

Restoring Old Electronics

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RF Electronics Consulting

Sarnoff Collection Volunteer

Radio receivers

Household: AM, FM, both

Short wave & communications

TV receivers

Audio/Hi-Fi equipment

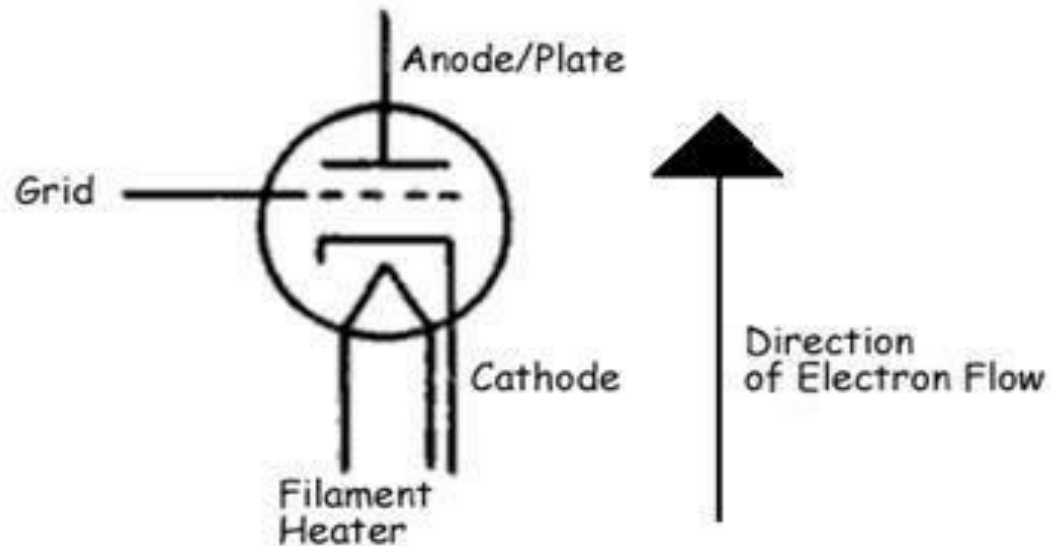
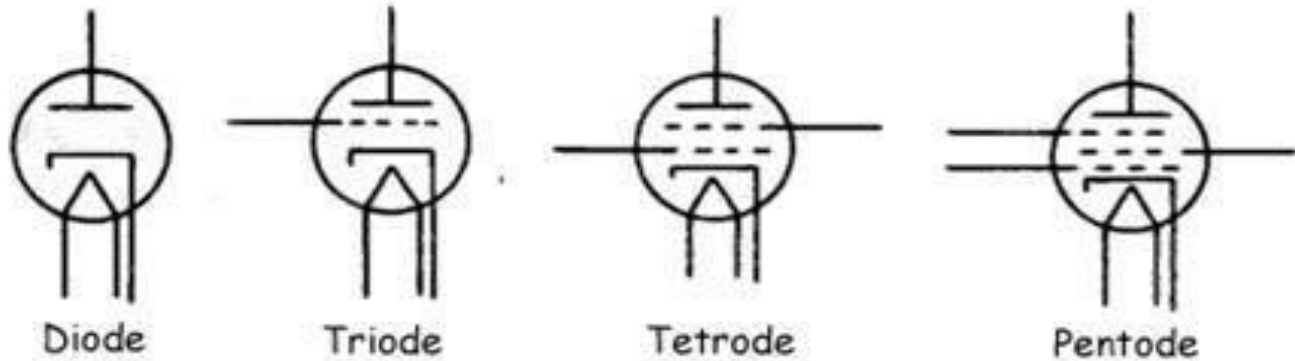
Phonographs

Tuners, AM, FM, both

Preamps, Power amps

(Test Equipment & Lab instruments, Mil. Surplus)

