Vintage Bluetooth®

A Portrait in Blasphemy

How To Do It Wrong

Weak (Line Level) Audio Output

Dangerous Powering / Isolation Scheme

Screw Up Radio Biasing or AGC Function

Make Pairing a Pain

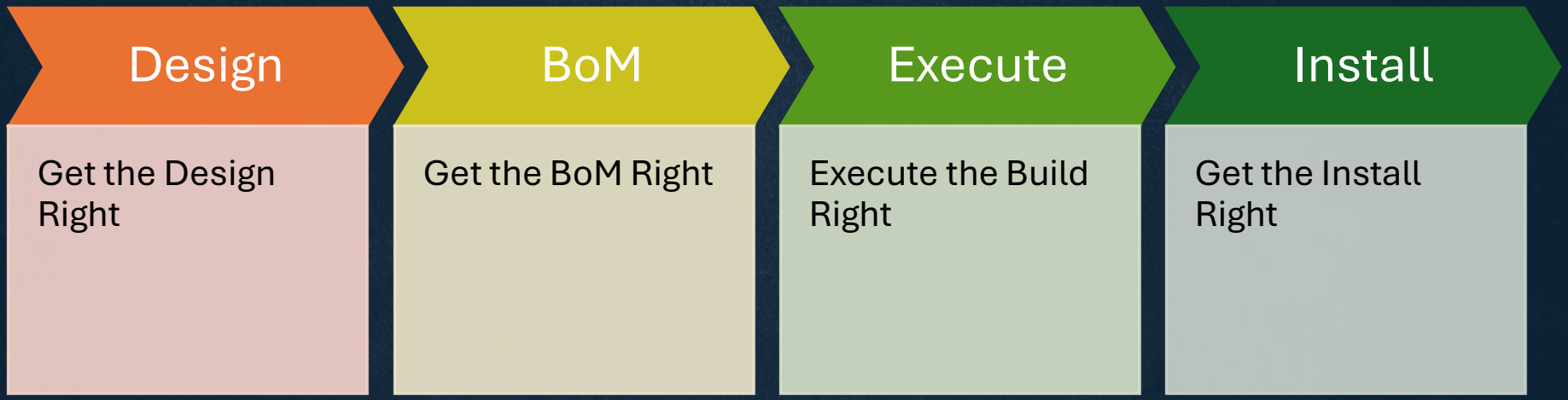
First – Do No Harm

RULE #1: No Shock Hazard

RULE #2: No Fire Hazard

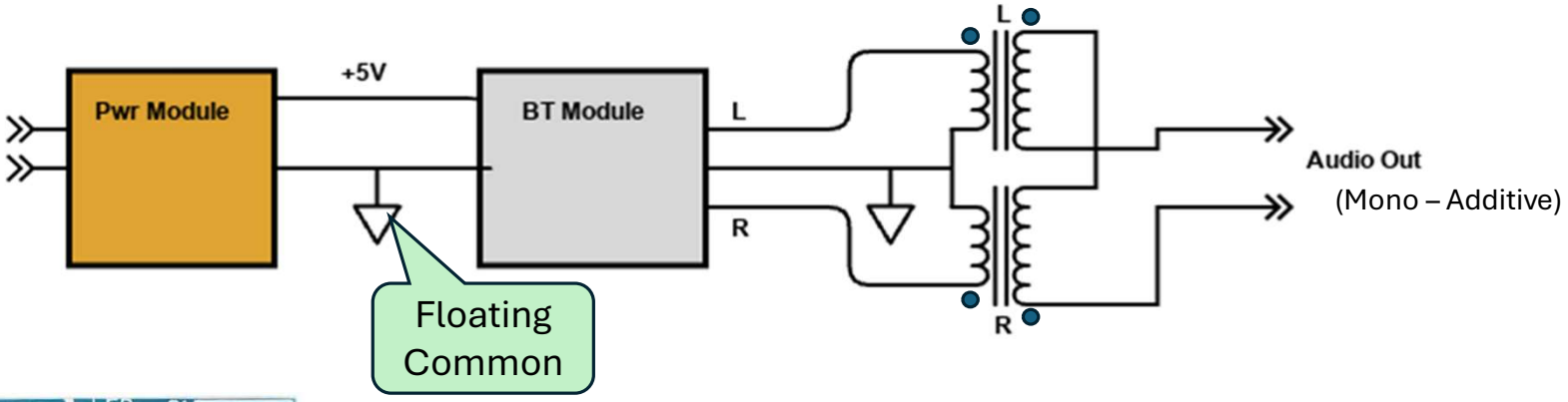
Minimal Changes to Radio Design	• Respect “Grounding” & AGC Function • Make it reversable!
Match Detector Volume Level	• Don’t Startle the User on Function Change • Don’t Blow Out the Speaker
Good Ergonomic Design	• Don’t Move the Radio • Don’t Put Your Hand “Back There”

