

# Nintendo

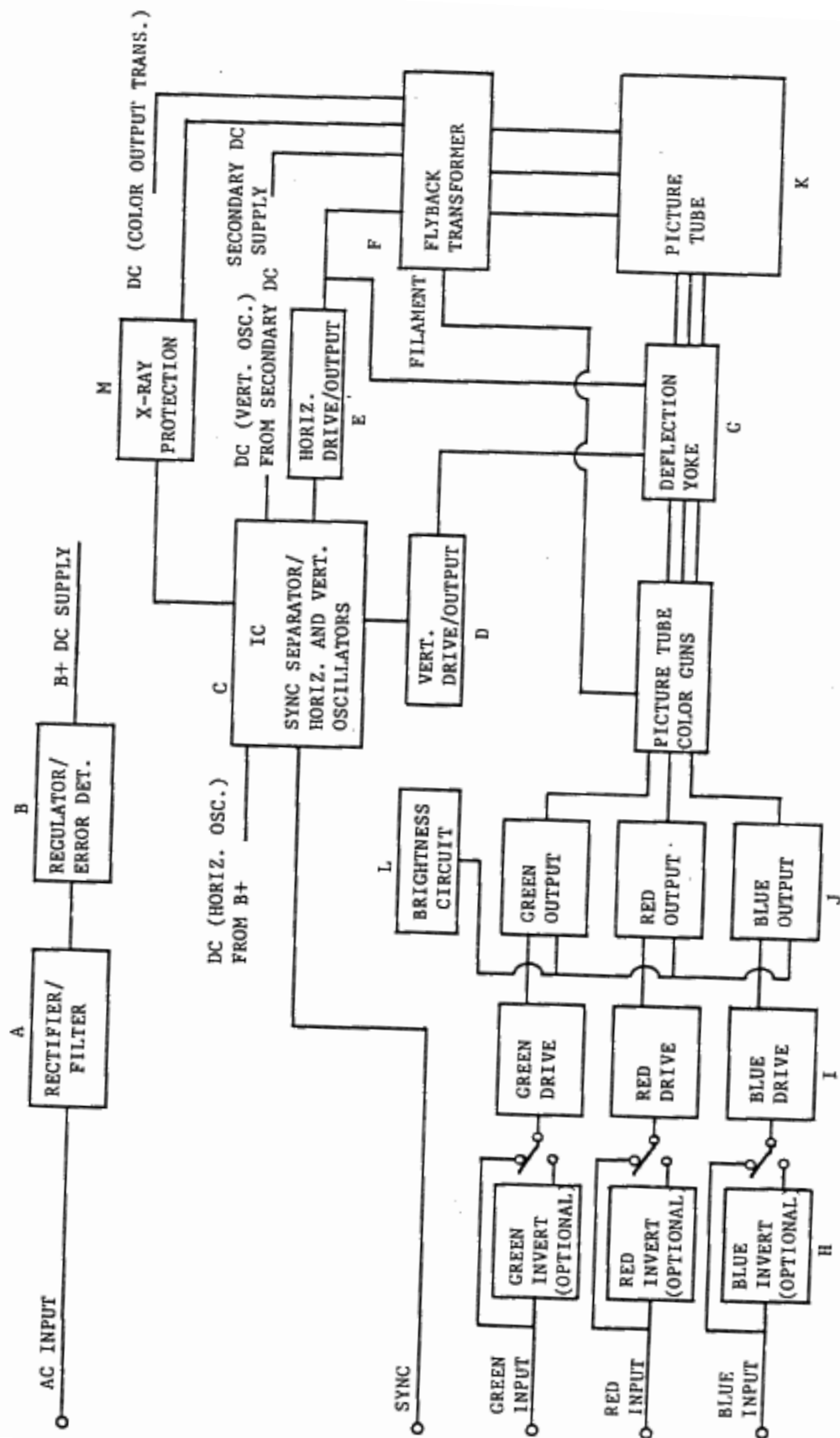
SERVICE DEPARTMENT

SHARP MONITOR

XM-1801 N 18"

XM-2001 N 20"