Vacuum Tubes



Tube Bases



Old style



Octal



7-pin mini

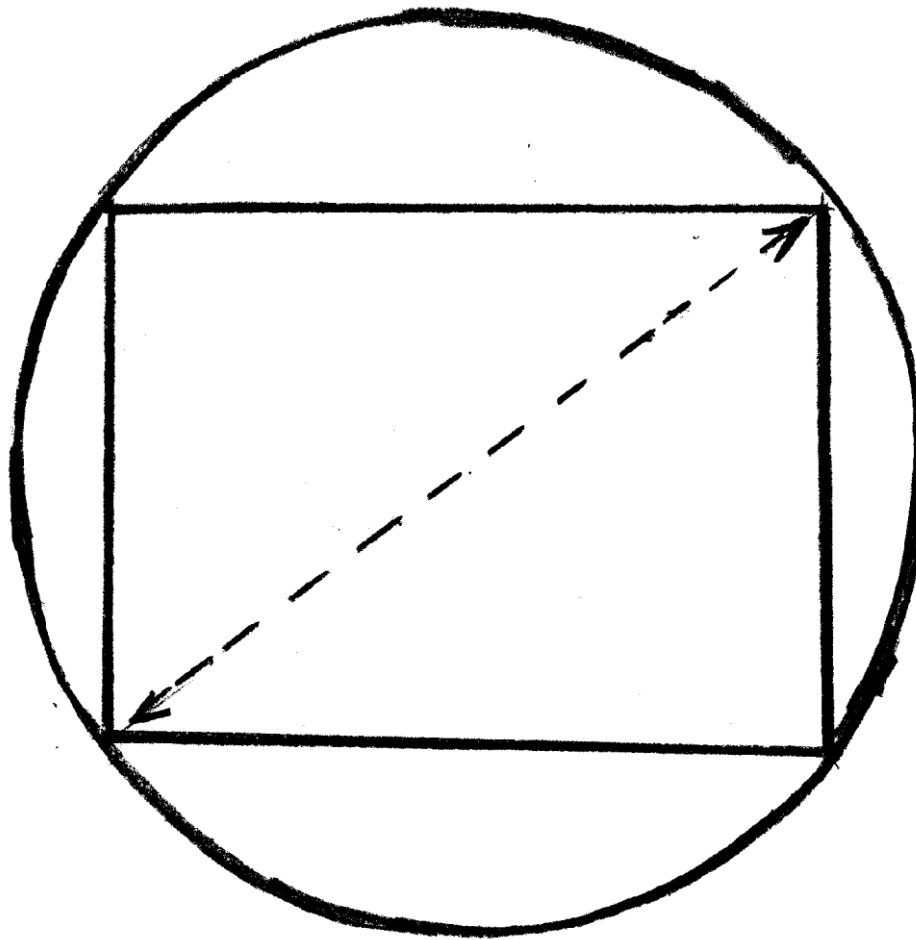


9-pin mini

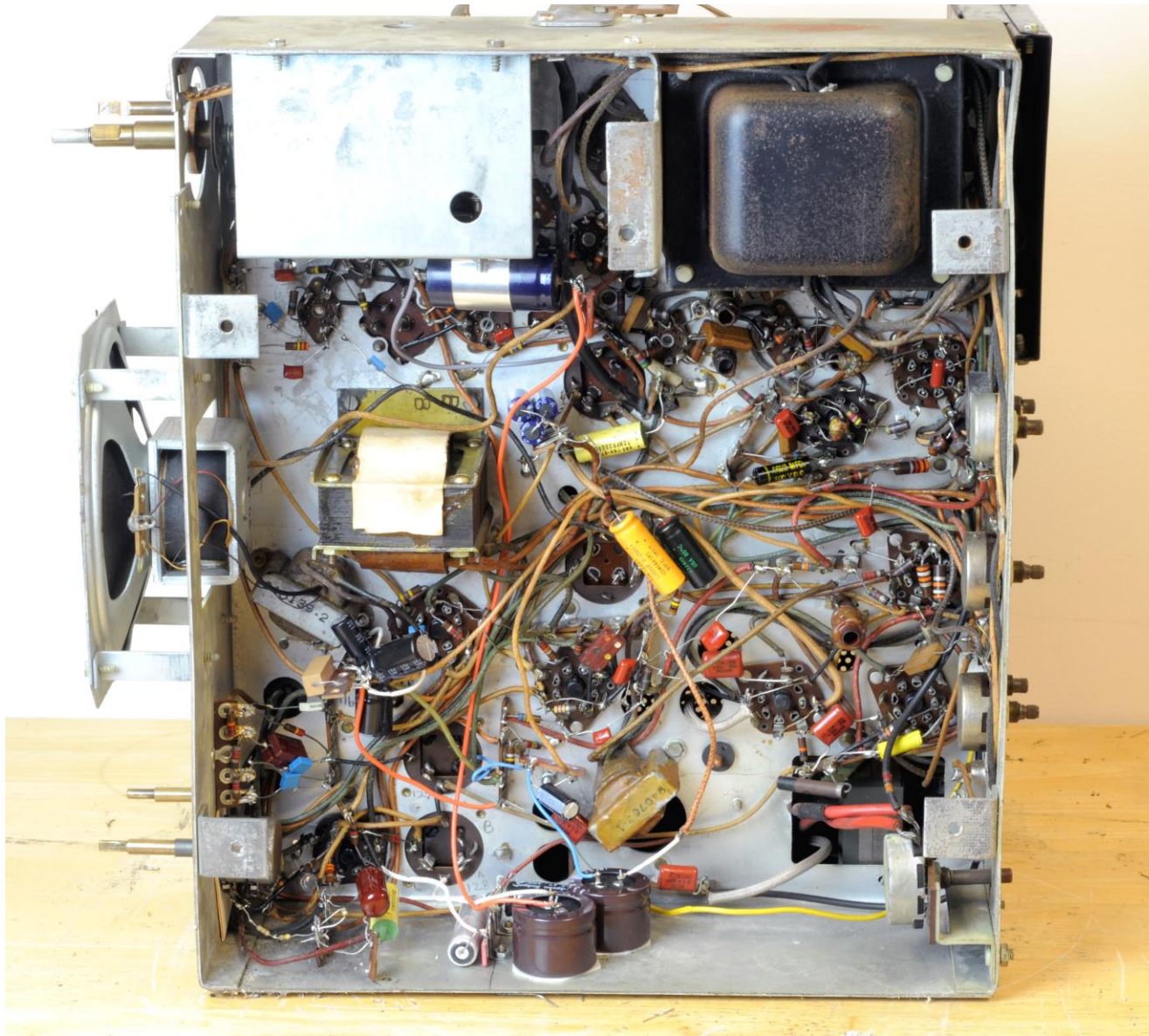
RCA 621TS (1946)