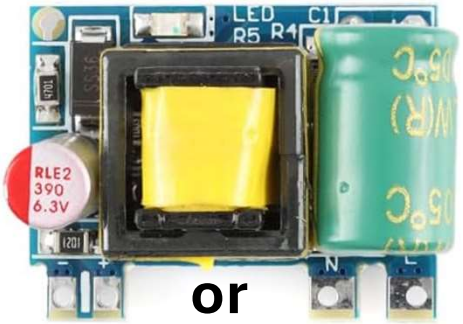
Project Steps



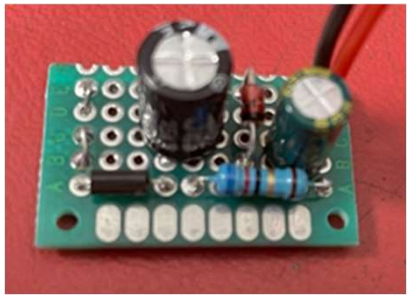
Get the Design Right

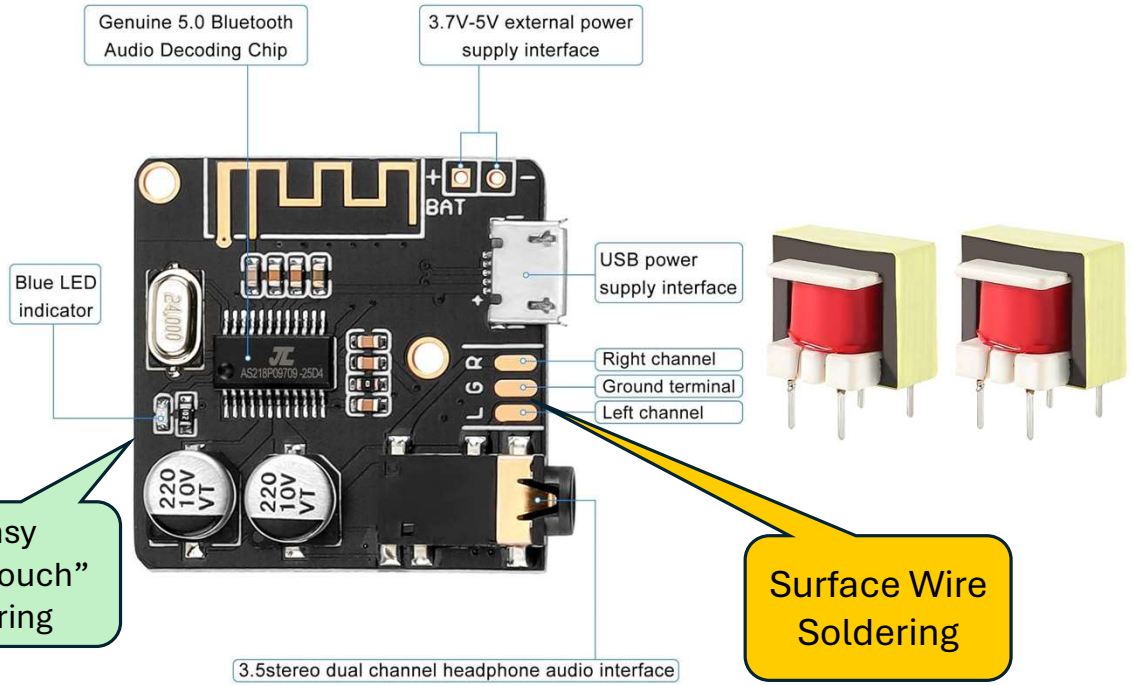
- Power Source
  - 6.3V Filament (MUST Have Power Transformer)
  - AC Line Power (Refer to RULE #1 and RULE #2)
  - USB 120VAC → 5VDC Charger Cube
- Friendly BT Radio Board
- Audio Signal Implementation
  - Radio MUST Have Volume Control at the Audio Amp
  - BT Level Matches Radio Detector / Phono Level
    - “Line Level ~ 250mV vs Tube Detector Level ~ 2.5V
    - 1300:8-ohm transformers have ~12:1 Turns Ratio
- Function Switching
  - Radio / Phono Switch
  - Rear Panel Switch
  - Module Switch
- Avoid Radio Interference


Pwr Module
+5V
BT Module
L
R
L
R
Audio Out
(Mono – Additive)
Floating
Common


RLE2
390
6.3V

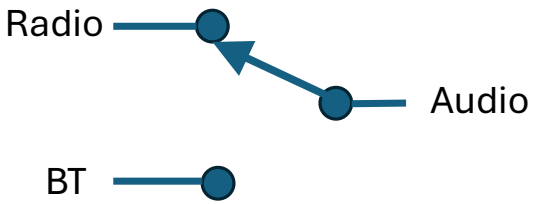
or



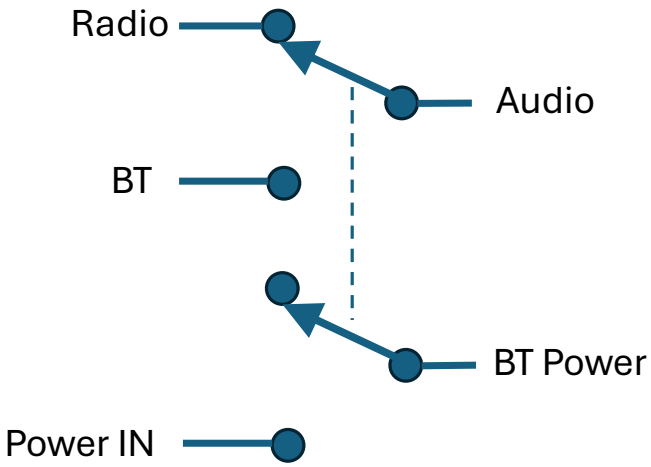

Genuine 5.0 Bluetooth
Audio Decoding Chip
3.7V-5V external power
supply interface
BAT
USB power
supply interface
Blue LED
indicator
Right channel
Ground terminal
Left channel
L G R
220
10V
VT
220
10V
VT
3.5stereo dual channel headphone audio interface
Easy
"No Touch"
Pairing
Surface Wire
Soldering