RASTER SCA  
VIDEO MONITOR BLOCK DIAGRAM



DESCRIPTION OF VIDEO MONITOR BLOCK DIAGRAM

- 1 100VAC is applied
- 2 Rectified by D701, 702, 703, 704
- 3 SCR701/I701 form regulator for B+
- 4 B+ is distributed
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- 5  $\bar{R}$ ,  $\bar{G}$ ,  $\bar{B}$  color signals applied
- 6 Signals are inverted (optional)
- 7 Amplified by the respective transistors
- 8 Amplified for output at neck board
- 9 Bias provided by brightness voltage
- 10 Applied to picture tube guns
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- 11  $\overline{\text{Sync}}$  is applied, directly to I601 sync amp Pin 15
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- 12 Vertical drive pulse out of Pin 2 is amplified by Q501/502
- 13 Vertical output pulse is applied to the deflection yoke
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- 14 Horizontal drive pulse out of Pin 10 is amplified by Q602
- 15 Amplified again by Q601 (horizontal output)
- 16 Applied to the deflection yoke and the flyback transformer which distributes voltages
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- 17 Pin 3 of the flyback is monitored and a hold-down voltage will be applied to Pin 9 of I601 should over-voltage exist

### CONSTANT VOLTAGE CIRCUIT (REGULATOR)

The XM-1801 and 2001 monitors use an SCR as an integral part of the regulator circuit. The operation of the SCR in conjunction with the regulator IC (I601) is described below:

During initial power-up of the monitor, the DC voltage from the bridge rectifier is applied to the anode of SCR 701 through one of the secondary coils in the flyback. The SCR cannot conduct unless a start-up pulse or voltage of equal or higher value relative to the cathode is applied to the gate. This start-up voltage is applied to the gate through D707 and 2D701. This puts the SCR into conduction. (The SCR will remain in conduction until the pulse or voltage on the anode drops below that of the cathode.) This causes the cathode voltage to rise, rapidly approaching the desired 110V (B+). At this point the horizontal oscillator and output section receive this voltage and begin to operate. A strong negative-going retrace pulse is applied to the anode through the flyback transformer. This turns the SCR off before the cathode voltage becomes excessive. At the same time, the voltage regulator 1L(I701) becomes operational. This IC monitors the 110V (B+) on Pin 1 and gates the SCR into conduction (from Pin 7) at the precise time during each horizontal drive pulse to maintain the 110V (B+) regulated supply.

