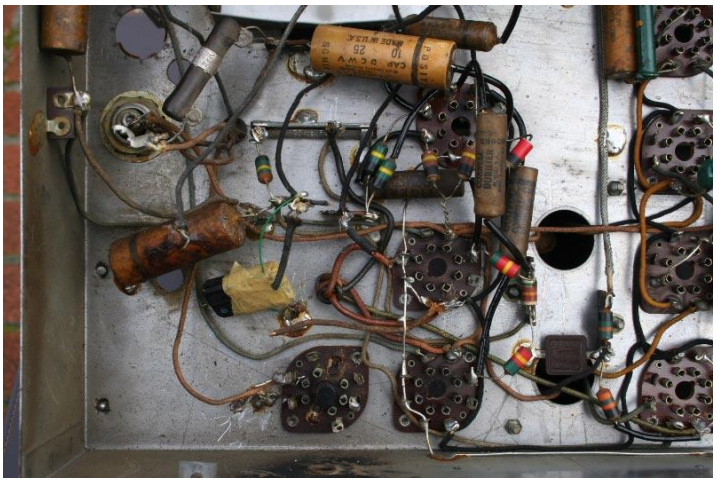


Lug Strip Replaced

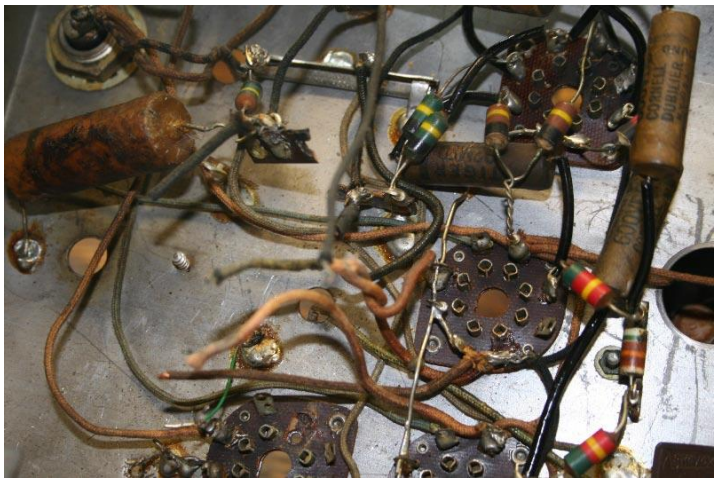
Cut and/or Missing Wires

The photos show the many cut wires under the chassis. Wires that were cut included: all power transformer leads, speaker and Inductor, dial lamps, rectifier circuit, tuning eye circuit, grid cap circuit, power cord and power switch connections.

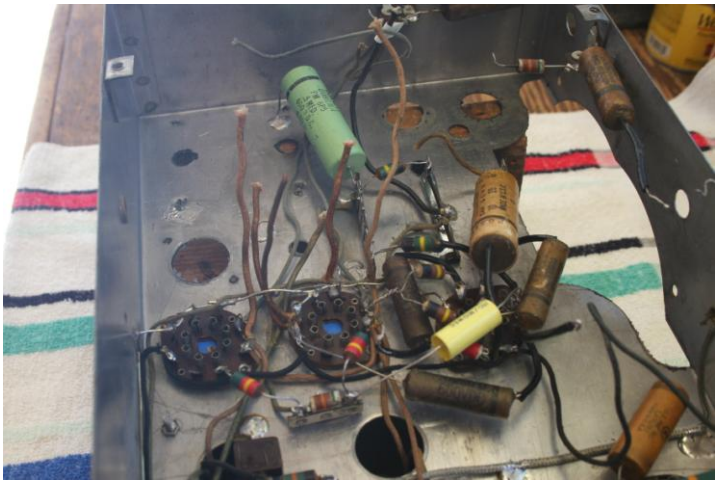
Cut and/or Missing Wires Photos



Cut Wires Under Chassis

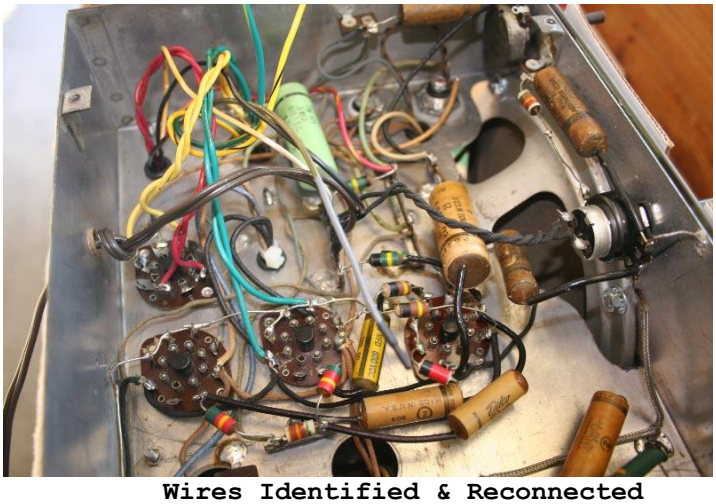


Cut Wires Under Chassis



Cut Wires Under Chassis

Cut Wires Under Chassis



Wires Identified & Reconnected

Power Supply Capacitor Reconstruction

The major components of the power supply in this radio were missing. This includes the power supply capacitors. One of the filters was missing. The remaining capacitor was unusable. After finding a suitable replacement I decided to empty the containers and replace the innards with axial lead 22 mf 450v caps.

The capacitors were opened by grinding away the crimp at the top of the container. The contents were removed by pushing out the old capacitor through the electrode connection at the bottom. I then washed out the container with Chem-Tool to remove the residual goo. After collecting up the necessary screws, washers, lugs and insulators I assembled the caps and epoxied the top back onto the container.

Power Supply Capacitor Reconstruction Photos

One Missing & One Very Bad Capacitor

Capacitor Ready for assembly

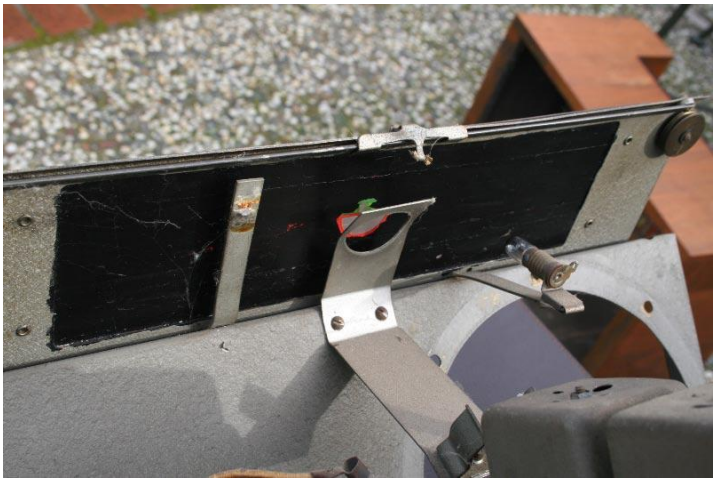
New Capacitor Installed in Can

Both Rebuilt Caps Installed

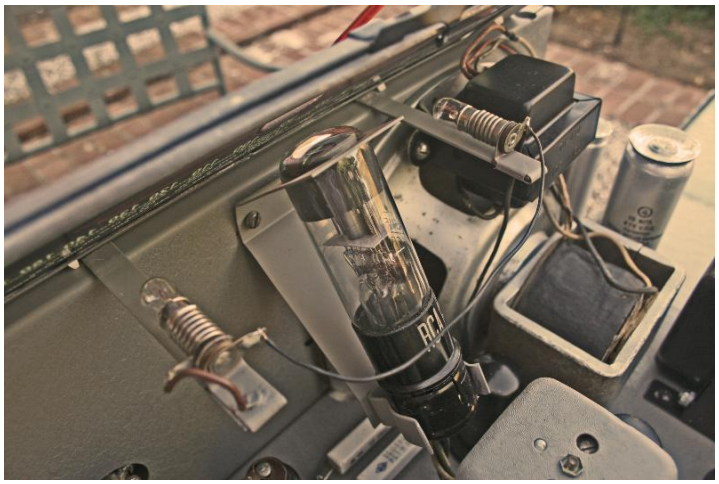
Dial Lamps

The dial lamp wiring in this radio was missing as well as one of the lamp sockets. The lamp holder bars were bent and coming loose from the chassis. Found a replacement socket straightened and resoldered the holders to the chassis. Rewired the sockets and replace the lamps. I kept with the original screw base # 40 lamp.

Dial Lamps Photos



Pilot lamp missing bracket bent

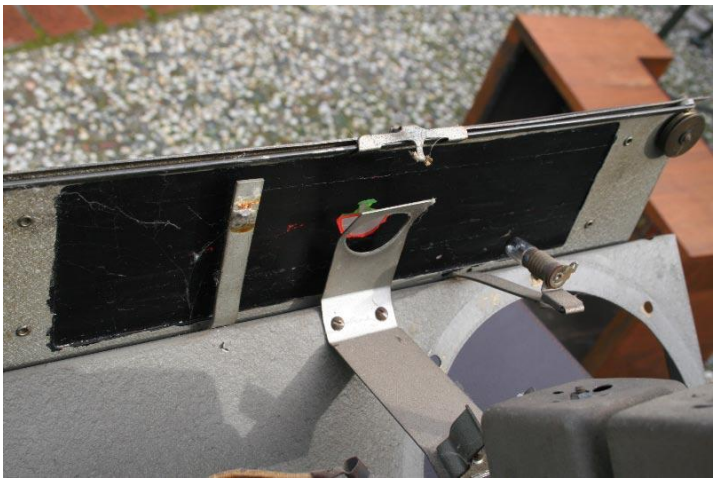


Pilot lamps restored

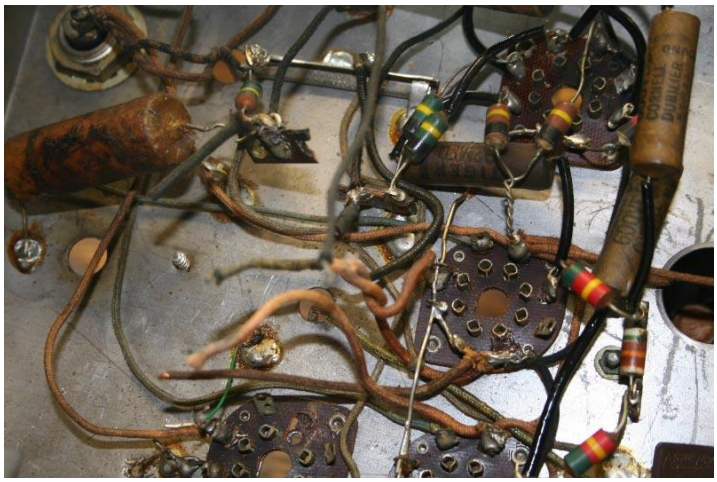
Tuning Eye Wiring & Socket Missing

The tuning eye circuit had been completely removed from the chassis. The only part left was the bracket that held the 6U5 in place behind the dial scale. I gathered the components I needed (6U5, socket assembly, period wire, and resistor) from both my collection and from CHRS. I soldered the resistor and wires to the socket then wired the indicator assembly back into the chassis circuitry.