Radio / BT Auxilliary Switching₸

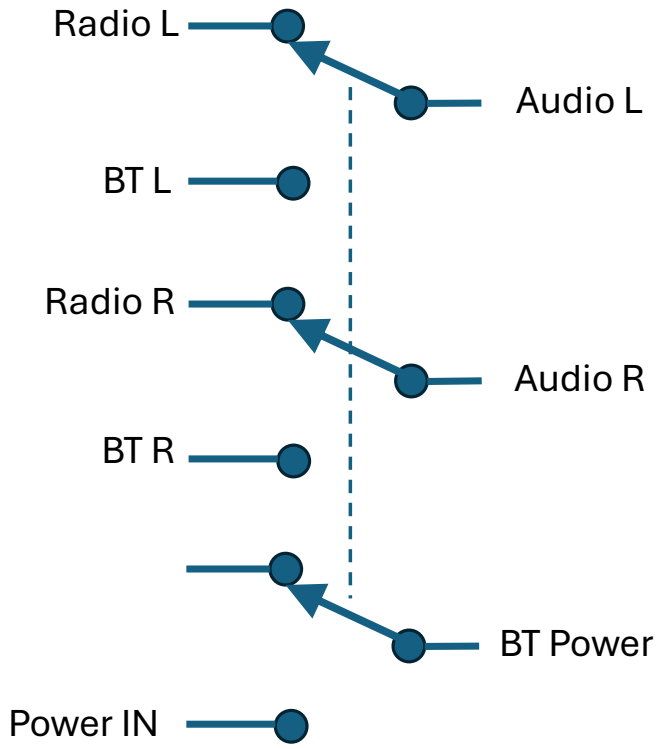
Remote Module



Mono & Pwr Switch



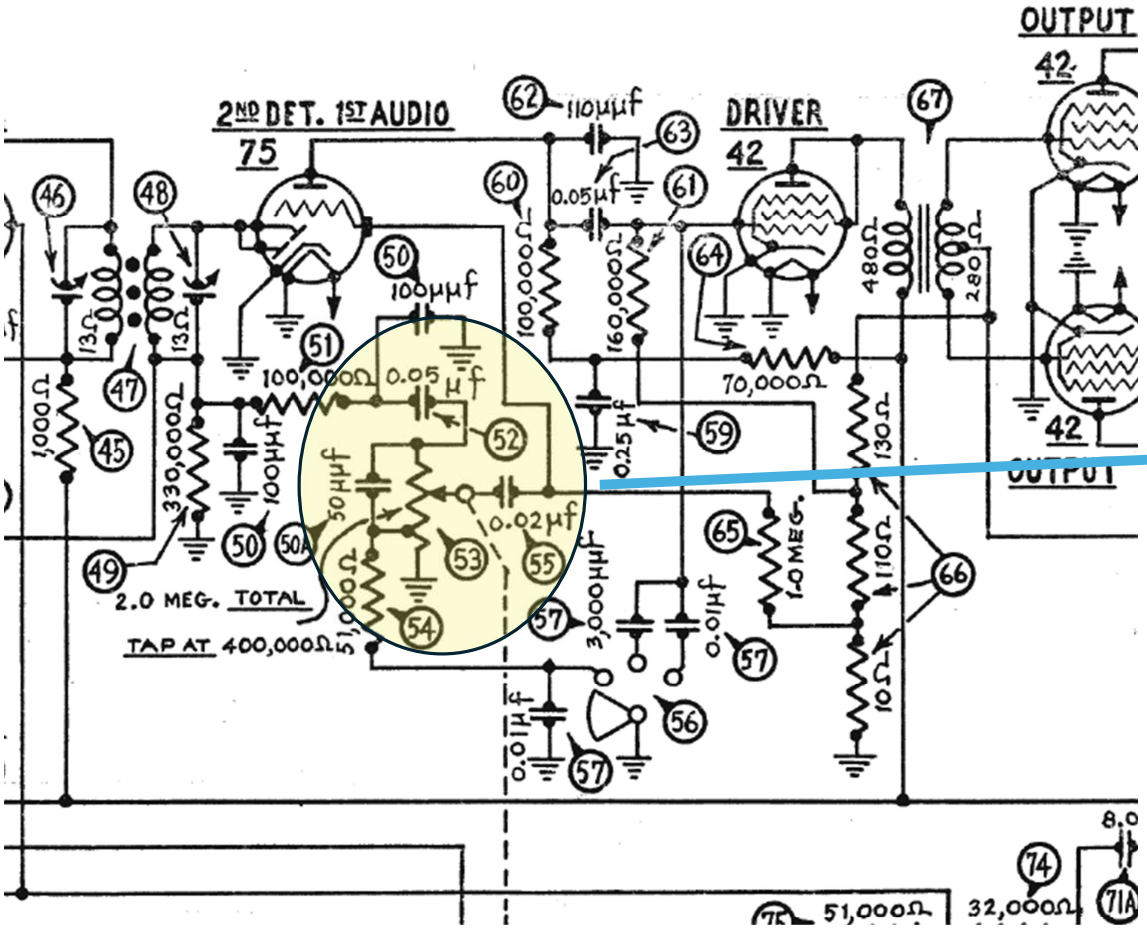
Stereo & Pwr Switch

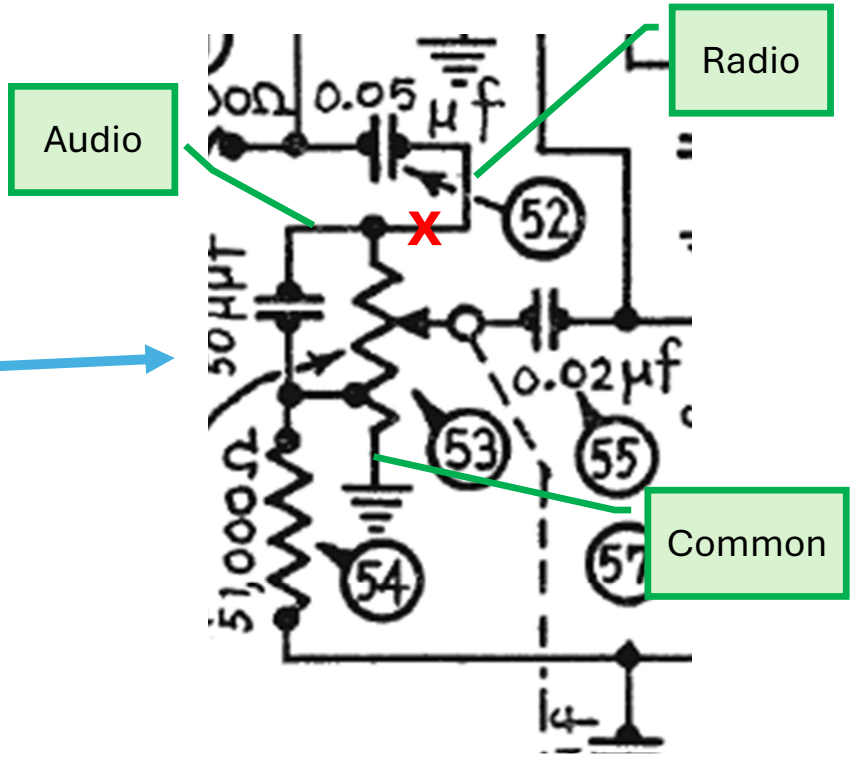


₸ All Audio Signal Commons Tied Together!