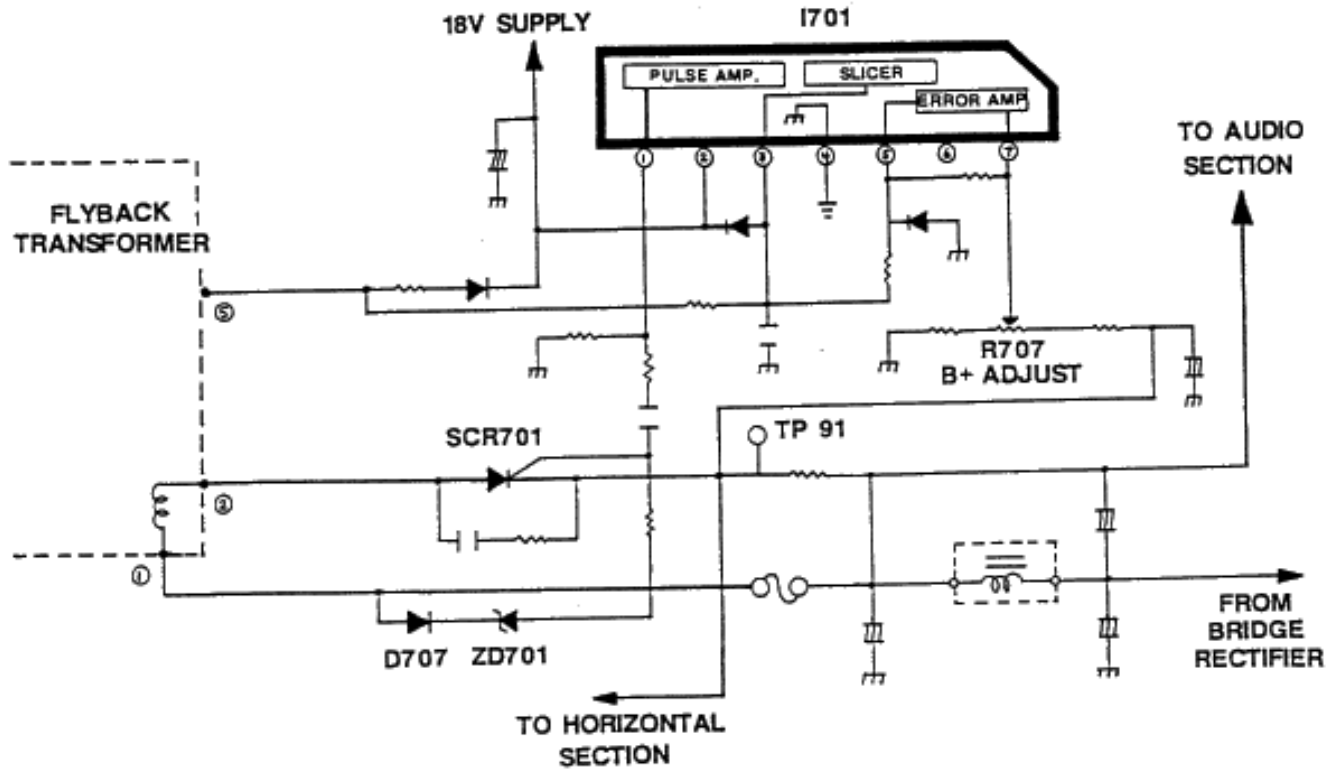
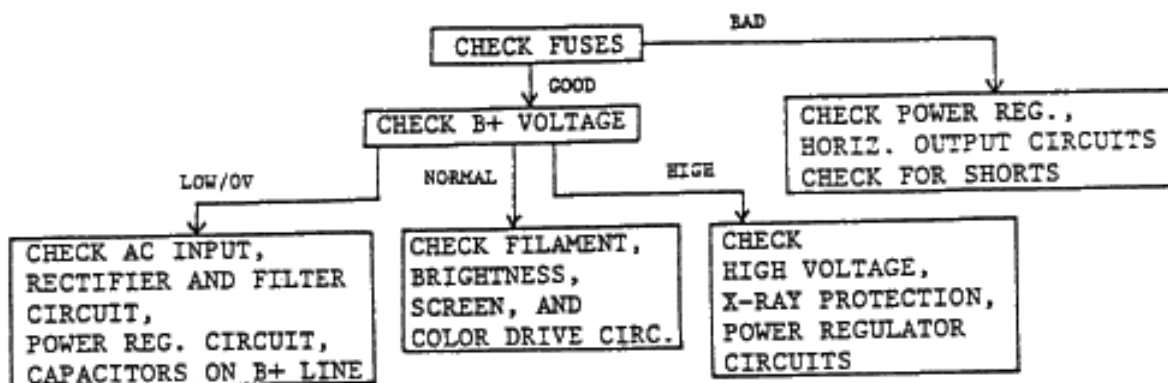