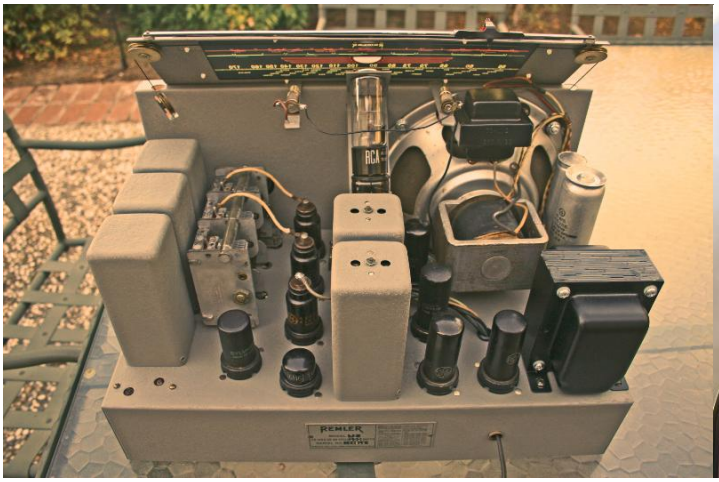
Tuning Eye Wiring & Socket Missing Photos



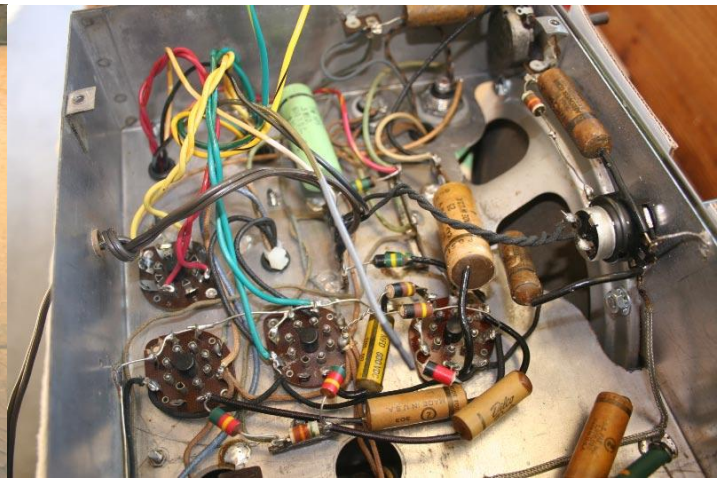
Tuning Eye missing



Entire Eye circuit had been removed



Tuning Eye Circuit Rebuilt



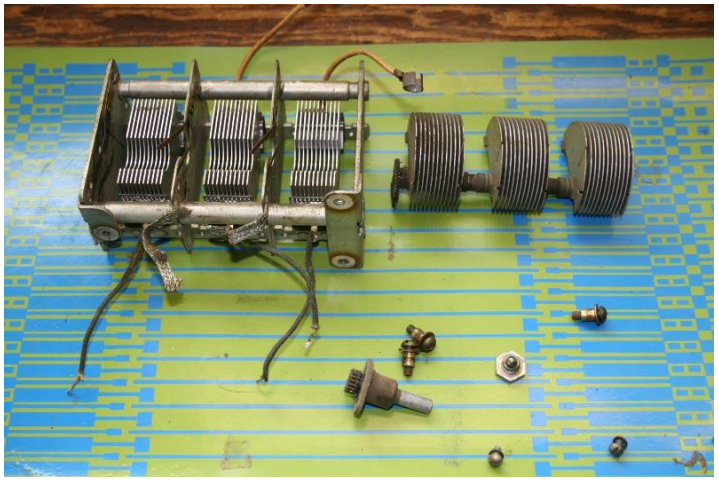
Tuning Eye wires under Chassis (Tie Wrap)

Tuning Capacitor Cleaning

The tuning capacitor was electrically operational with no bent plates but was difficult to turn. The pictures show it was in need of cleaning. I removed the rotor, disassembled the drive mechanism, cleaned, lubed and reassembled.

Tuning Capacitor Cleaning Photos

Dirty Tuning Capacitor



Capacitor disassembled

Dirty Rotor

Disassembled Rotor Drive

Capacitor Cleaning

Capacitor Drying

Tuning Capacitor Cleaning Photos

Cleaned Capacitor Installed

Scale & Dial Mechanism

The scale and dial mechanism on this radio had problems. The back of the dial scale had been painted with a black opaque paint and was flaking. The cursor had been broken off of the shuttle, the dial cord was missing, the dial chord pulleys were stiff, and the concentric tuning shafts were gummed up. I was fortunate to find a soft copy of the dial scale graphics for the model 72 and had *Fast Signs* print this image as a decal. I then applied the decal to a cut to size clear piece of acrylic and reassembled the scale frame. The broken off cursor was fixed by using a 4" X 1/8" piece of acrylic rod. I shaped the end to fit into the shuttle then dyed the rod using a red sharpie. Replacing the dial chord was fun. I purchased 6 feet of cord, found a spring and figured out how to thread the mechanism. Another issue was that the dial cord pulleys were stiff with one being almost frozen. Using different solvents, *Brasso* and elbow grease I was able to free up the pulleys without having to remove them. The last issue with this mechanism was that the concentric tuning shafts were gummed up. I was able to separate the shafts and thoroughly clean the ball bearings, raceway and shafts.

Scale & Dial Mechanism Photos

Dial Cord Missing & Broken Cursor

Bad Condition Of Dial Scale

New Cursor and Painted Shuttle

Gummed up Tuning Shafts

Dial & dial Mechanism Photos

Tuning Mechanism Restored

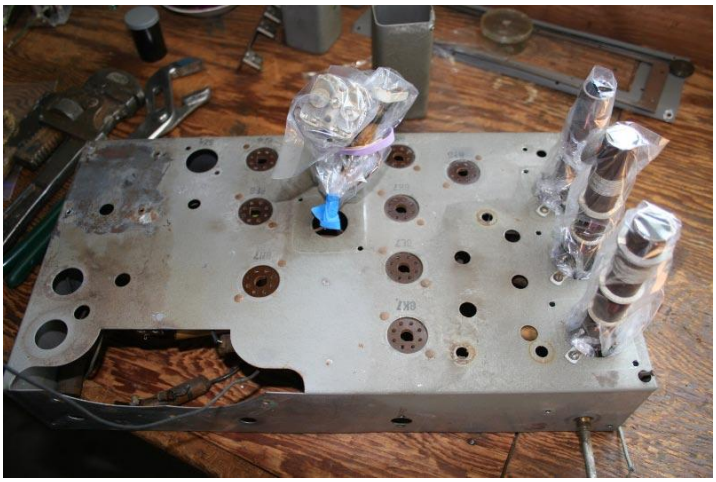
Chassis Cleaning & Painting

As the pictures show this chassis had seen better days. I started by washing the chassis. I removed the tuning coil and IF cans and any other sensitive components. I protected the coils by putting them in plastic bags and sealed them the best I could. I then sprayed the top and bottom of the chassis with *Super Clean* then lightly hosed it off. The amount of grime removed was impressive. I dried the chassis using low-pressure compressed air and the sun. Repainting the chassis was the next step. The original finish was a gray wrinkle paint that was not available. What I did use was a black wrinkle paint which I used as an under coat then applied a gray topcoat finish. In order to avoid painting the tube socket rivets or having to drill them out I put a drop of wood glue on each rivet head. After painting, the glue was easily removed with an exacto knife.

Chassis Cleaning & Painting Photos

Chassis being prep for painting

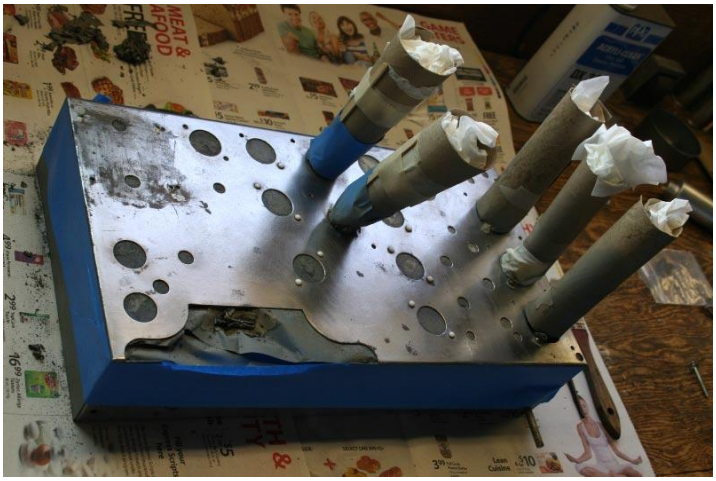
Chassis being prep for painting



Chassis being prep for painting

Chassis being prep for painting

Chassis Cleaning & Painting Photos



Chassis being prep for painting

Chassis painted

Chassis painting completed

Chassis restored

General Repairs And Troubleshooting

Before serious troubleshooting or applying power to the radio, the broken rectifier socket and lug strip needed to be replaced. Also, all of the dangling wires needed to be identified and documented.

After these repairs, I inspected the chassis for obvious problems and did some continuity testing. After clearing a short in the 6.3 v circuit and removing the totally bad filter capacitor I began troubleshooting.

At this point I had not yet located all the components I needed to start reassembly. I needed to get started on troubleshooting and repair so I decided to rough together a power supply on the bench and use clip leads to connect power and other components to the chassis.

After the components were connected, I applied power using a variac to control the input voltage. Slowly, increasing the input voltage, I measured the 5, 6 and 620 secondary volts to make sure they were rising with the increase in input voltage. At 110 Volts the tubes were heated up but the B+ supply was only about half of what it should be. There was nothing coming from the speaker.

I began troubleshooting at the audio amplifier. The test equipment used was a DVM, signal generator (audio & RF) and oscilloscope.
The problems found were:
1. The before mentioned output transformer center tap issue.
2. Four capacitors were found to be bad and were replaced (C31, C32, C34, & C40). In my collection of vintage capacitors I found three replacements that were electrically the same and tested good for both capacity and leakage. Although these capacitors tested good they looked terrible. I cleaned them up by re-waxing them. I first brushed off the old wax after heating with a heat gun then dipped them into clear wax.
3. A very intermittent volume potentiometer, which I disassembled and cleaned.

After resolving these issues the amplifier worked fine but still no signal through the radio.

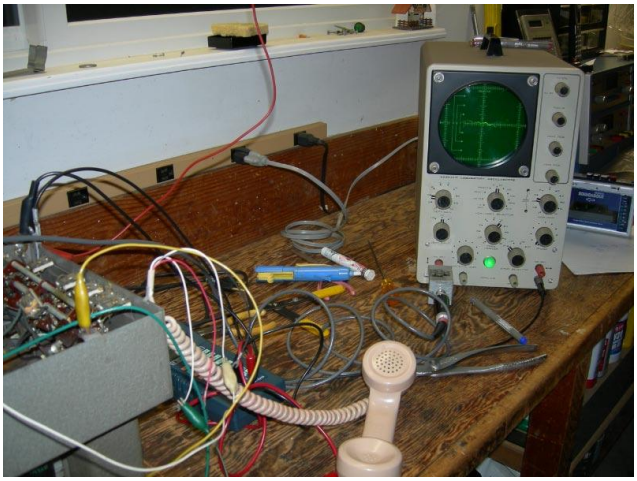
After not finding a signal at the detector, IF stage, and no local oscillator, I began to look into the oscillator circuit.