Audio Install for Radios w/o Phono Input

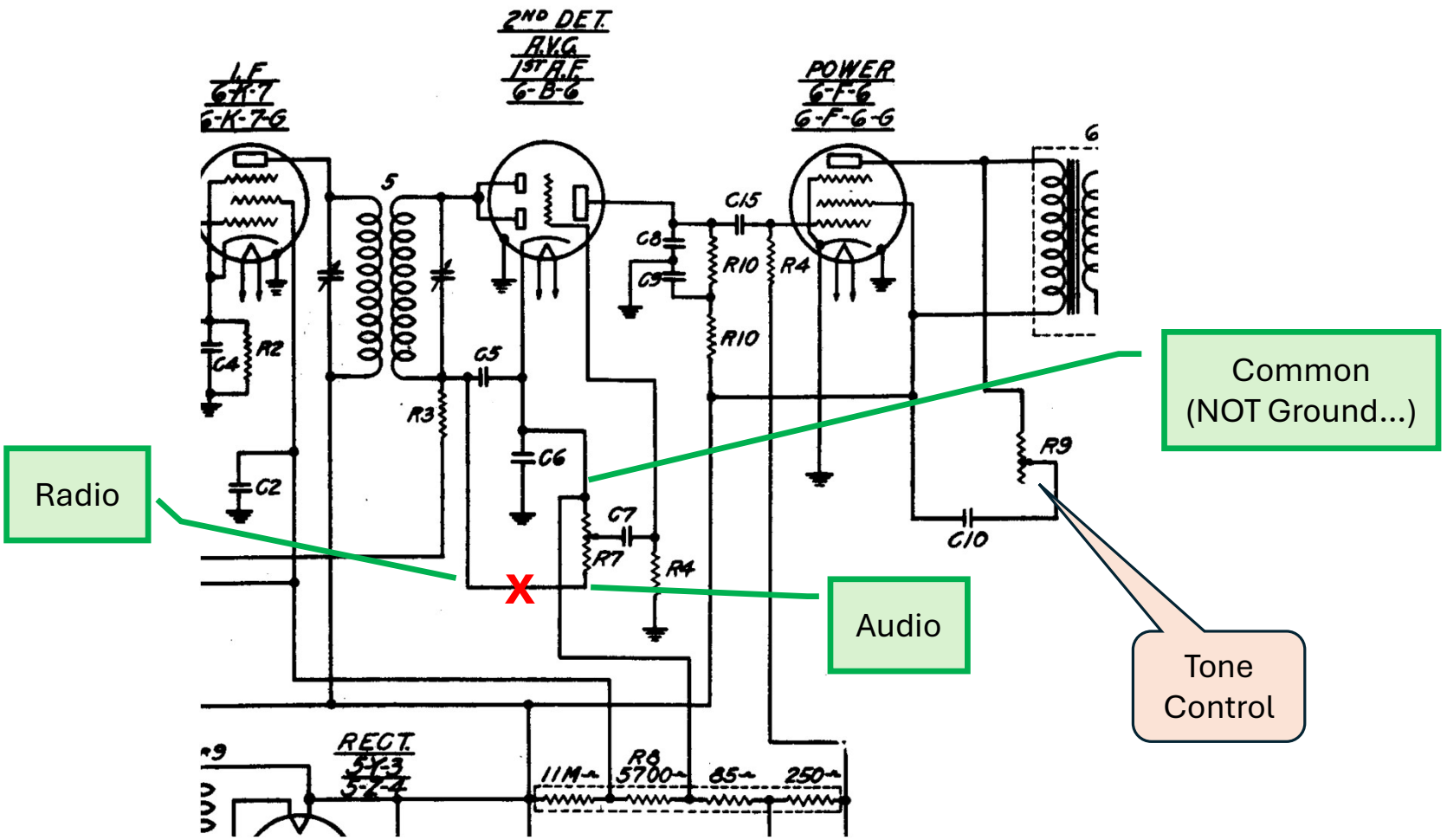
1935 Philco 650X





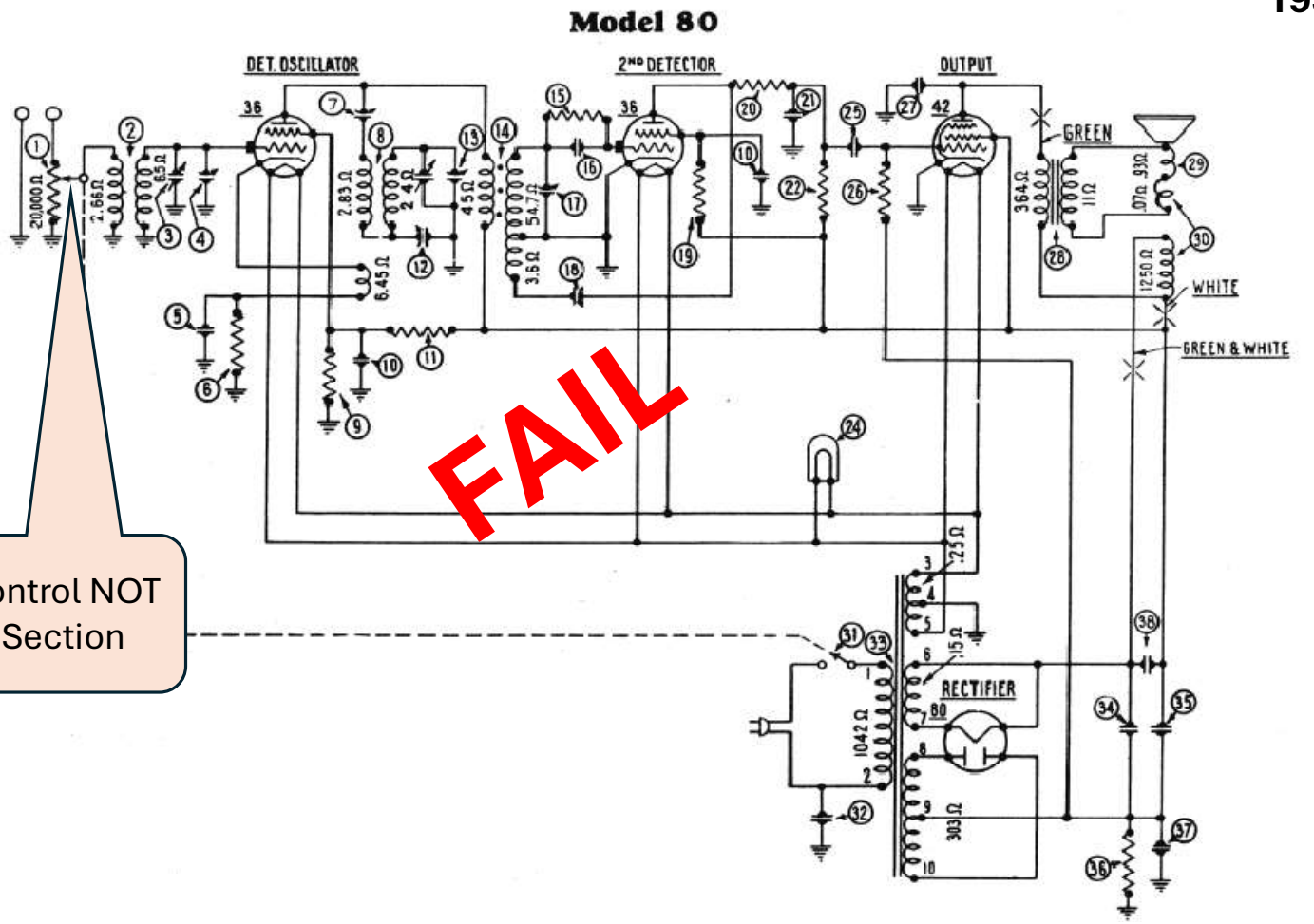
Audio Install for Radios w/o Phono Input

