POWER DISTRIBUTION VIDEO

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Power distribution for the GG-III Video System is associated with two separate assemblies: (1) The Bottom Panel Assembly and (2) The Power Supply Assembly (A3). The Power Supply, used to supply all volt-ages, is extremely tolerable to input line voltage variations. All output source voltages are guaranteed to be stable for line voltages varying from 95VAC to 135VAC 60HZ. The regulated logic +5VDC level is rated at 6 amps maximum and includes over-voltage crowbar protection. Four LED's on the Power Supply indicate that the associated voltages to the regulators are present.

BOTTOM PANEL ASSEMBLY

The input AC line voltage is filtered and wired to the 115VAC primary winding tap and the common tap of the transformer on the Bottom Panel. The secondary winding supplies five separate voltages. The isolated 115VAC supplies the monitor voltage as well as the Illumination Assembly voltage.

The 9VAC RMS winding is full wave rectified and filtered to +11.5VDC average voltage. It is directly routed to the Power Supply via the Filter Board. The 6.3VAC RMS fused winding is also rectified and supplies the +4.5VDC average voltage. The negative side of the bridge is sent to the Power Supply Board for grounding while both the positive and the negative sides of the bridge are sent to the front door to operate the coin chute lights. The 15VAC as well as the 35VAC are both routed directly to the Power Supply via the Filter Board.

POWER SUPPLY ASSEMBLY (A3)

The +11.5VDC entering the Power Supply Board is regulated to +5VDC by Q11, Q12 and U11 and is adjustable by VR1. R15 and VR1 along with R16 divide the regulator output voltage to +2.5VDC at the reference pin of U11, the programmable zener. As the output voltage rises, the voltage on the reference pin on U11 will rise. To compensate the rising output, U11 then draws more source current away from the base of Q12. This in turn turns off Q11 which drops the output voltage.

As the output voltage of the regulator falls, the reference pin voltage falls, turning off U11. This will increase current flow through Q12 which in turn will increase current from the emitter to collector on Q11, raising the output voltage.

The over-voltage crowbar circuit mentioned earlier consists of C14, D12, R17, R18 and SCR11. The SCR requires 1.4V gate to cathode in order to turn on. The zener is rated at 5.6V. Therefore a voltage of 7V on the +5V DC line will trigger the SCR (7V - 5.6 rated zener volts = 1.4V). Once the SCR is on, the +5V DC line is shorted to ground, allowing the fuse to open, preventing

over-voltage damage to the TTL. R17 is a current limiting resistor for the SCR and R18 is the zener resistor. C14 filters out voltage spikes that could trigger the SCR.

The 35VAC RMS is rectified and filtered and is regulated to +30VDC via D26, Q21 and R23. D26 sets up 30VDC for the base of Q21 which is an emitter follower arrangement. Since the emitter follower has a voltage gain that is less than unity, the only voltage lost is from base to emitter which is approximately a 0.08V junction drop.

The center-tapped 15VAC RMS is utilized to supply three voltages. It is full wave rectified by D41 and D42 in order to supply the +20VDC average voltage used for the coin meters. It is also full wave rectified by D31-D34 in order to supply the plus and minus 12VDC. The positive side of the bridge feeds the LM340T (U31) +12VDC regulator while the negative side of the bridge is sent to the LM320 (U41) which regulates the -12VDC. D36 and D44 are used as protection diodes in the event that the output of the regulator exceeds the input.