In troubleshooting the oscillator the test equipment used was a DVM and oscilloscope. Performed a continuity test on the oscillator coils. To my relief no opens were found. Further troubleshooting revealed the following:

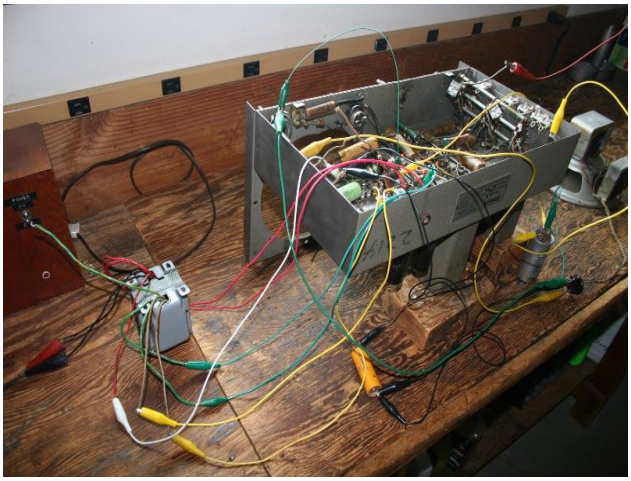
1. A very dirty band selection switch.
2. A broken wire on the last wafer of the band selector switch.

After resolving these issues the oscillator was working but at too high of a frequency. What should have been an obvious solution got confused into a search for something that was not broken. Finally, when I put the band selector switch in the broadcast position things began to work.

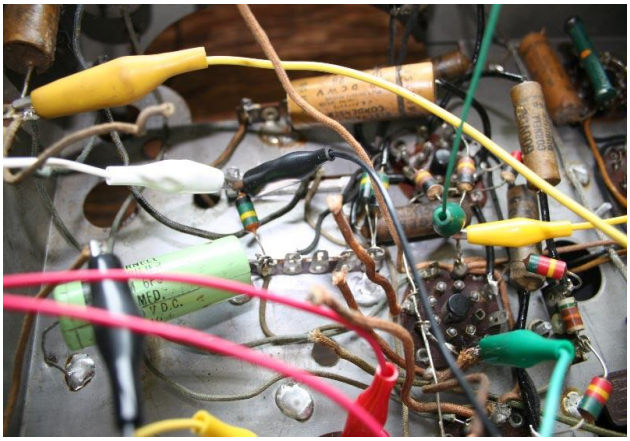
General Repair Photos



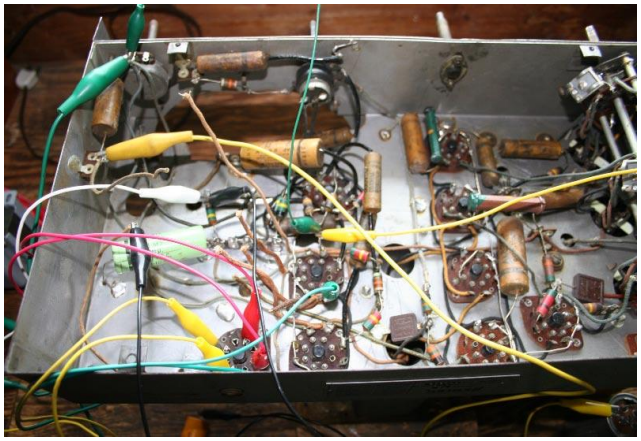
General Troubleshooting



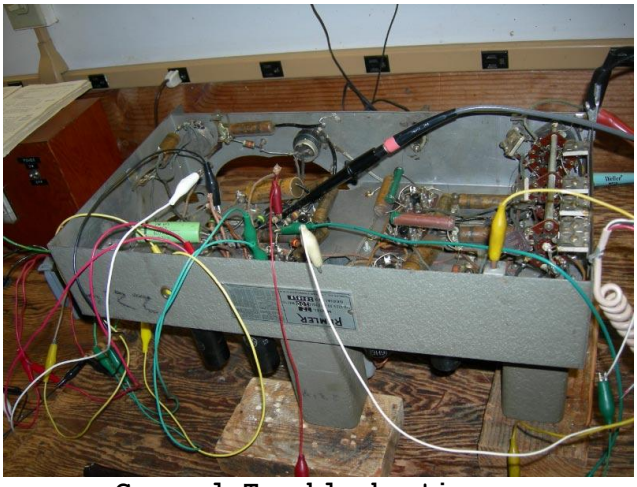
General Troubleshooting



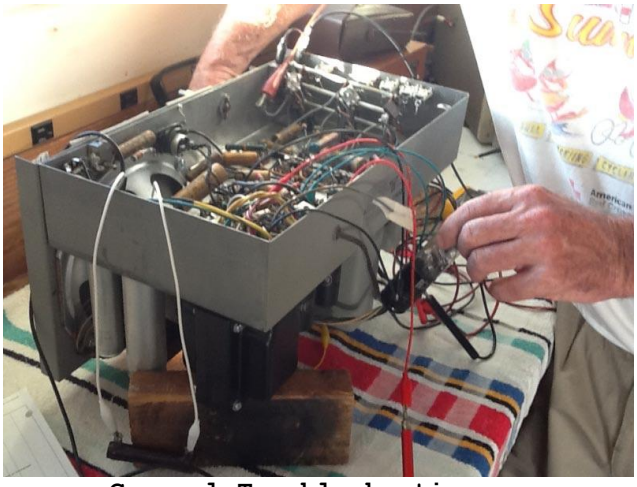
General Troubleshooting



General Troubleshooting



General Troubleshooting



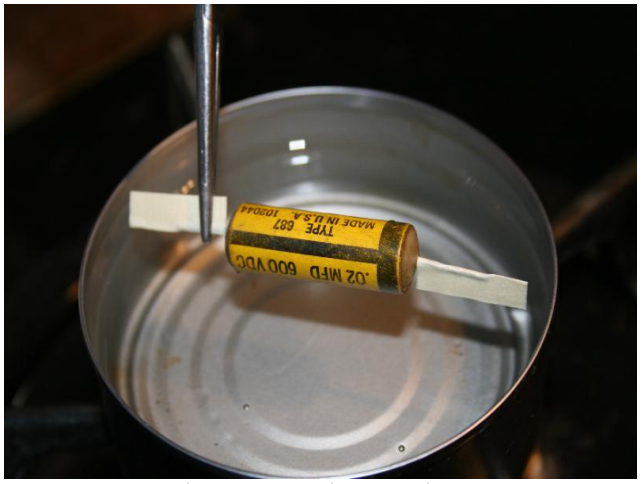
General Troubleshooting

General Repair Photos

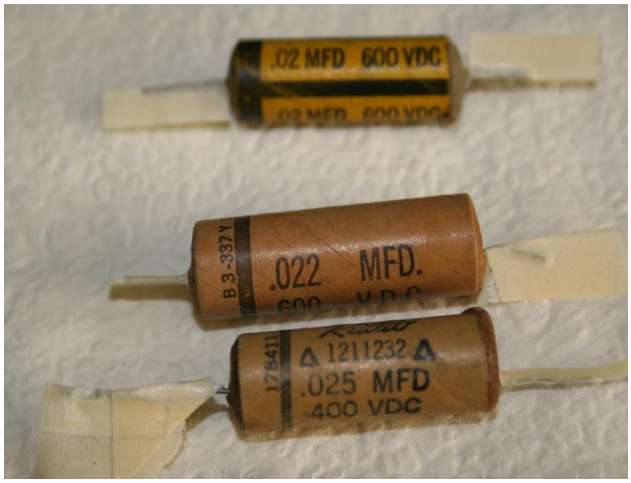
General Troubleshooting

Replacement Capacitors before re-waxing

Removing old wax



Re-waxing capacitors in clear wax



Finding vintage capacitors, that tested good, in my parts collection was a great find. They kept the underside of the chassis looking authentic and saved me from the messy and time consumimg job of re-stuffing the defective ones. I also got pleasure, putting parts that have been on the shelf for years, back into service.

Refinishing Cabinet

Don't know the history of this radio but it looked like at some time someone refinished the cabinet with an orange/reddish finish. Not sure what the finish actually was, but it was difficult to remove. In fact, I was never able to completely remove it. After using lacquer thinner, multiple applications of paint remover, sandpaper and steel wool, enough of the old finish had been removed so that the new finish could be applied. To help prevent blotchiness, I fist applied a pre-stain wood conditioner followed by the finish stain. The stain used is a *Minwax Red Mahogany*. After a few days of drying I hand waxed the cabinet with *Minwax Paste Finishing Wax*.

Refinishing Cabinet Photos

Initial Condition

Cabinet Stripping

Cabinet Stripping

Cabinet Stripping

Cabinet Stripping

Refinishing Cabinet Photos

Cabinet Sanding

Completed Cabinet

Cabinet Repair Back corners

The two lower back corners of the cabinet had pulled away from the cabinet base. To repair this, I screwed two wooden runners to the inside base of the cabinet on the left and right sides. I then peeled back the veneer on both sides of the cabinet applied glue, compressed the joints then put screws through the sides of the cabinet into the runners. The final step was to glue the veneer back into place.

Cabinet Repair Back Right Corner Photos

Back right Corner Split

Back Bottom Right Runner

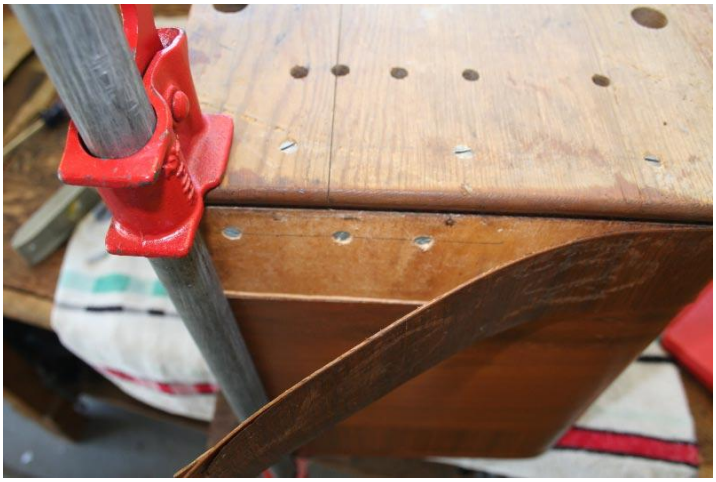
Back Right corner Screws

Back Right Corner Repair

Cabinet Repair Back Left Corner Photos

Back Left corner Split

Left Corner Runner



Back Left Corner Screws

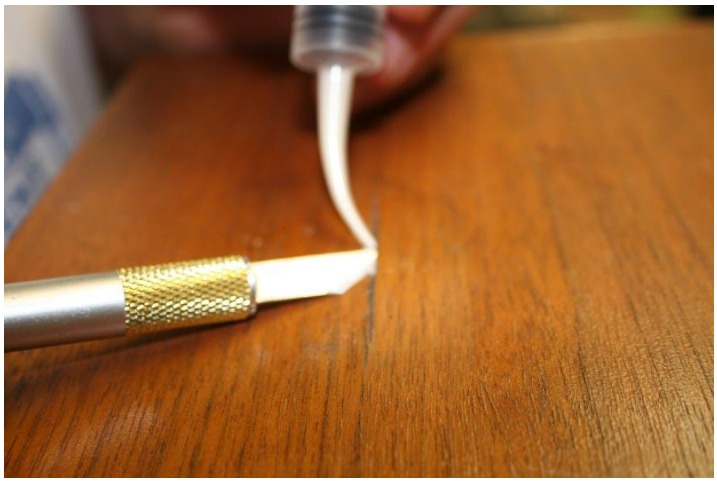
Back Left Corner Repair

Cabinet Repair Top veneer Repair

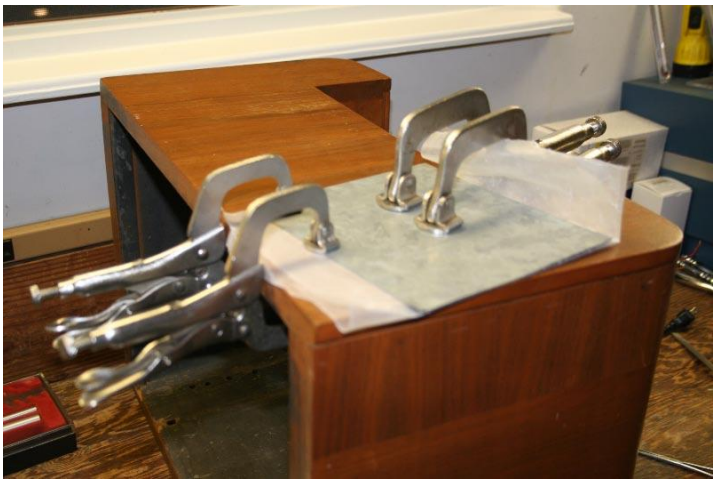
On the top of the cabinet the veneer had split and began to de-laminate. This as well as other problems with the veneer and finish led me to believe that the cabinet and chassis had been exposed to water. To correct this problem, I injected glue under the veneer pushed it down into position then clamped it in place over night.