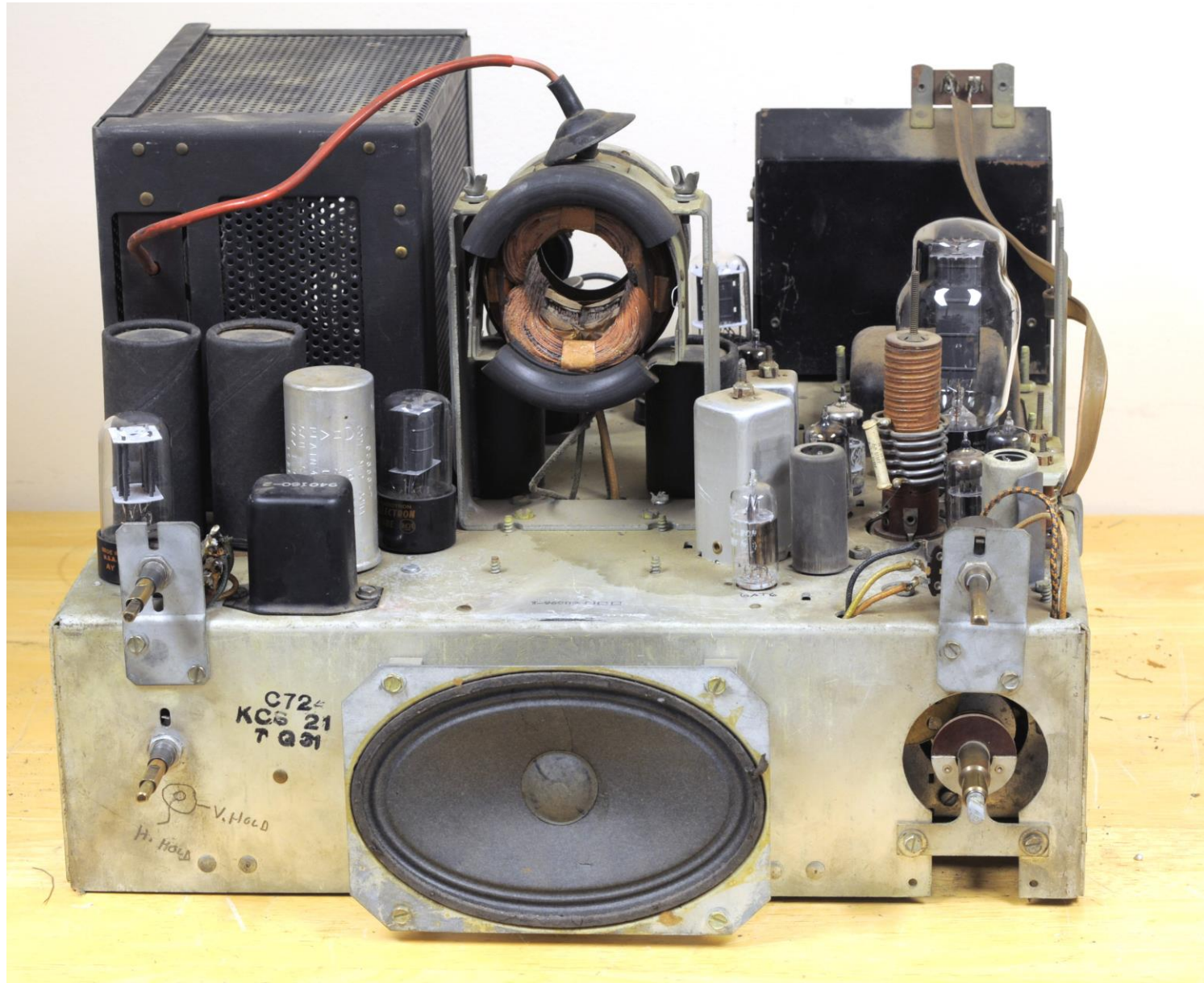
Why Screens Use Diagonal Measure



RCA TV 621TS Bottom



621TS Front View

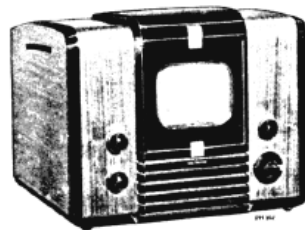


Rider Service Manual Sample Pages

TV PAGE 1-44 RCA

MODEL 621TS,
CHASSIS KCS-1

RADIO CORP. OF AMERICA



Model 621TS

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE..... $4\frac{1}{4}'' \times 5\frac{5}{8}''$ — $1\frac{1}{8}''$ radius at corner