1936 Zenith 5S29



Audio Install for Radios w/o Phono Input

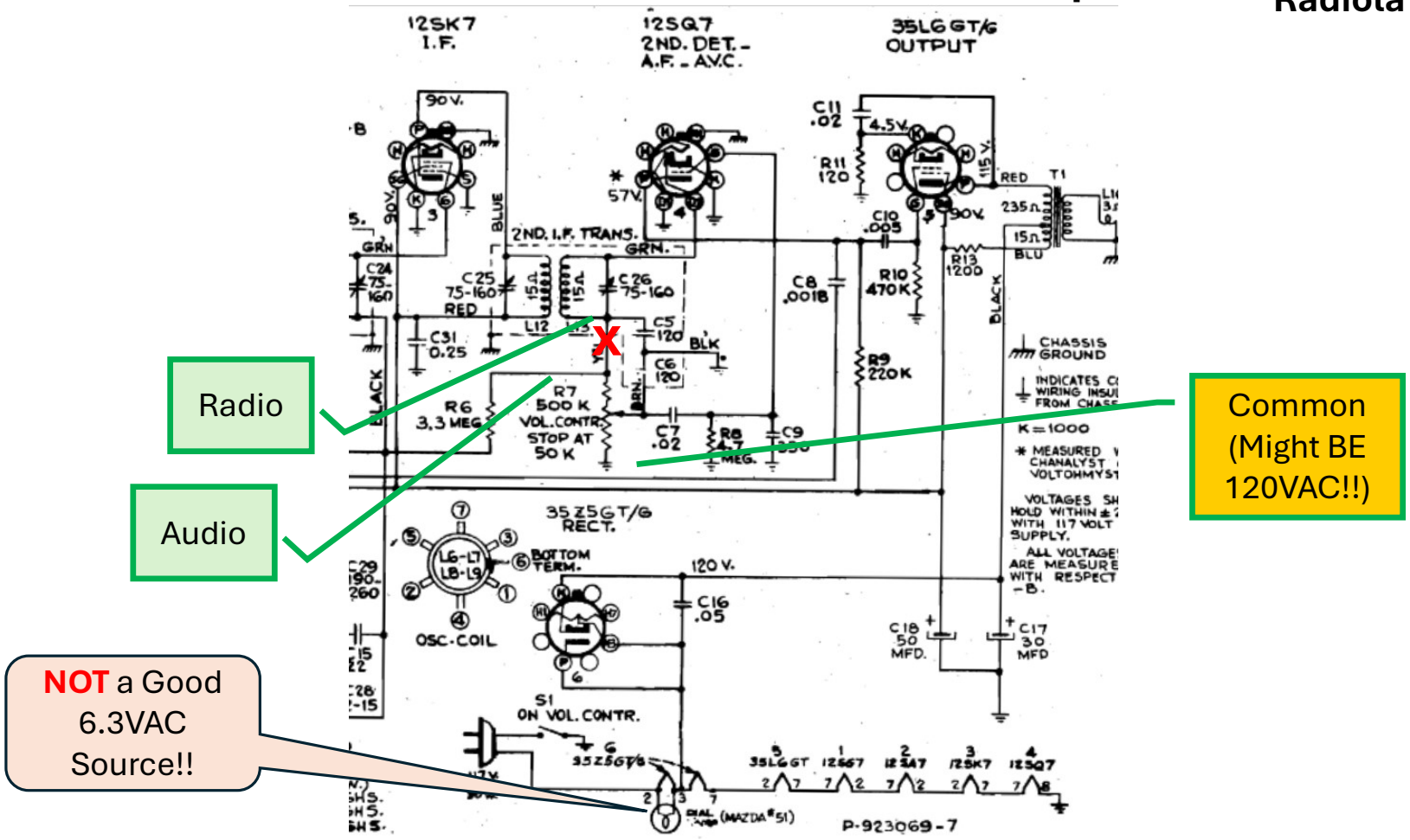
1930 Philco 80