Cabinet Repair Top veneer Repair Photos

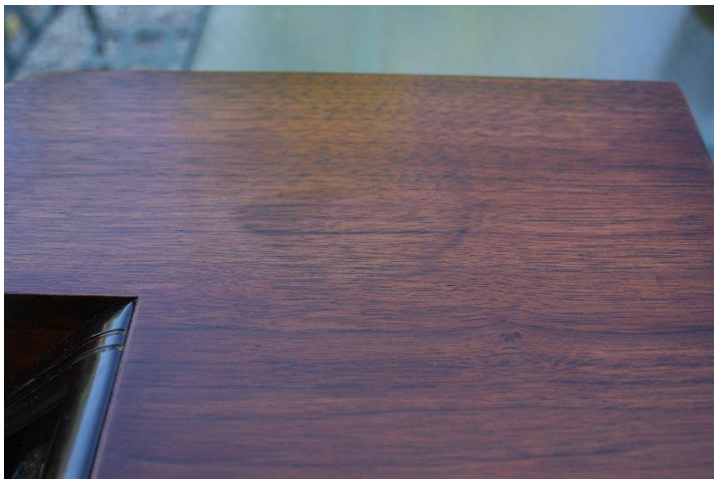
Cabinet Top Veneer Damage



Cabinet Top Veneer Repair



Cabinet Top Veneer Repair

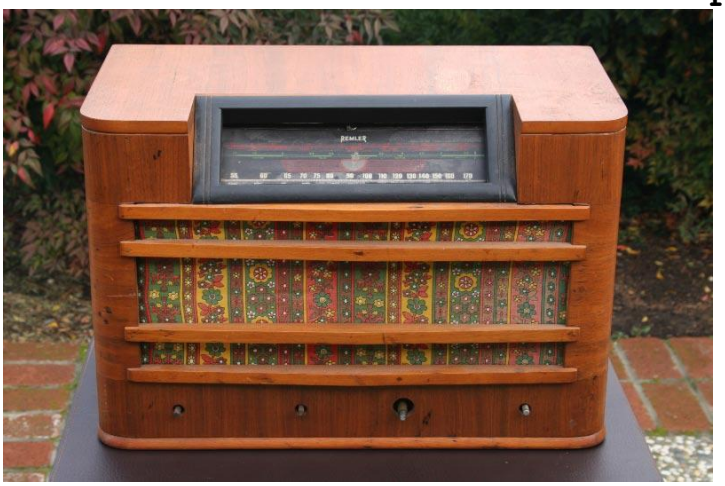


Cabinet Top Refinished

Grill Cloth Replacement

The grill cloth that had been replaced sometime in the history of this radio gave the set a festive look but didn't seem period appropriate. On line my wife found a site that had a great selection of grill cloths. We picked one that we liked that complemented the cabinet.

Grill Cloth replacement Photos



Initial Grill Cloth

New Grill Cloth

Bezel

At sometime the bezel had been painted black. The paint was thick and not evenly applied. After giving some thought on how to remove the paint, I decided to test the bezel material to see if it could withstand paint remover. Much to my surprise the paint remover did not attack the plastic like material. After removing the paint and polishing the bezel, I replaced the missing window with a piece of 1/16” thick acrylic plastic. The final touch was to put gold leaf tape into the trim along the sides of the window.

Bezel Photos

Painted Over Bezel

Restored Bezel

Wooden Speaker Grill

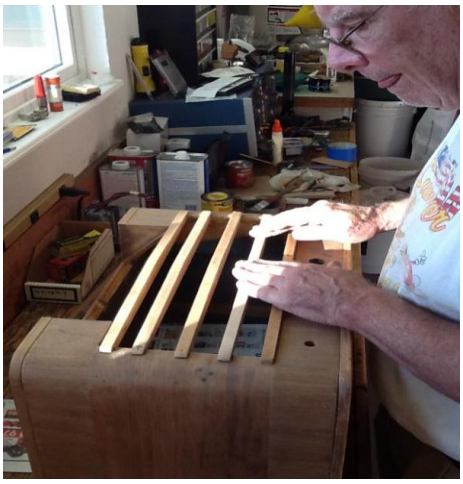
The wooden speaker grill had suffered some damage over the years. One of the 5 horizontal elements was missing; another had broken loose from the cabinet on the right side. The others were barely attached.
In order to replace the missing element, I had to fabricate one. I took one of the grill pieces to a local woodworking shop and tried to match the wood species. I found a piece that closely matched the grain and density of my sample. I then traced the outline of my sample on to the wood and did a rough cut out using a band saw. I contoured the piece to shape using a wood rasp, electric sander and sandpaper.
My final step was to attach the grill pieces to the cabinet, equally spacing them. I used small finishing nails and wood glue to secure them.

Wooden Speaker Grill Photos

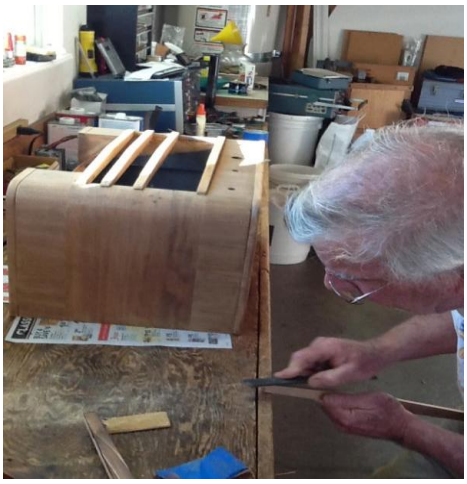
Initial Condition

Initial Condition

Stripped Grill Elements



Positioning Grill Elements



Fabrication a Grill Element

Wooden Speaker Grill Photos

Restored Grill

Back Left Side Veneer Repair

On the back left side of the cabinet the veneer had been damaged. The only way to repair it was to cut out the bad sections and replace them. I found usable pieces of veneer that closely matched the cabinet at CHRS. I then removed the damaged veneer from the cabinet. I matched the grain, sanded and fitted the pieces together. I glued them into position and clamped them overnight. The following day I removed clamps trimmed the pieces and sanded the matching joints.

Back Left Side Veneer Repair Photos

Damaged Veneer

Damaged Veneer Replaced

Damaged Veneer

Damaged Veneer Removed

Back Left Side Veneer Repair Photos

Replacement Veneer Pieces

Replacement Veneer Glued

Veneer Replaced & Finished

Veneer Replaced & Finished

Missing knobs

One of the initial conditions was that all five knobs were missing from the radio. I was fortunate that a fellow CHRS member, Jamie Arbona, has a complete Model 72. Jamie was kind enough to allow me to use his knobs as masters for duplication. Jamie referred me to Larry Bordonaro who had previously cast knobs for other CHRS members. Unfortunately, when I contacted him, he had given up reproducing knobs due to health issues. I then searched the Internet looking for someone that could do castings. Again, I was fortunate that I found someone locally that was in the business of mould making and casting. It took less than a week and I had the replacement knobs I needed.

Missing knobs photos

Initial condition no knobs

New Knobs Installed


Remler Model 72
Completed Restoration
Elmo Giovannetti
January 2013

REMLER COMPANY, LTD.

MODEL 72
Beg.Ser.104459
Schematic, Voltage
Alignment, Data

SERVICE DATA

The following tubes are used in this receiver:

1	6K7	R.F. Amplifier
1	6L8	Mixer
1	6F8	Oscillator
1	6K7	I.F. Amplifier
1	6H6	Diode Detector
1	6K7	A.F. Amplifier
2	6F6	Power Amplifiers
1	6G5	Tuning Indicator
1	5Z4	Full-wave Rectifier

The R.F. Mixer and Oscillator coils are located in the square shields on the right end of the chassis. Trimmers for these circuits are mounted along the axe of the chassis in the following order from front to rear:- R.F. short-wave, Mixer short-wave, Oscillator broadcast, Oscillator medium wave, Oscillator short-wave. The R.F. broadcast and the Mixer broadcast trimmers are mounted on the band switch assembly.

Oscillator pads are located at the rear of the chassis. The broadcast pad is nearest the end of the chassis and the medium wave next.

Trimmers for the I.F. transformers are adjustable thru holes in the I.F. transformer shield cans. The I.F. frequency is 450 K.C.

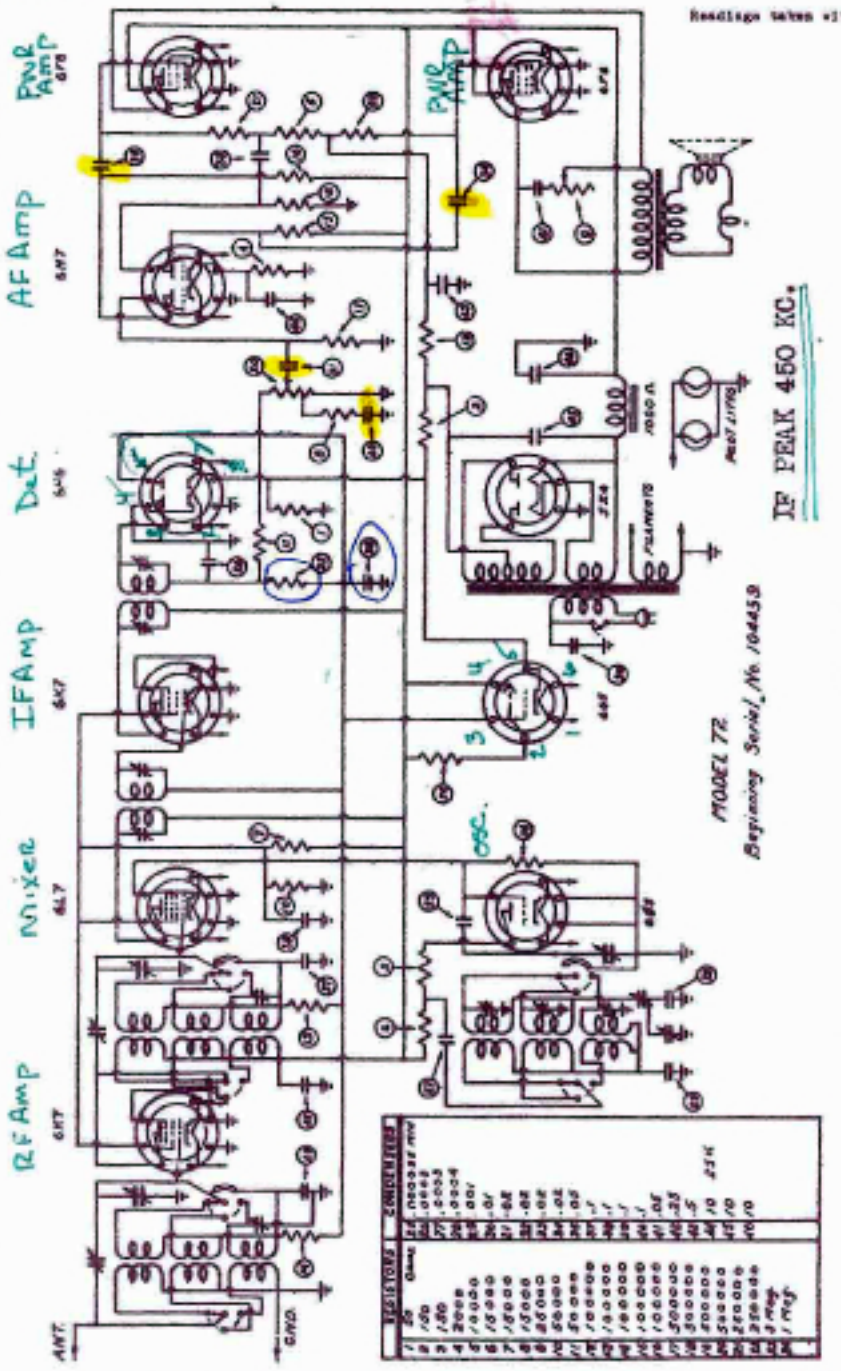
A.C. Voltages

Line	180 Volts
Heater 5Z4 rectifier	5.00 "
Other Heaters	6.00 "

