

Electron Tube RF Power Amplifier (RFPA)

Ten Biggest Construction Mistakes

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1. AC Power line operated components, including filament or control transformers, blowers, and pilot lamps, returned to chassis ground.
 - a. Power lines should never use the chassis as a neutral or ground return for mains voltages. It is against code because it is unsafe. If a ground becomes disconnected, the chassis can float to line voltage.
2. Lack of an RF safety choke on the output of an Electron Tube RF Power Amplifier 'Pi' Output Coupling Network.
 - a. The Plate DC Blocking Capacitor, even when working normally, requires a charging and discharging DC path. Without that path, the tank capacitors are charged with DC bias. This increases chances of band switch and tank circuit capacitor arcs. Also, if the DC Blocking Capacitor ever gets leaky or shorts, there should be some DC path to prevent antenna terminal voltage from rising.
3. Unsafe High Voltage (HV) connectors.
4. Lack of a fault-limiting resistor in HV leads where filter capacitor ESR and other components will not adequately limit fault current.
5. Failure to directly ground grids with short direct chassis connections in Grounded Grid (GG) configuration.
6. Lack of Tuned Input 'Pi' Coupling Network, providing low harmonic impedance to electron tube cathodes in Cathode Driven (CD) class AB through C amplifiers.
7. Lack of negative rail fault clamp.
8. Carbon resistors in High Voltage equalizing or high temperature locations.
9. Failure to install plate-tuning capacitor with shortest possible path between Plate (Anode) and tube chassis.
10. Incorrect type and value components in critical locations.