Volume Control NOT in Audio Section

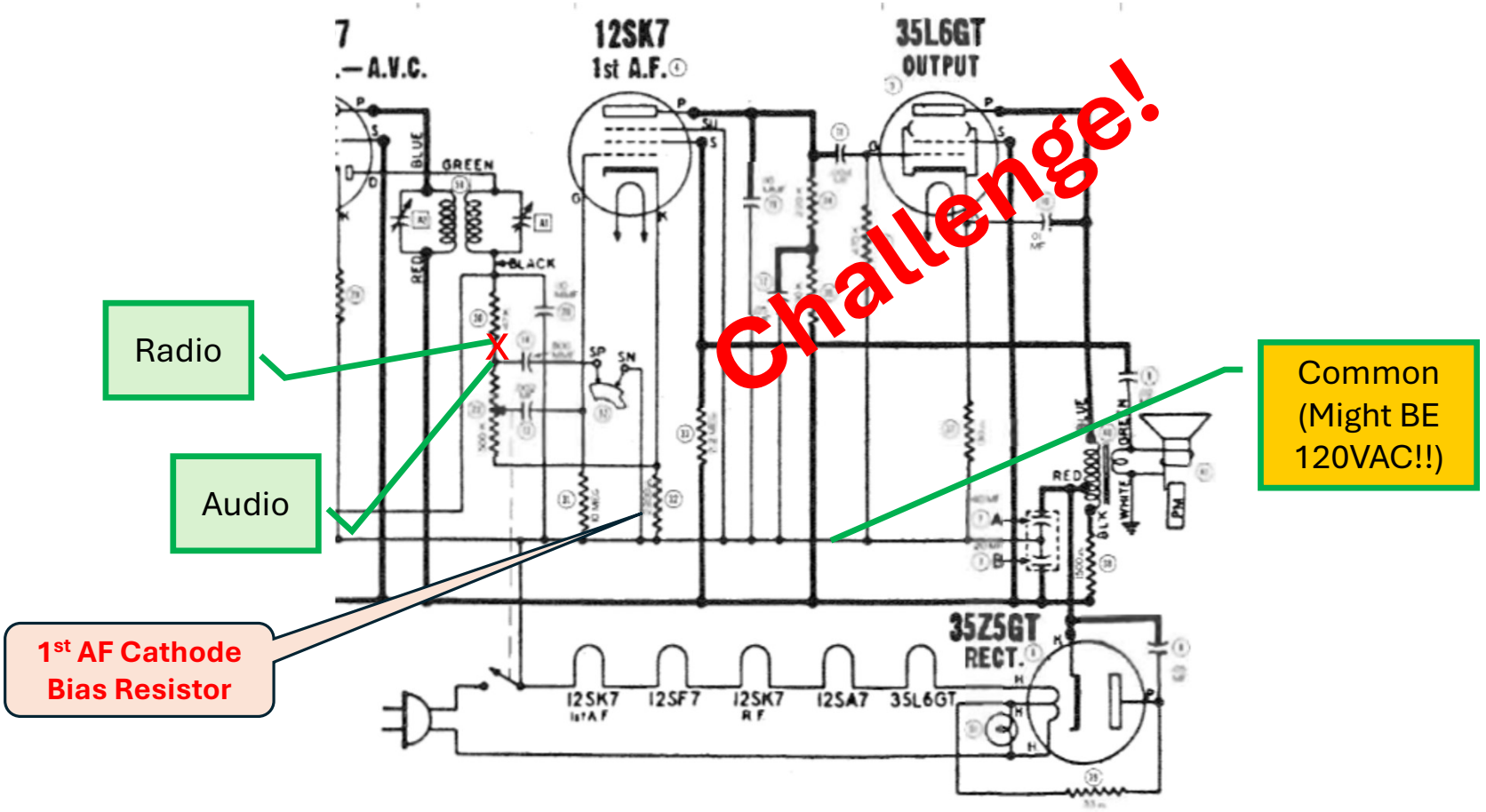
Audio Install for Radios w/o Phono Input