D.C. Voltages
From ground to:-

5Z4 Rectifier	240 Volts
6F8 Plate	225 "
6F8 Screen	240 "
6F8 Bias Supply	17.5 "
6H6 Audio plate	130 "
6H6 Bias	-5 "
6K7 I.F. plate	240 "
6K7 I.F. screen	180 "
6K7 I.F grid bias	-4.5 "
6L8 Mixer plate	240 "
6L8 Mixer screen	180 "
6L8 Mixer grid bias	-4.5 "
6K7 R.F. plate	240 "
6K7 R.F. screen	180 "
6K7 R.F. grid bias	-4.5 "
6F8 Oscillator plate	150 "
6G5 Tuning Indicator plate	240 "

Readings taken with 1000 ohm per volt meter.



MODEL 72

This is a ten tube all-wave receiver with metal tubes. It is designed to operate from a 110 to 125 volt, 50 or 60 cycle power supply.

TUNING RANGES

The lower scale of figures on the dial is the calibration for the broadcast range which extends from 540 to 1715 kilocycles. The medium wave range is indicated by the middle scale of figures which are colored green. This range covers from 1.7 megacycles to 5.7 megacycles and includes the amateur, police and aircraft bands. The upper red scale is the short-wave range and extends from 5.7 to 18 megacycles. The various foreign and American short-wave broadcast bands are included on this range and are denoted by the descriptions on the scale.

OPERATION

With the line cord connected, turn the volume control to the right. The dial should light up brightly. Allow about half a minute for the tubes to warm up and turn the selector knob until the desired program is heard. If too loud reduce the volume by turning its volume control to the left. For best quality the selector should be adjusted for minimum shadow in the tuning indicator which is located in the center of the dial.

INSTALLATION

When a standard antenna is used, the length should be from 25 to 100 feet. Connect to the blue wire extending from the back of the receiver. The antenna lead-in should be kept clear of all metal objects, such as pipes and wires, so should be run in as straight a line as possible. An indoor antenna may be used for local reception or when the receiver is used in an isolated wooden building. Superior performance on short waves will result from the use of a well constructed doublet antenna, or short wave antenna system. Such antennas are available on the market in kit form with complete instructions for their installation.

A good ground is essential for clearest reception. Connect the black wire to a pipe or water pipe. The pipe should be scraped clean before attaching the wire.

REMLER COMPANY, LTD.

MODEL 72
Beg.Ser.104459
Schematic,Voltage
Alignment,Data

SERVICE DATA

The following tubes are used in this receiver:

1 6K7 R.F. Amplifier
1 6L7 Mixer
1 6C5 Oscillator
1 6K7 I.F. Amplifier
1 6H6 Diode Detector
1 6K7 A.F. Amplifier
2 6F6 Power Amplifiers
1 6G5 Tuning Indicator
1 5Z4 Full-wave Rectifier

The R.F. Mixer and oscillator coils are located in the square shields on the right end of the chassis. Trimmers for these circuits are mounted along the end of the chassis in the following order from front to rear:- R.F. short-wave, Mixer short-wave, Oscillator broadcast, Oscillator medium wave, Oscillator short-wave. The R.F. broadcast and the mixer broadcast trimmers are mounted on the band switch assembly.

Oscillator pads are located at the rear of the chassis. The broadcast pad is nearest the end of the chassis and the medium wave next.

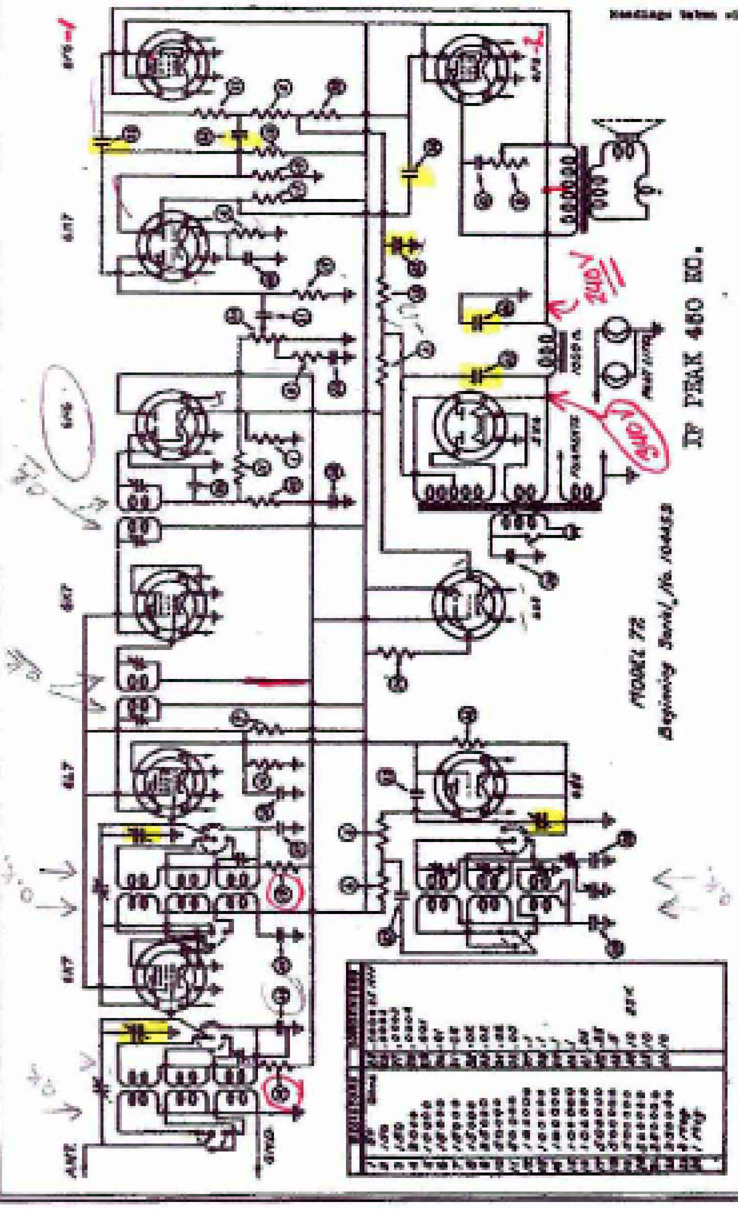
Trimmers for the I.F. transformers are adjustable thru holes in the I.F. transformer shield cans. The I.F. frequency is 460 K.C.

A.C. Voltages
- Line — 120 Volts
- Heater 5Z4 Rectifier — 5.00 "
- Other Heaters — 6.30 "

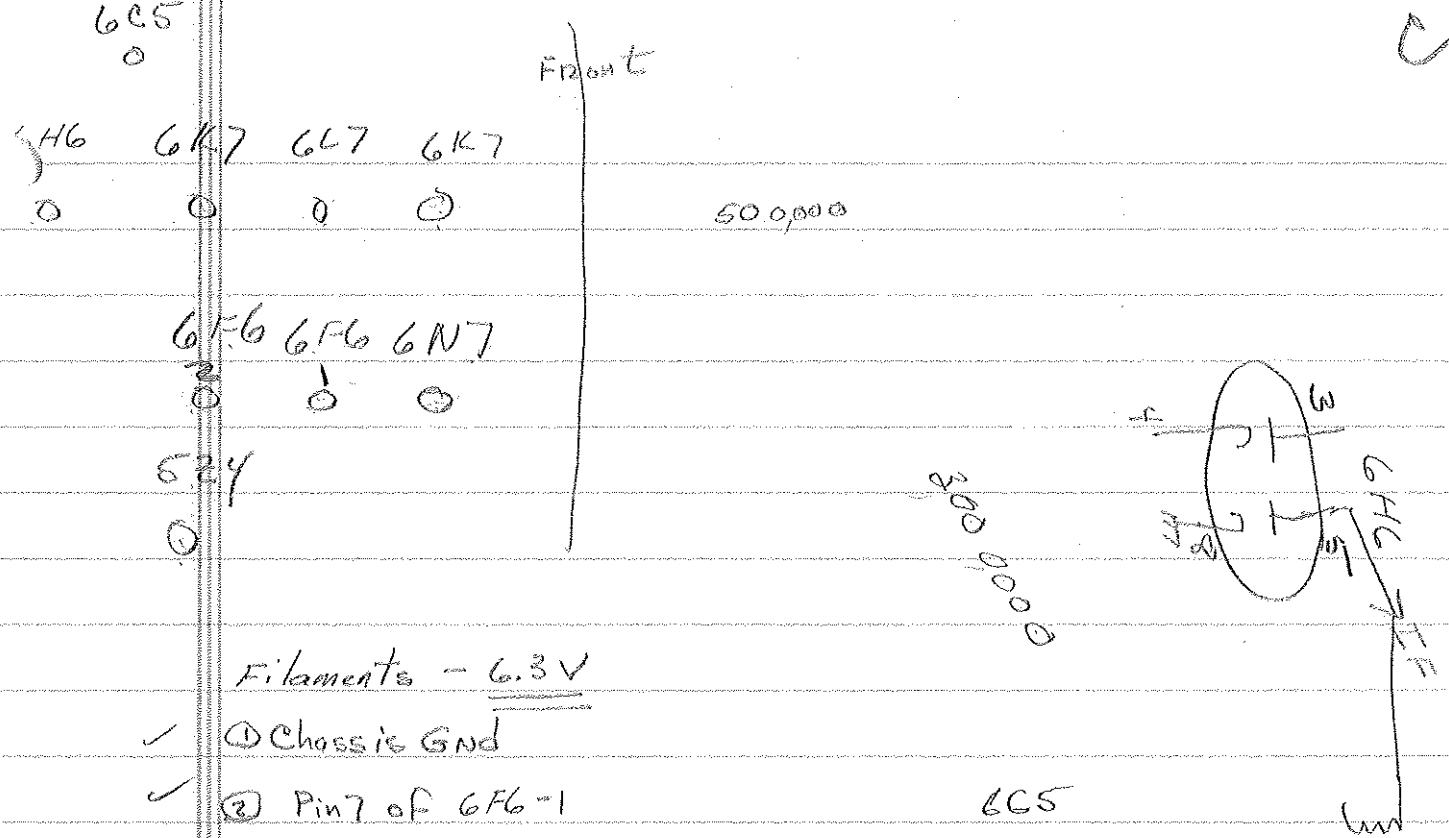
D.C. Voltages
From ground to:-

5Z4 Rectifier	340	Volts
6F6 Plate	[illegible]	"
6F6 Screen	[illegible]	"
6F6 Bias supply	17.5	"
6K7 Audio plate	130	"
6K7 Bias	-3	"
6K7 I.F. plate	240	"
6K7 I.F. Screen	100	"
6K7 I.F grid bias	-1.5	"
6L7 Mixer plate	240	"
6L7 Mixer screen	100	"
6L7 Mixer grid bias	-1.3	"
6K7 R.F. plate	240	"
6K7 R.F. screen	100	"
6K7 R.F. grid bias	-1.5	"
6C5 Oscillator plate	130	"
6G5 Tuning Indicator plate	240	"

Readings taken with 1000 ohm per volt meter.