DIAGRAM OF REGULATOR CIRCUIT

## TROUBLESHOOTING CHART

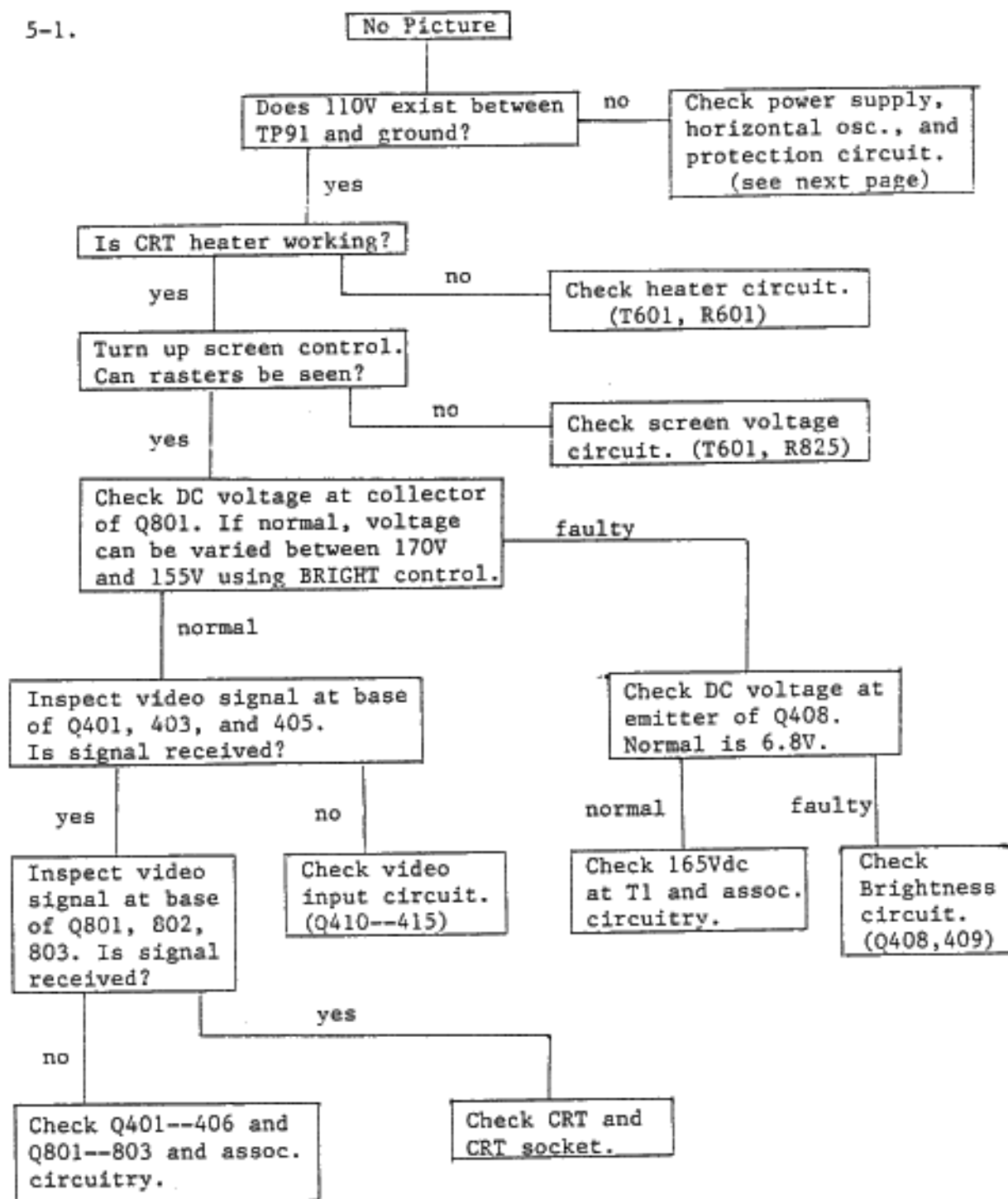
### NO RASTER

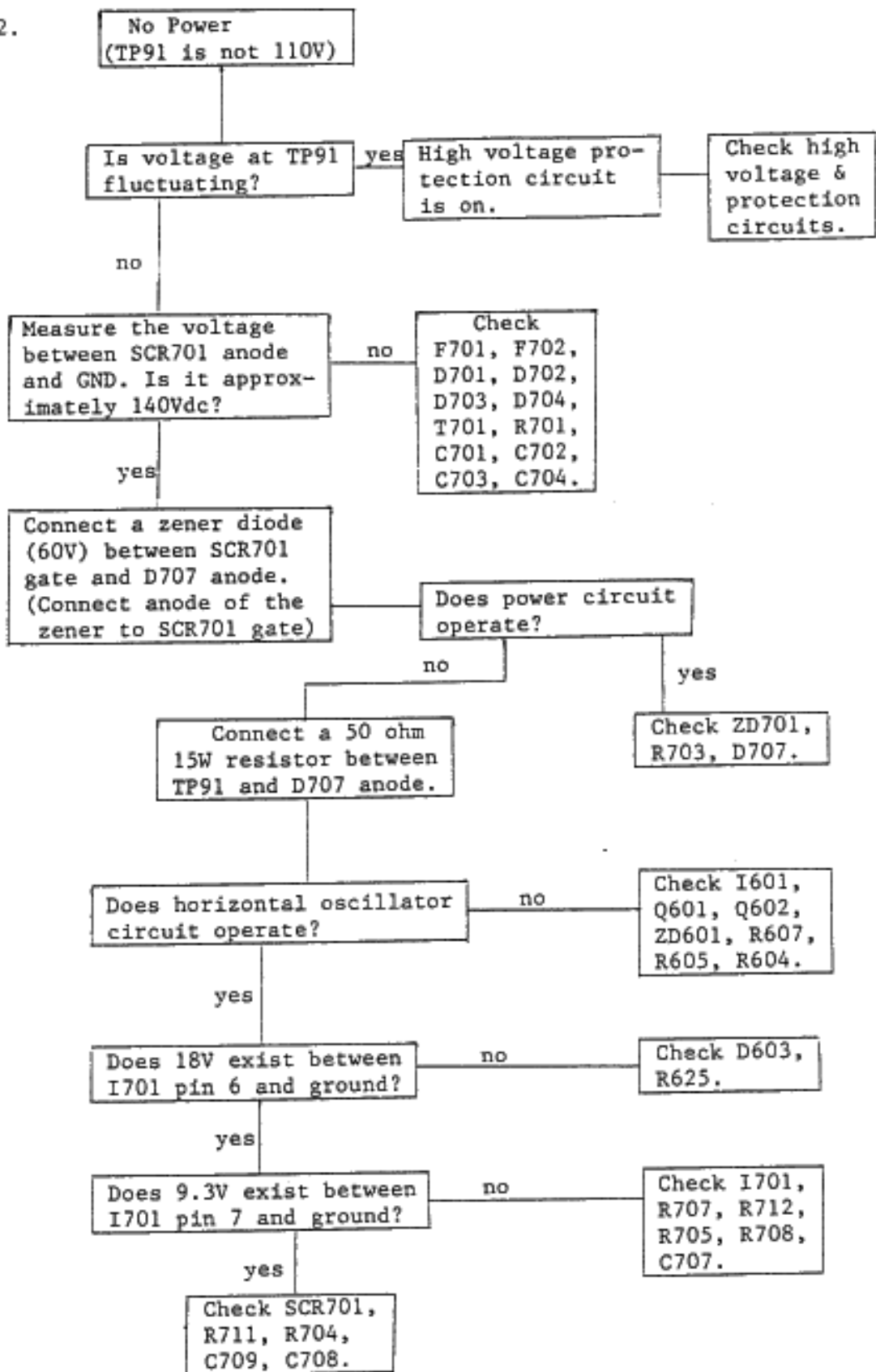


- SMALL PICTURE ( Horizontally and vertically ) ----- Check power regulator circuit (B+ is low)
- WAVY PICTURE (hum bars) ----- Check power regulator circuit (noise on B+)
- BRIGHTNESS TOO HIGH OR LOW ----- Check brightness and screen voltage circuits  
Check DC supply to color output transistors
- VERTICAL DEFLECTION BAD (Horizontal line or bar) - Check vertical osc. and vertical output circuits  
Check deflection yoke  
Check DC supply to vert. osc.
- HORIZONTAL DEFLECTION BAD (Vertical line or bar) - Check horizontal deflection circuit  
Check deflection yoke
- VERTICAL SYNC OUT (Rolling picture) ----- Check vertical osc., sync separator circuits
- HORIZONTAL SYNC OUT (Diagonal lines, tearing) ----- Check horizontal osc. and sync separator circuits
- BOTH SYNCs OUT ----- Check sync amp and sync separator circuits
- COLOR PROBLEM (color missing or always on) ----- Check color drive and color output circuits  
Check picture tube and purity magnets

