



During a "glitch," such as a +HV to ground arc, or an intermittent VHF parasitic oscillation, the -HV circuitry in an amplifier may spike to several kilovolts negative with respect to chassis ground. This much voltage can damage components or amplifier tubes. For example, such an event can cause a cathode-to-filament or cathode-to-grid arc inside an indirectly-heated cathode [IHC] amplifier-tube (3CX800A7, 8877, etc). Such an arc can burn out the filament or damage the cathode surface. This and other expensive problems can be avoided if protection diodes are added as shown in the circuit diagram above.

During a glitch, the 3 diodes limit the -HV spike to about -4.5v maximum. The 3 glitch diodes also protect the anode and grid current meters—as well as their shunt resistors from current spikes. ••

•• Glitch diodes may short when there is a severe problem.

*NOTE:* if either the grid or anode meter current shunt resistor has more than about  $1.0\Omega$  of  $R$ , additional diodes in series may be needed to avoid changing the accuracy of the meters at high readings. The maximum V per diode should not exceed 0.5V. [Note that glitch diodes are operated with forward polarity voltage.]

•• Although directly-heated cathode amplifier-tubes, such as the 3-500Z, do not suffer from filament burnout during a glitch, protection diodes are beneficial since they protect the metering circuits and the insulation in the filament transformer from the typical multi-kilovolt negative pulse during a glitch.

•• GENERAL INSTRUCTIONS ••

Connect 3 diodes in series. Connect the banded end (cathode) of the lower diode to the negative terminal of the HV filter capacitor(s). Connect the unbanded end of the lower diode to ground. From the cathode of the lower diode, connect a wire to the junction of the shunt resistors for the anode current meter and the grid current meter. Thus, 2 seriesed diodes are in parallel with the anode I meter shunt  $R$  and 1 diode is in parallel with the Grid I meter shunt. If the anode current meter shunt resistor is less than  $0.5\Omega$ , and the anode current is 1A maximum, only one glitch diode across the resistor is needed.