MODEL 72



Filaments - 6.3V

✓ ① Chassis Gnd

✓ ② Pin 7 of 6F6-1

B+

✓ GND - Junction R19 & R2

✓ B+ - Pin 4 of 6F6 - Cap 46

6C5

Fil 1 & 6

Grid 3

Plate 2

Plate 4

Cathode 5

Wire ID's

#1 - Pin 2 6F6-1 - Fil Gnd for eye tube #pin 1

#2 Pin 7 6F6-1 - Fil supply for eye tube - Also fil supply input from X formal.

#3 Pin #4 6F6-2 B+ for eye tube (pin #4) Target

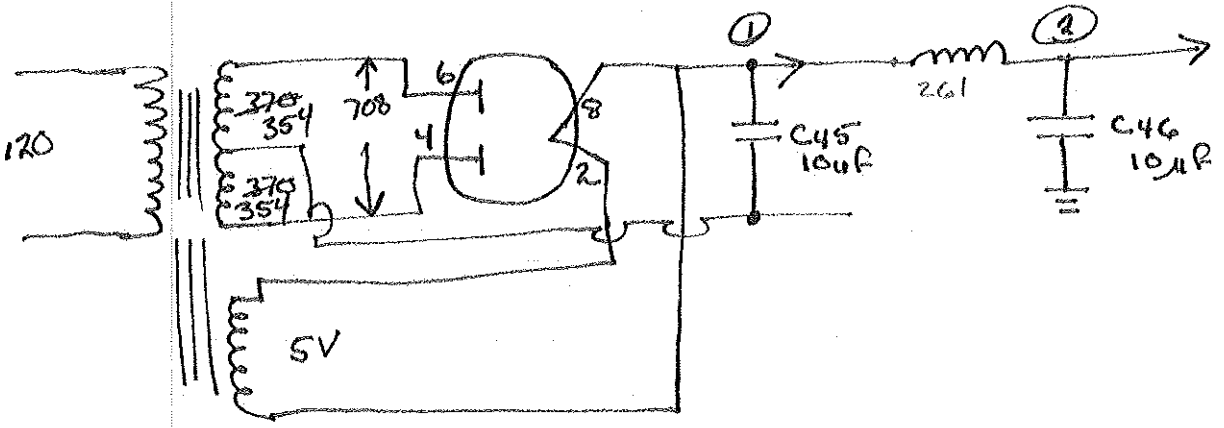
#4 Junctions R1 - R2 - Cathode of eye tube Pin #5

#5 Pin #3 6H6 - Grid of eye tube pin 3

3-30-12

Rectifier Analysis - 5Z4

* Variac Controlled
Line Volts 120

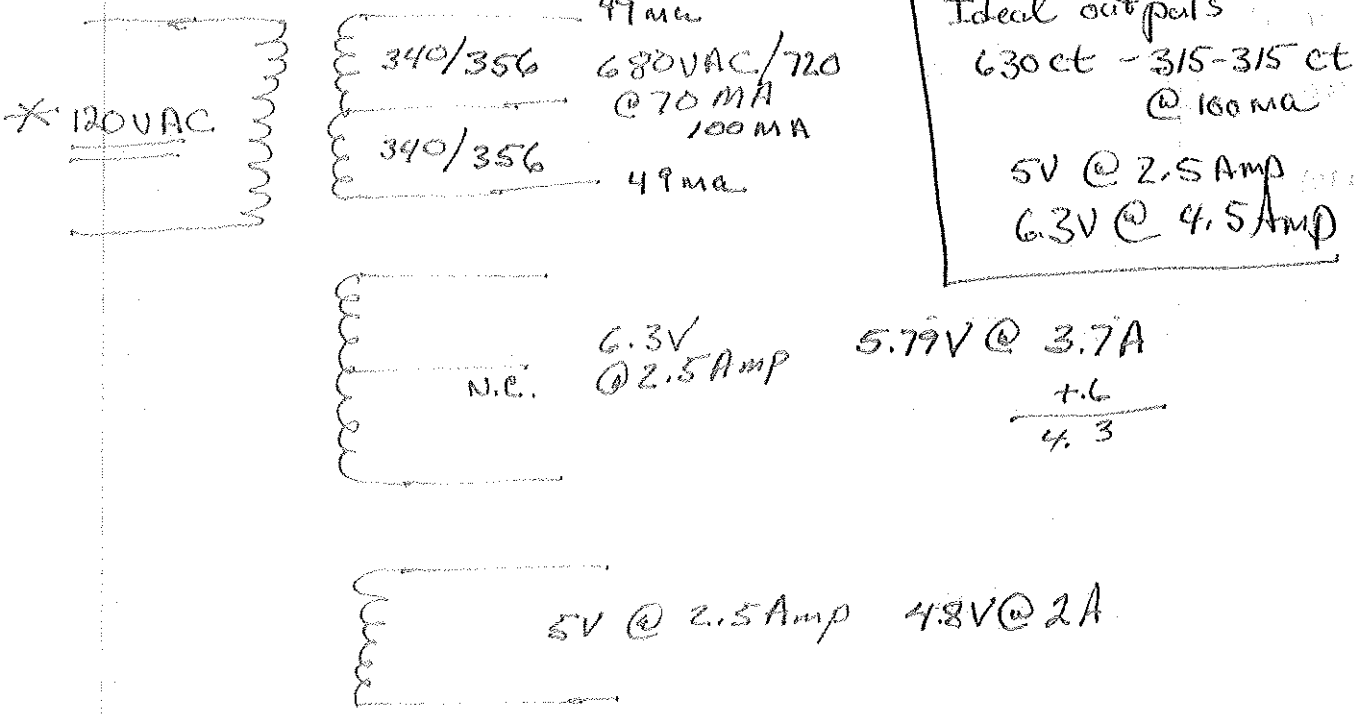


① Rectifier output 376 395V - SB 340V

② output of filter 269 269V - SB 240V 125V ②

C

Power Trans - Triad # R-115A



Red - measured values

Notes

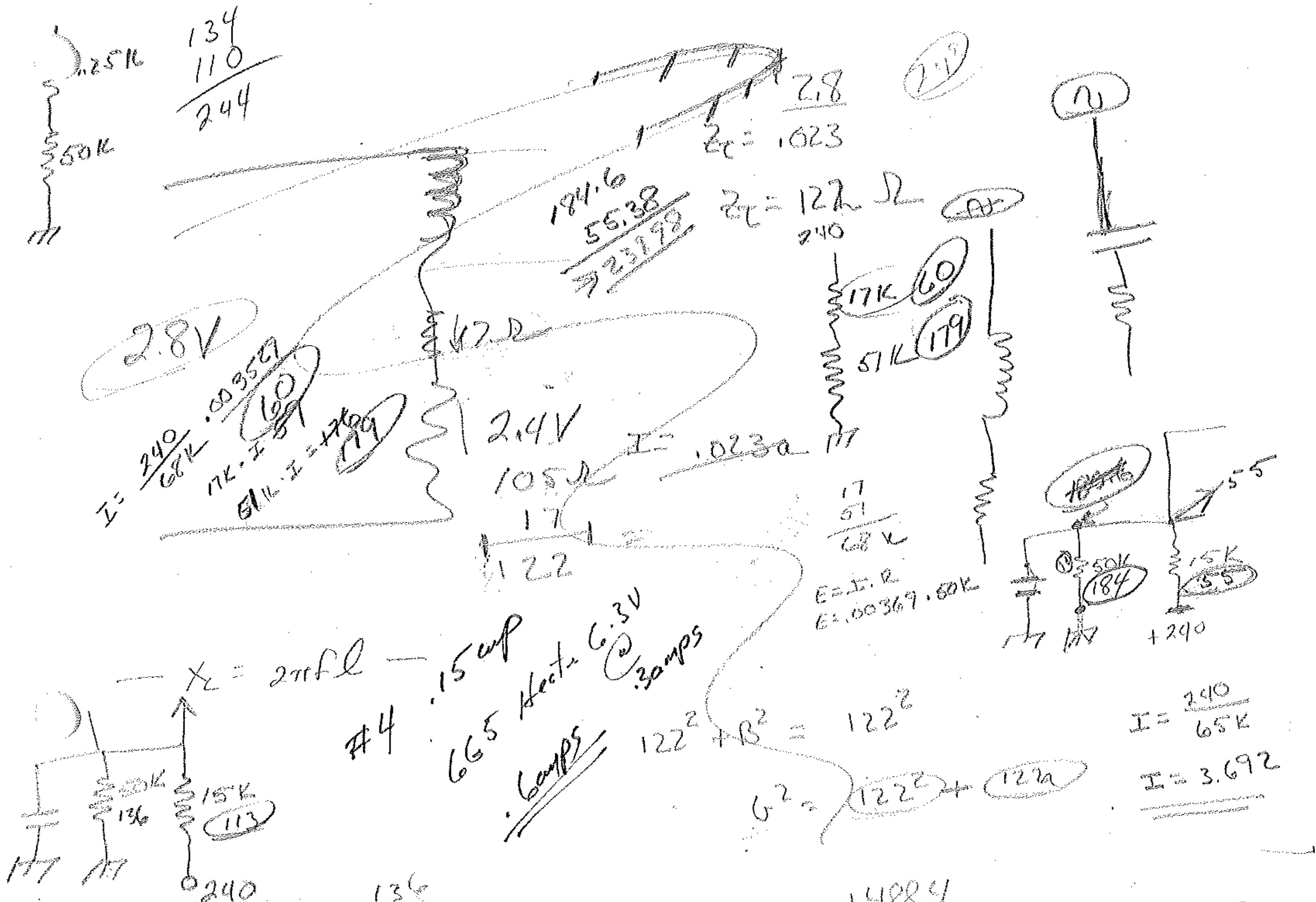
(1) 6.3V overloaded - this measurement does not include Pilot lamp & 6G5 Filament currents
(2) 6G5 - Heater 6.3V @ .3Amp
(3) #4 Pilot lamps = 6.3V @ .150mpa

Possible Replacement transformers

(1) www.hammondmfg.com/23263.htm

#276X - 640ct - 5Vct - 6.3ct
172ma 3A 5A

Gwks C



R7 = 15K C39 = .1mF 400V

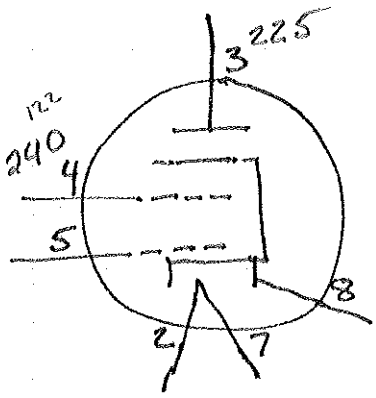
R10 = 50K

To Look at:

1. Determine ideal PWR Xformer –
2. Are Voltages better when B+ is set at 240? – yes!
3. Are Voltages better when B+ is set at 240? – ~~yes~~ Are Voltages ... 6K7-IF, 6L7, 6K7-RF (R7, R10, C39)
4. Check out low screen volts on 6K7-IF, 6L7, 6K7-RF (R7, R10, C39)

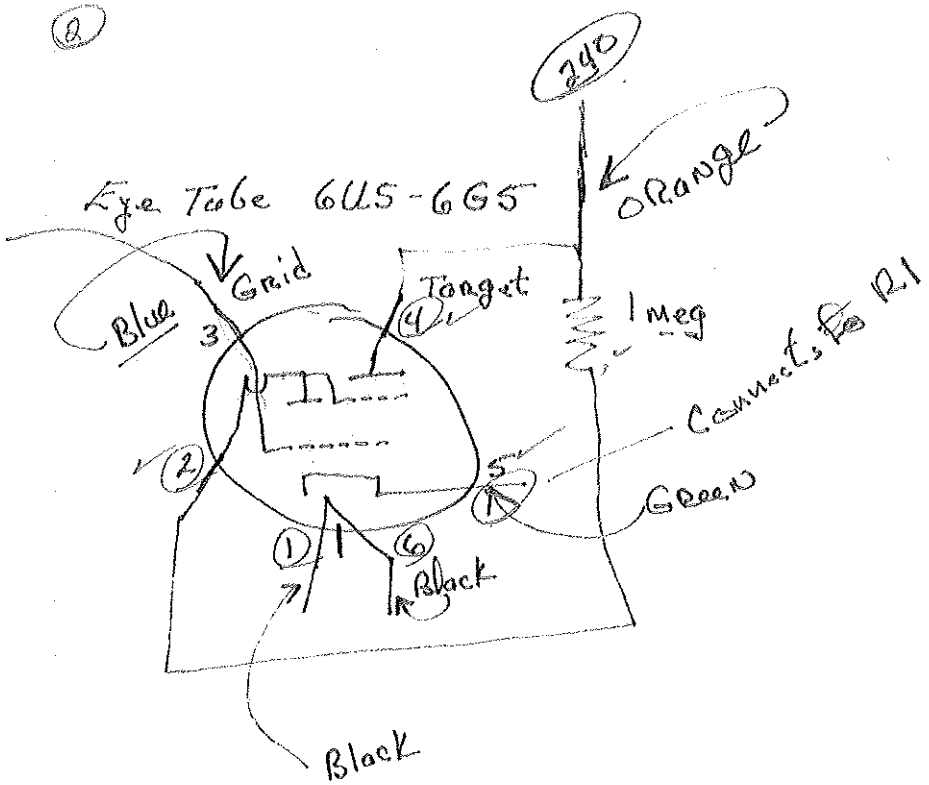
3-30-12

Audio Output Analysis – 6F6

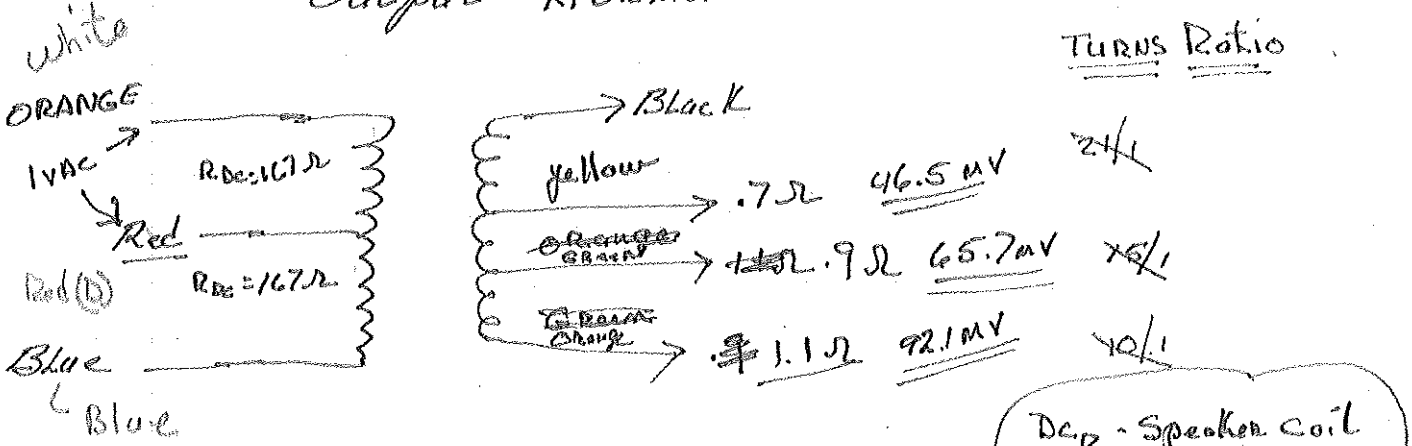


① Are both tubes driving the output tube? Yes

②



output Xformer # TO-110



43.0 — 1 Bl.-Yell = 14,729

30.2 — 1 Bl.-Green 7,296

21.6 — 1 Bl. Orange 3732

$(x^2)(8) = 10k$

$x^2 = \frac{10k}{8}$

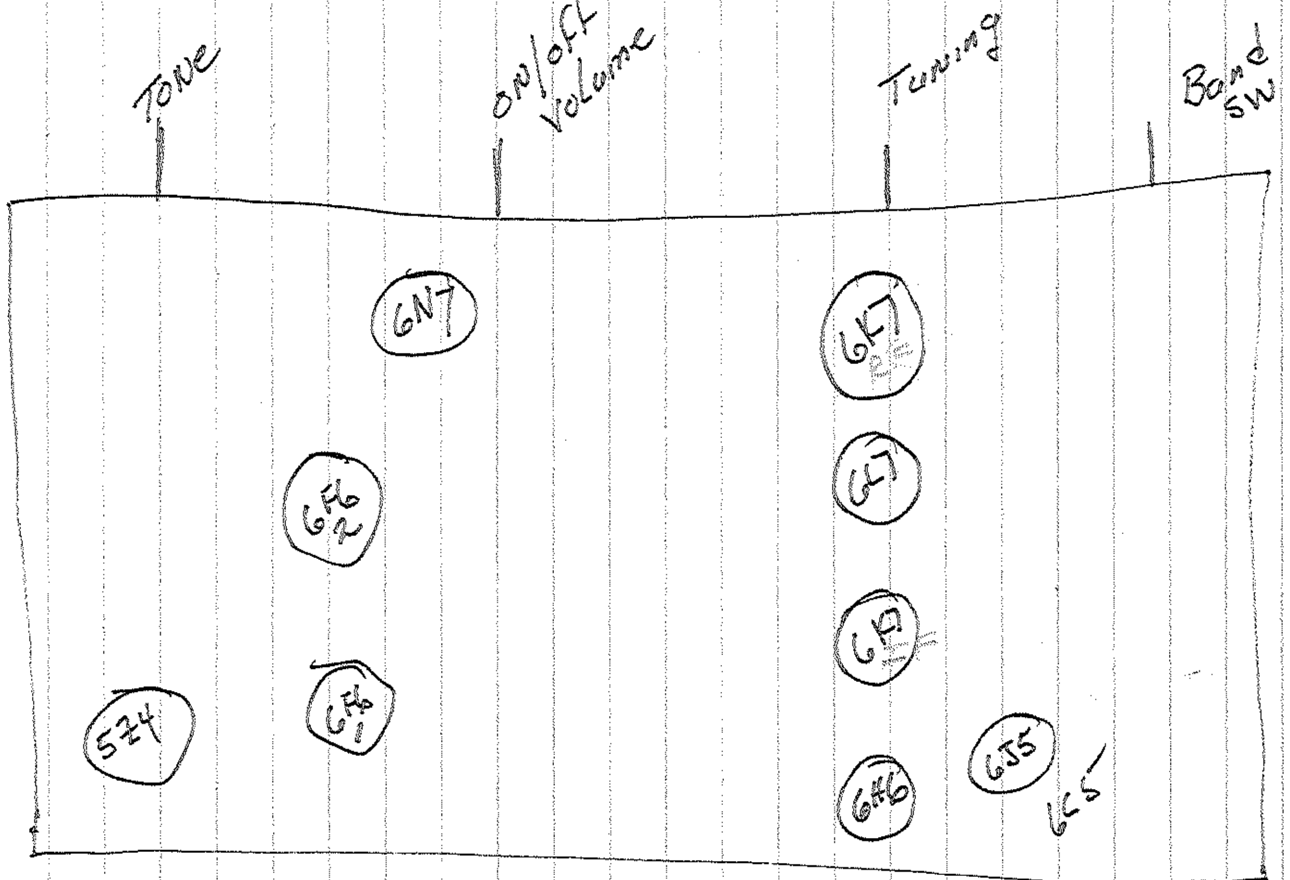
$x^2 = 1250$

$x = \sqrt{1250} =$

$x = 36\Omega$ tr = 36-1

$\sqrt{\text{Turns Ratio}} = Z$

$Z_p = TR^2$



TONE
ON/OFF Volume
Tuning
Band SW
6N7
6F6 2
6F6 1
5Z4
6K7
6F7
6A7
6H6
6J5
6C5

Bottom View

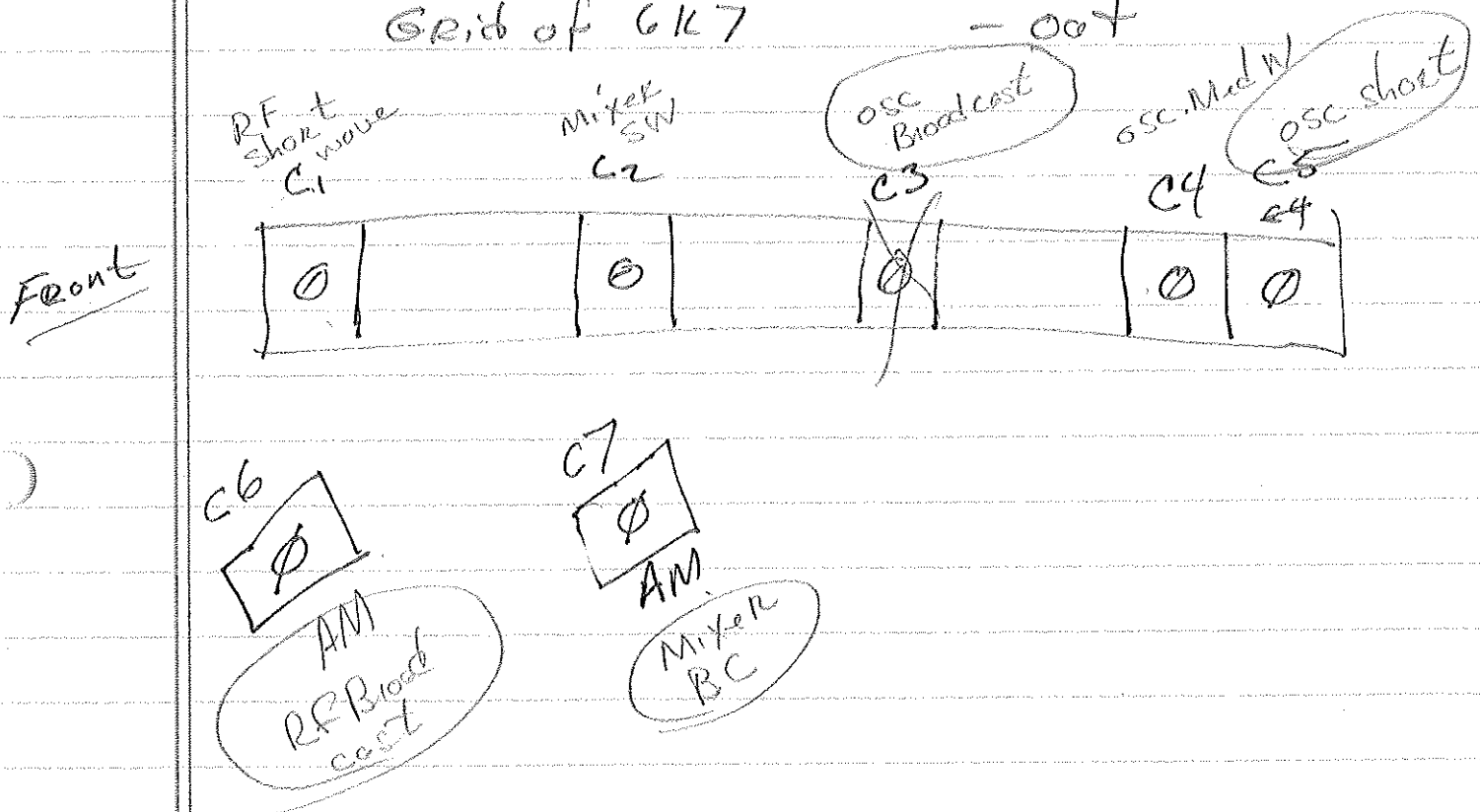