1946 RCA Radiola 61-5



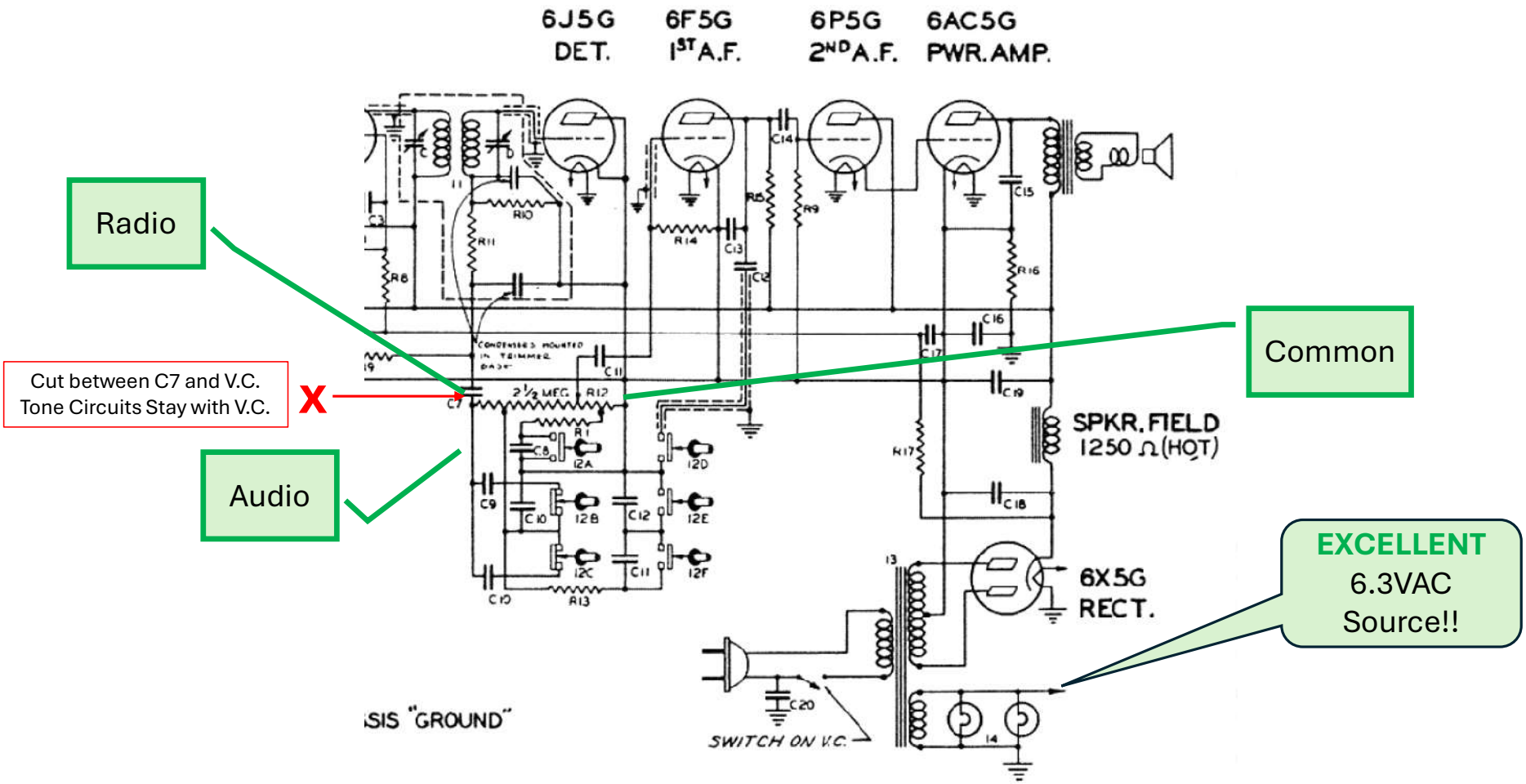
Audio Install for Radios w/o Phono Input