RADIO FREQUENCY RANGES

Channel Number	Channel Freq. Mc	Picture Carrier Freq. Mc	Sound Carrier Freq. Mc	Receiver R-F Osc. Freq. Mc
1	44-50	45.25	49.75	71
2	54-60	55.25	59.75	81
3	60-66	61.25	65.75	87
4	66-72	67.25	71.75	93
5	76-82	77.25	81.75	103
6	82-88	83.25	87.75	109
7	174-180	175.25	179.75	201
8	180-186	181.25	185.75	207
9	186-192	187.25	191.75	213
10	192-198	193.25	197.75	219
11	198-204	199.25	203.75	225
12	204-210	205.25	209.75	231
13	210-216	211.25	215.75	237

FINE TUNING RANGE

Plus and minus approximately 300 kc on channel 1, and plus and minus approximately 750 kc on channel 13.

POWER-SUPPLY RATING

115 Volts..... 60 cycles, 220 watts

AUDIO POWER-OUTPUT RATING

Undistorted..... 2 watts

Maximum..... 3 watts

LOUDSPEAKER (92565-1)

Type..... 6×4 inch Electro Magnet Dynamic
Voice-Coil Impedance..... 3.2 ohms at 400 cycles

WEIGHT

Chassis with Tubes in Cabinet..... 60 lbs.

Shipping Weight..... 75 lbs.

RECEIVER ANTENNA INPUT IMPEDANCE..... 300 ohms balanced

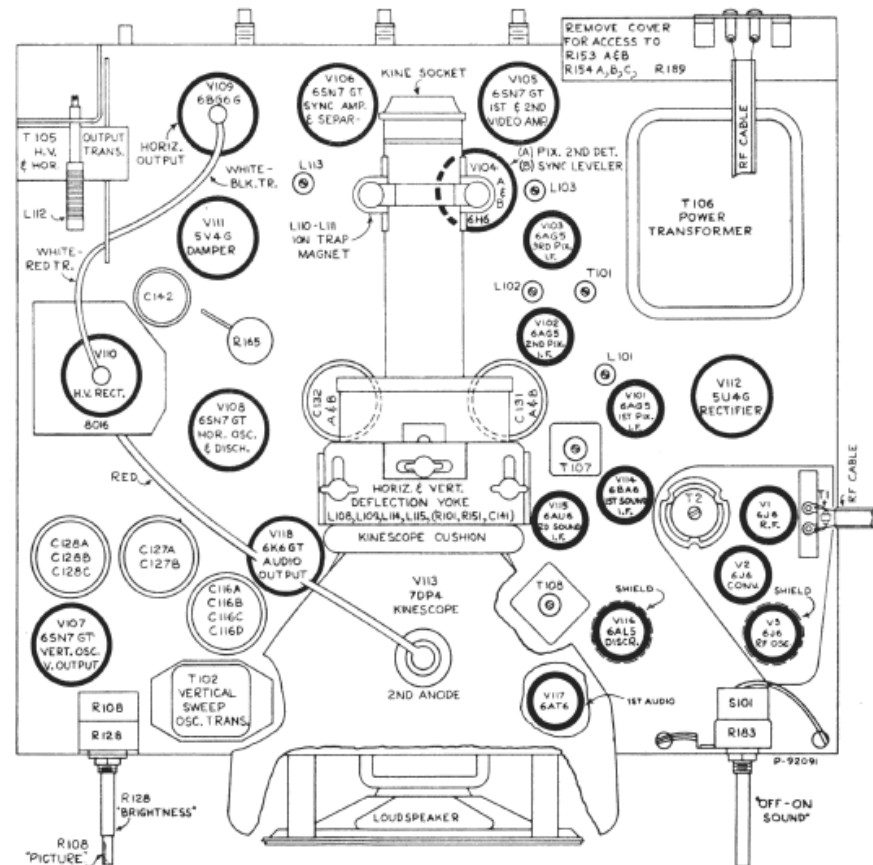
DIMENSIONS (inches)	Length	Height	Depth
Cabinet (Outside).....	19	15 $\frac{1}{2}$	16 $\frac{1}{2}$
Chassis Base (Outside).....	15 $\frac{1}{2}$	4 $\frac{1}{2}$	12 $\frac{1}{2}$
Chassis Overall.....	15 $\frac{1}{2}$	10 $\frac{1}{2}$	15 $\frac{1}{2}$