560
450
1010

650
450
1100

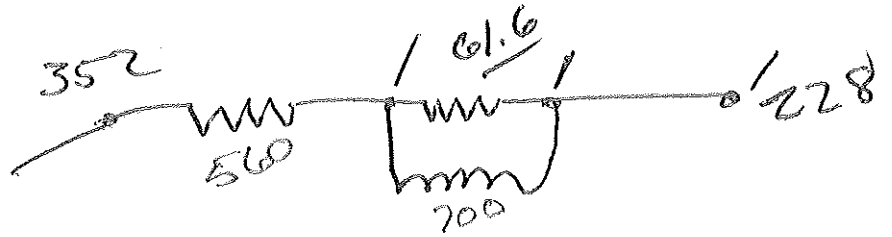
C

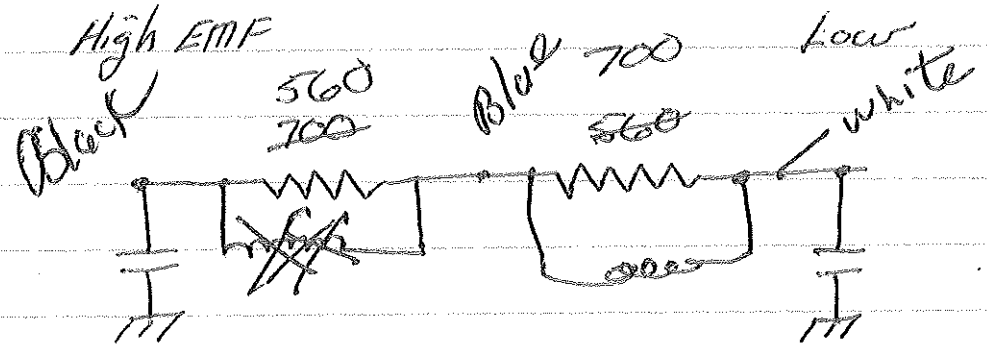
fully closed 486.66 KHz

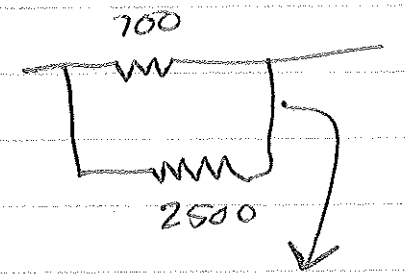
IF - Plate of 6K7 pin 3 - input
Grid of 6K7 - out



1024.6



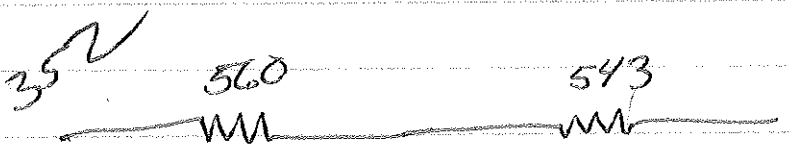


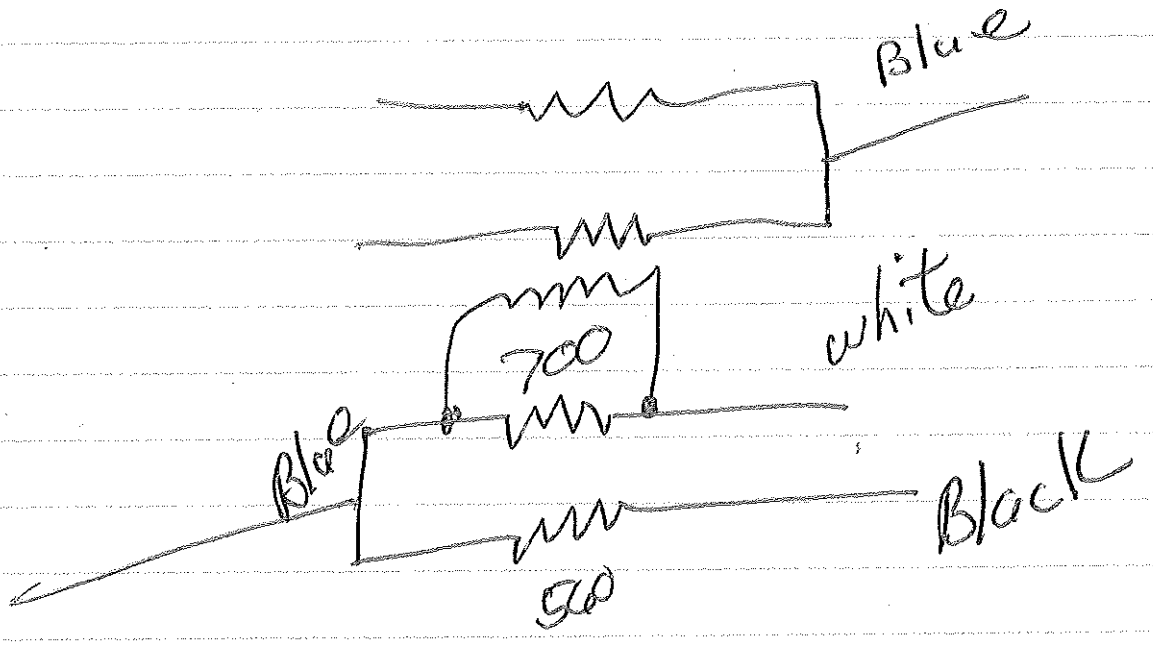


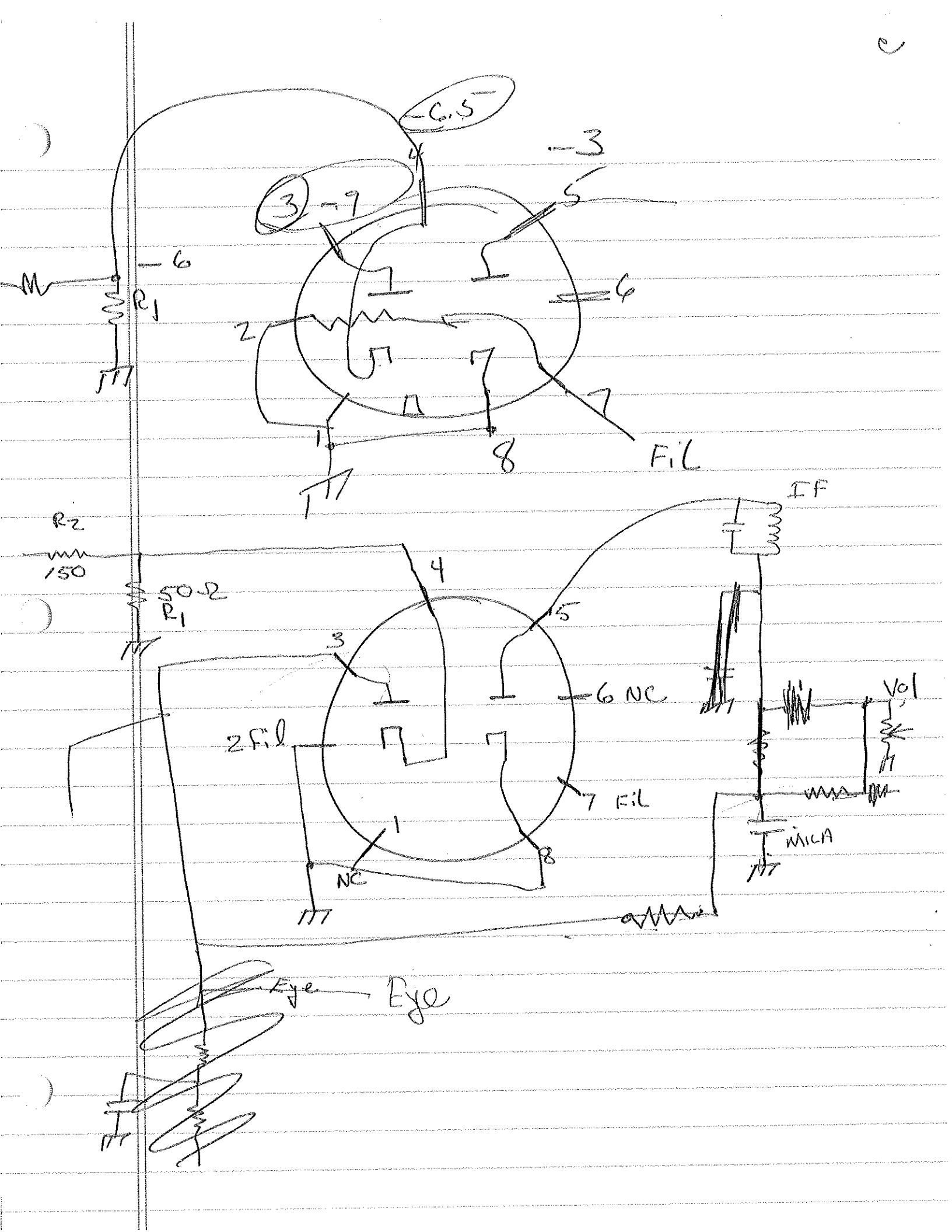
$R_L = 543$

560

1103



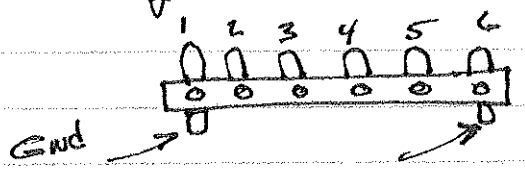



C, S
4
3
3-7
5
6
R1
2
6
1
8
Fil
1
R2
150
50Ω
R1
IF
4
5
3
6 NC
2 Fil
7 Fil
1
NC
8
Vol
MICA
Eye
Eye

1-30-12

Lug strip Replacement

Original



#1 - Blank

#2 - R18 → To R2

C43

To Junction OR R5 & R22

#3

To line cord PWR Sw (Ref.)

PWR ~~Sw~~ Xformer

#4 - ? missing (Think not used, Separation of PWR CKT)

#5 → To line

To PWR Sw

R17 500K → 6N7 - Pin 4

R18 500K → 6N7 - Pin 5

#6 Grounded