1946 Stewart-Warner 9000-B



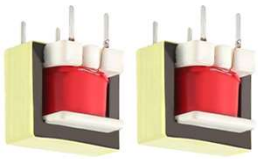
Audio Install for Radios w/o Phono Input

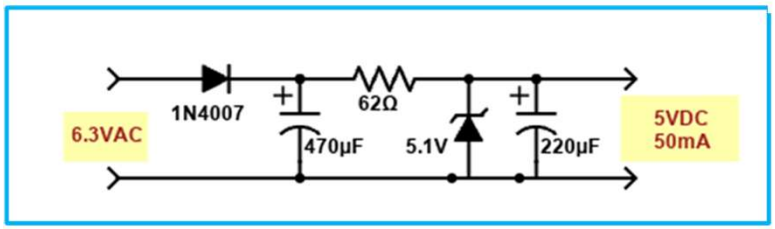
1941 Zenith 8S563



Get the BoM Right

AC Line Input MUST be fused and Secured



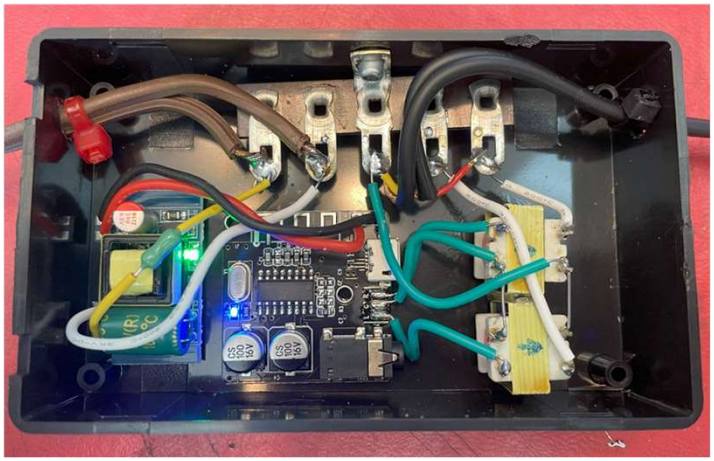


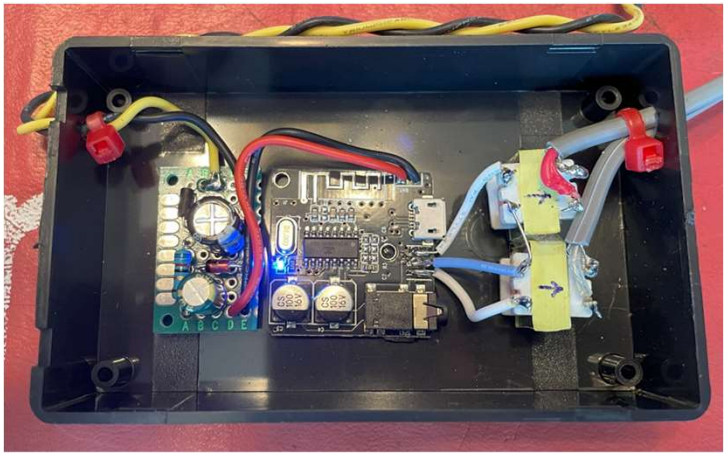
Total Parts < $15

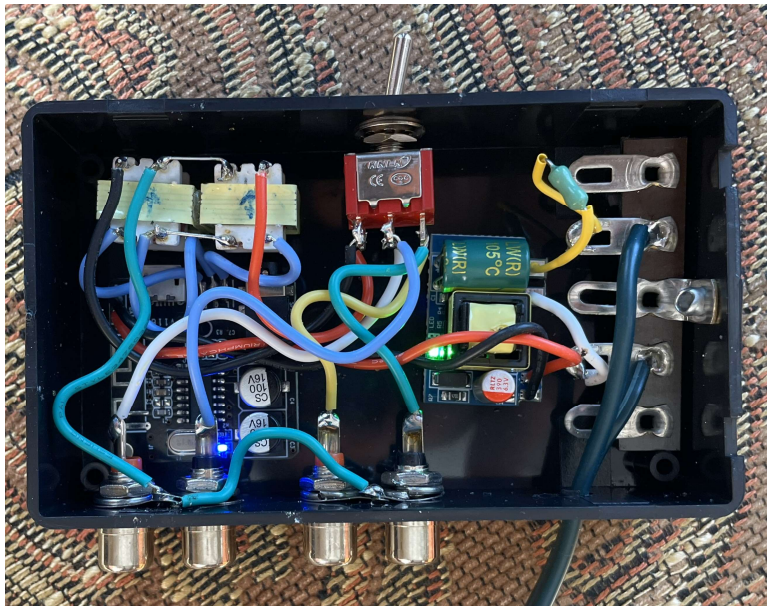
Mounting Tape

- Power Module
- BT Module
- Xformer Sides
- Xformer Bottom
- BT Box to Radio

Execute the Build Right







Get the Install Right

- ~3 Square Inches of Gel Tape
- Away From Tube Heat
- Away From RF Circuits
  - If AC Module Interferes, Add AC Module Power Leg to Switch
- If Hard-Wired, Mount the Lid!!
- If Switched, No Reaching “Inside”!!

Epilogue

The blasphemy is complete.

80% of my clients ask for Bluetooth capability.

They want the radio and phono to work, but…

The piece is likely relegated to life as a BT Speaker.

Beats rusting in place or worse, in a landfill!