RCA TUBE COMPLEMENT

Tube Used	Function
(1) RCA 616.....	R-F Amplifier
(2) RCA 616.....	R-F Oscillator
(3) RCA 616.....	Converter
(4) RCA 6BA6.....	1st Sound I-F Amplifier
(5) RCA 6AU6.....	2nd Sound I-F Amplifier
(6) RCA 6AL5.....	Sound Discriminator
(7) RCA 6AT6.....	1st Audio Amplifier
(8) RCA 6K6-GT.....	Audio Output
(9) RCA 6AG5.....	1st Picture I-F Amplifier
(10) RCA 6AG5.....	2nd Picture I-F Amplifier
(11) RCA 6AG5.....	3rd Picture I-F Amplifier
(12) RCA 6H6.....	Picture 2nd Detector and Sync Leveler
(13) RCA 6SN7-GT.....	1st and 2nd Video Amplifier
(14) RCA 6SN7-GT.....	Sync Amplifier and Sync Separator
(15) RCA 6SN7-GT.....	Vertical Sweep Oscillator, Discharge and Vertical Sweep Output
(16) RCA 6SN7-GT.....	Horizontal Sweep Oscillator and Discharge
(17) RCA 6BG6-G.....	Horizontal Sweep Output
(18) RCA 5V4-G.....	Damper
(19) RCA 1B3-GT/8016.....	High Voltage Rectifier
(20) RCA 5U4-G.....	Power Supply Rectifier
(21) RCA 7DP4.....	Kinescope

* In some units, an RCA 6AT6 is used.

CHASSIS TOP VIEW

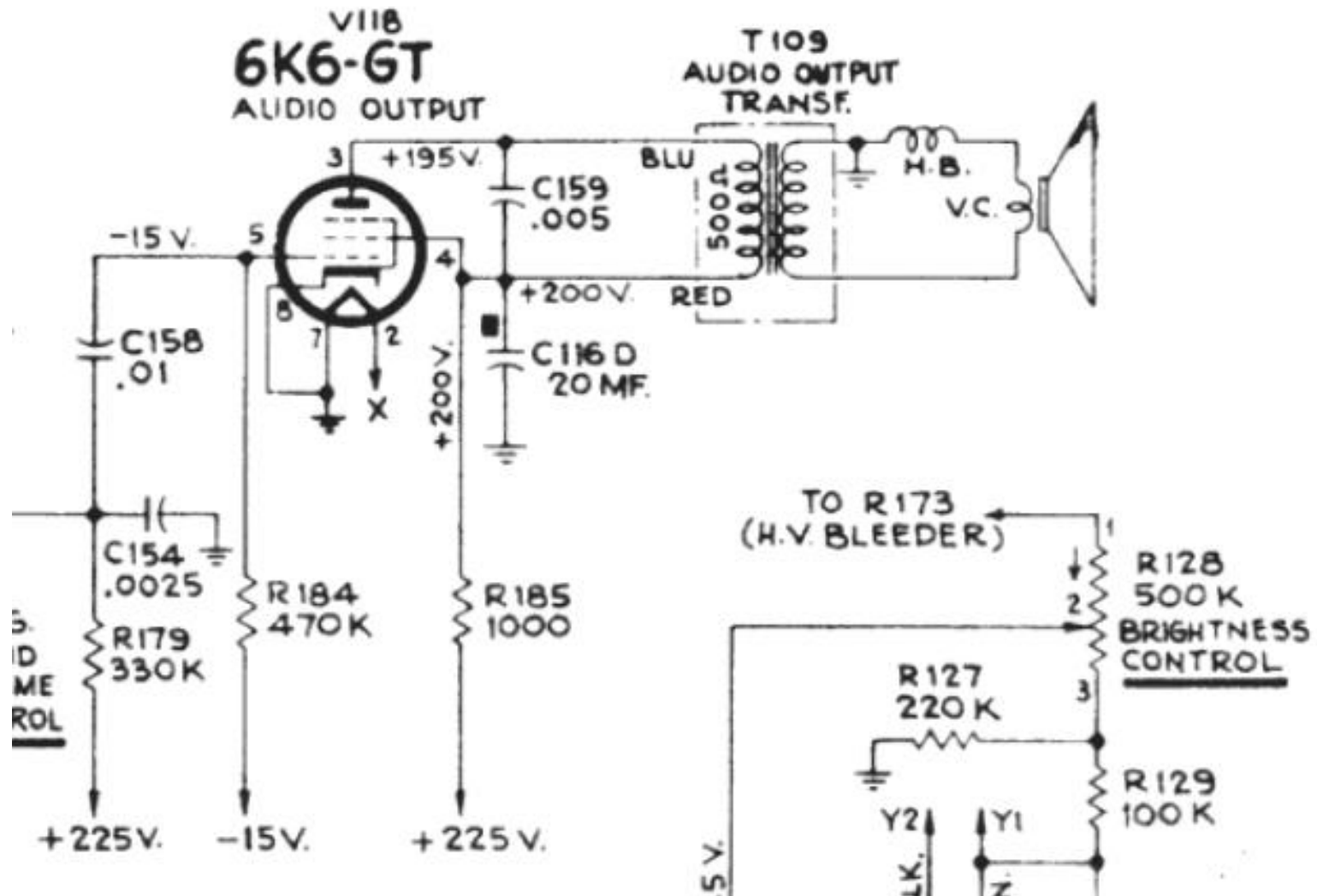


NOTE: On some units, V116 is a 6AT6 (see schematic diagram).

Figure 40—Chassis Top View (Showing Location of Major Components)

MODEL 62

MODEL 02115



Basic Tool Kit



Test Instruments

VOM (Multimeter) or DMM (Manual may specify 20k/v or VTVM)

Oscilloscope

Signal generator

Variac

Isolation transformer (Especially for AC/DC sets)

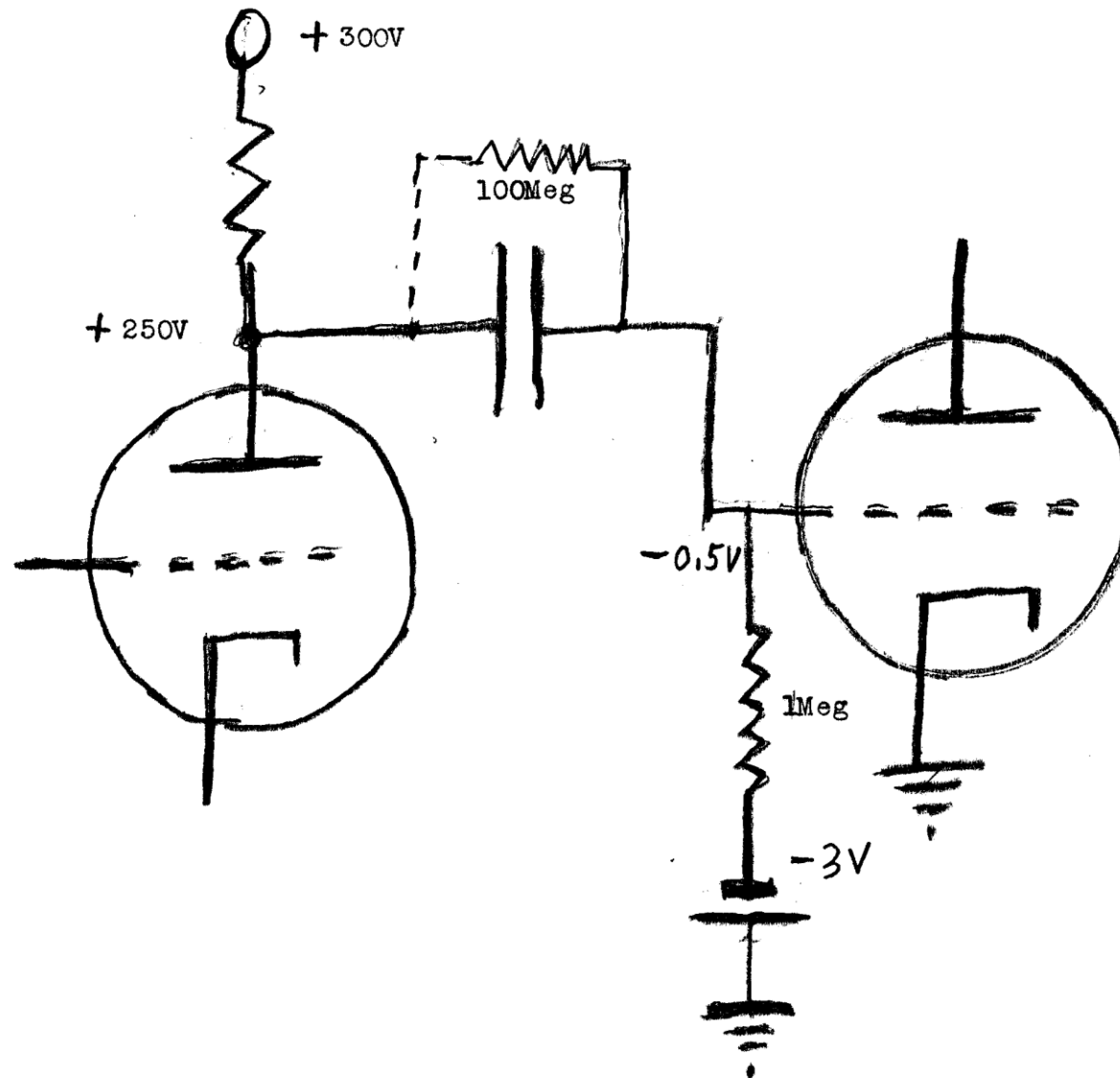
LCR meter or bridge

Tube tester (The best tube tester is a known-good tube.)

Tube Tester, Hickok 539B



Capacitor Leakage Current

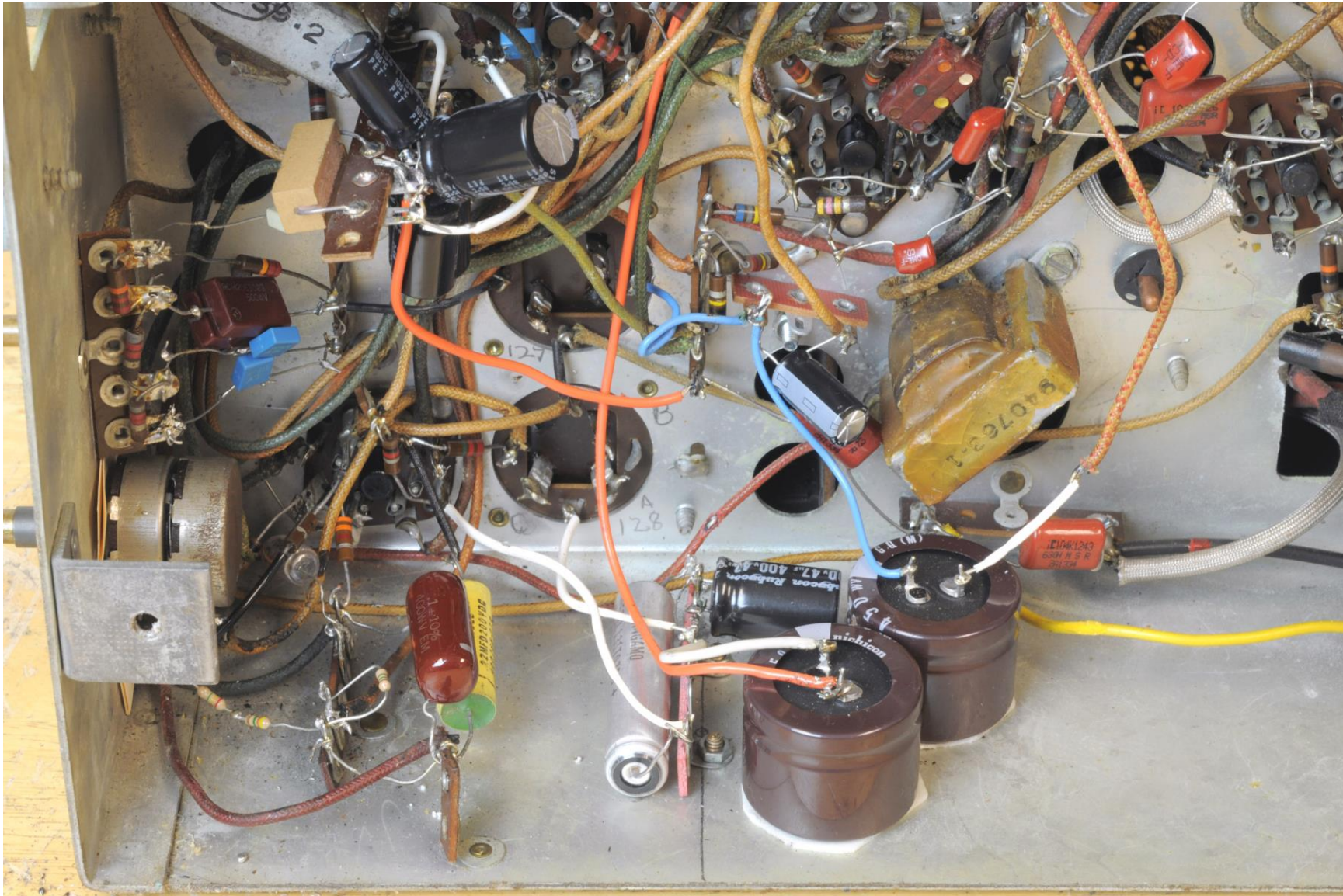


Shrinking 'Lytics



Shrinking Paper/Film Caps





Film Resistor to Replace Carbon Comp.



Hook Splice



Hook-Spliced Component & Term Strip



Caig DeoxIT Contact Cleaner



General Safety Rules

Tubes operate at hundreds of volts

Ground the chassis

Discharge filter capacitors

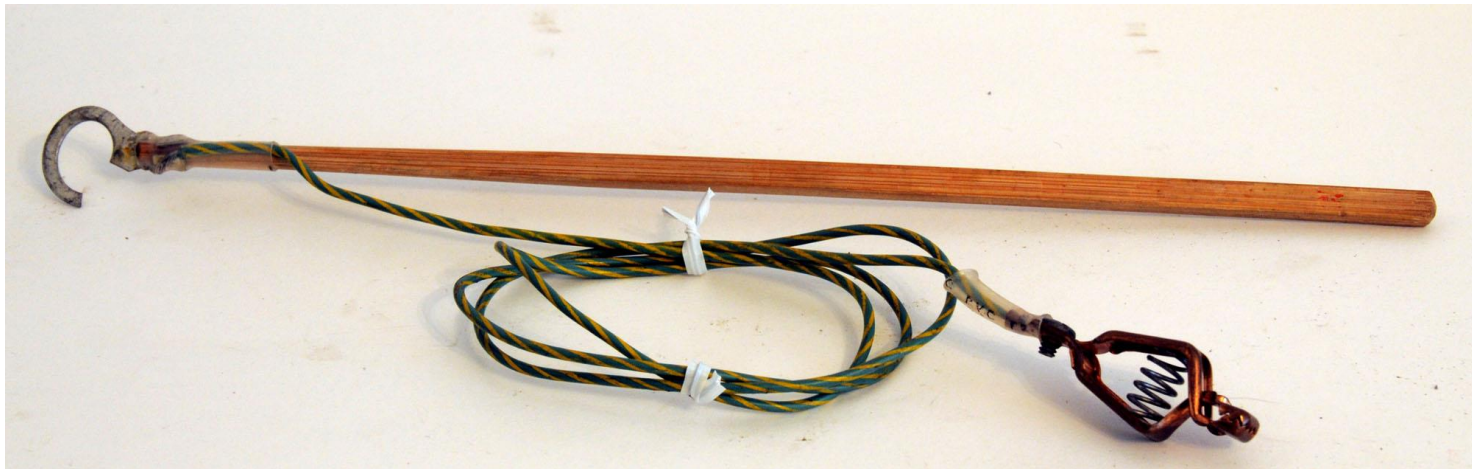
Work on wood bench, wood stool.

Keep hands off chassis when probing.

CRTs may implode, esp. old ones w/o safety glass

Use isolation transformer on all AC/DC sets.

Best not to work alone.



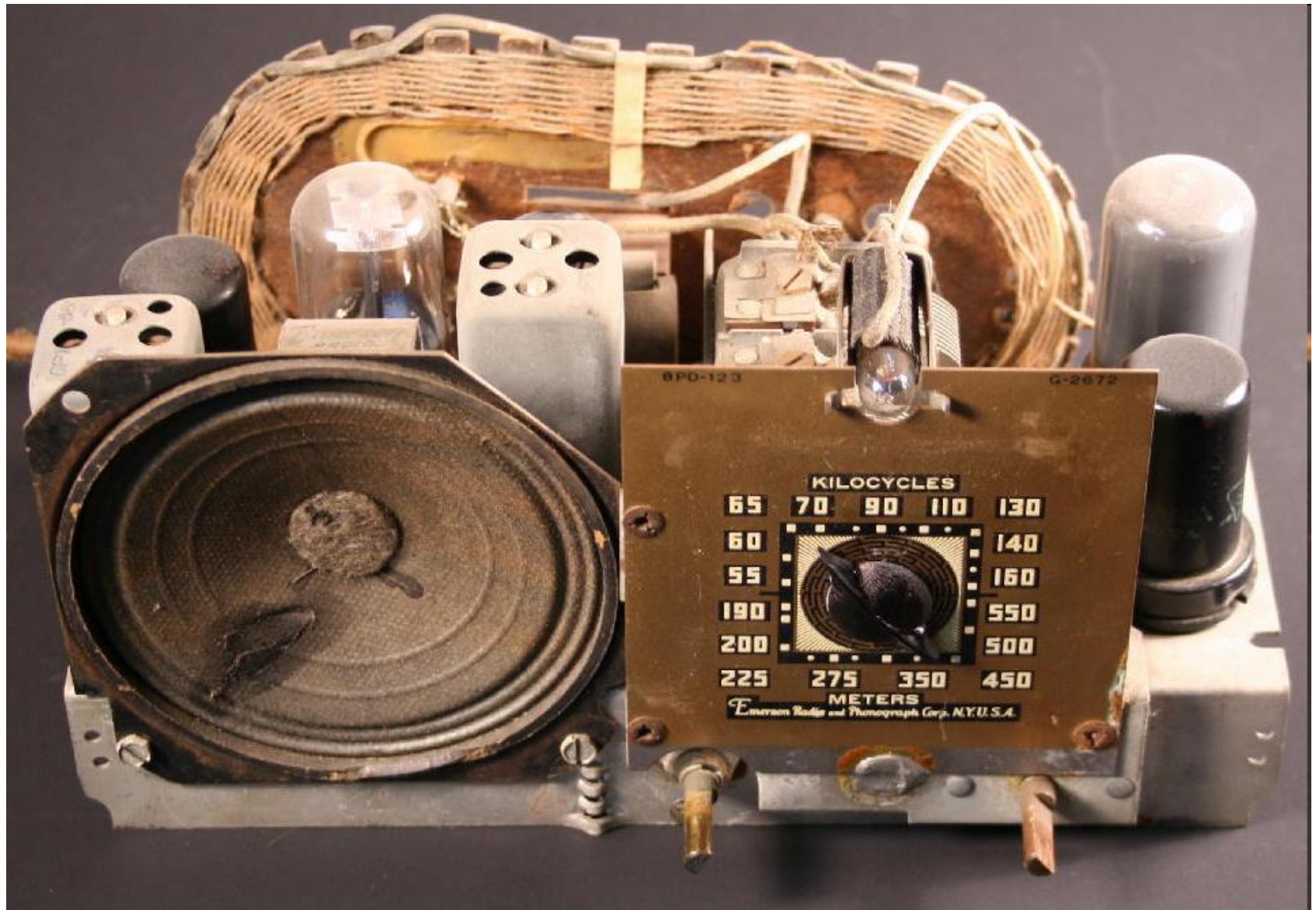


Safety gear for handling CRTs

“All American 5” AC/DC Radio



“All American 5” Chassis



AC/DC Hot Chassis Hazard