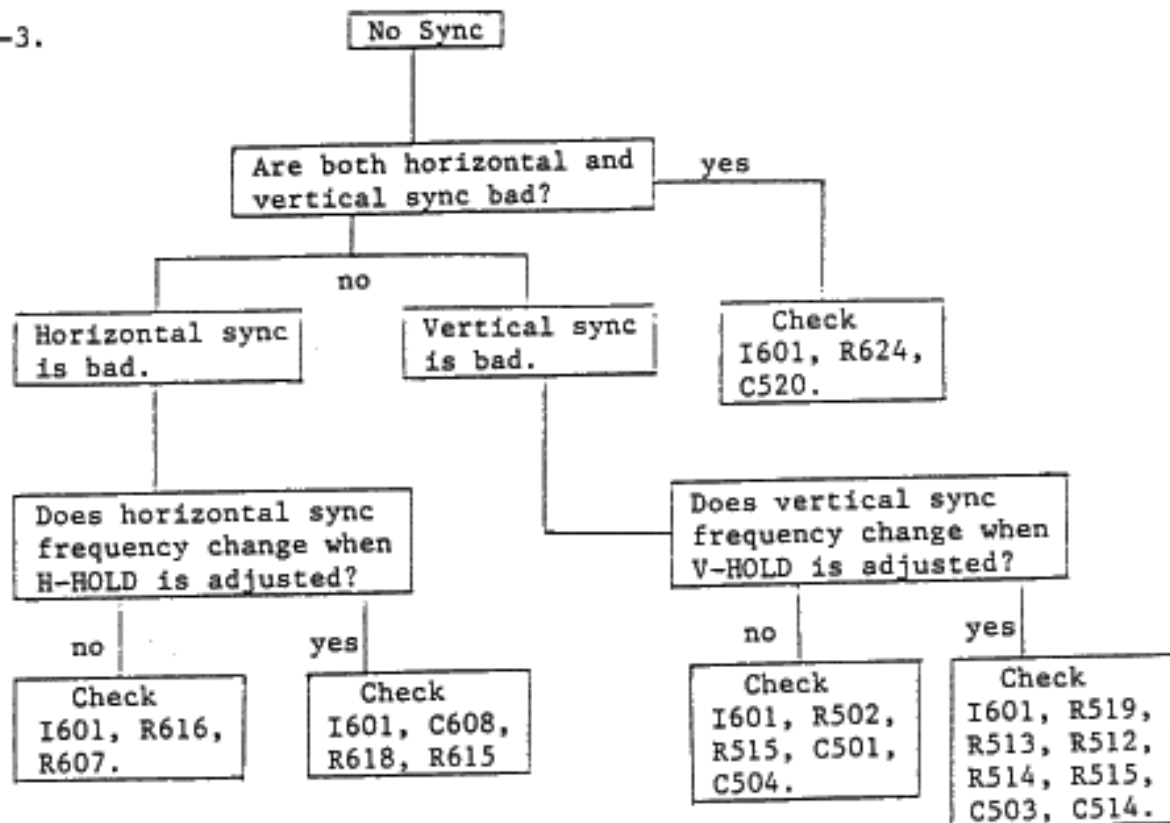
## 5. Troubleshooting Procedures

5-1.

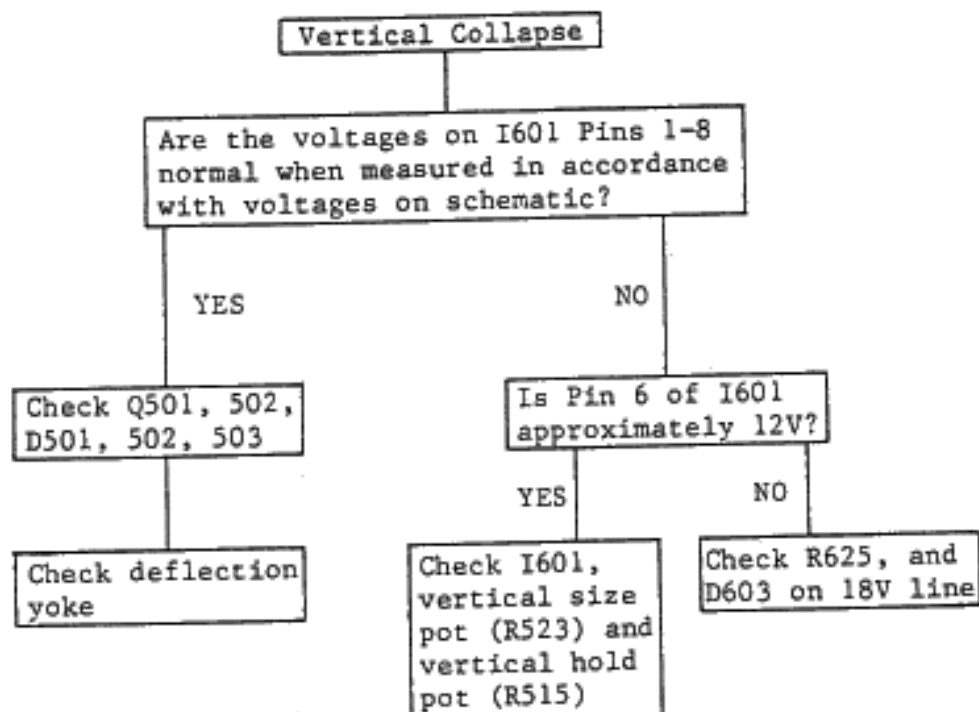




5-3.

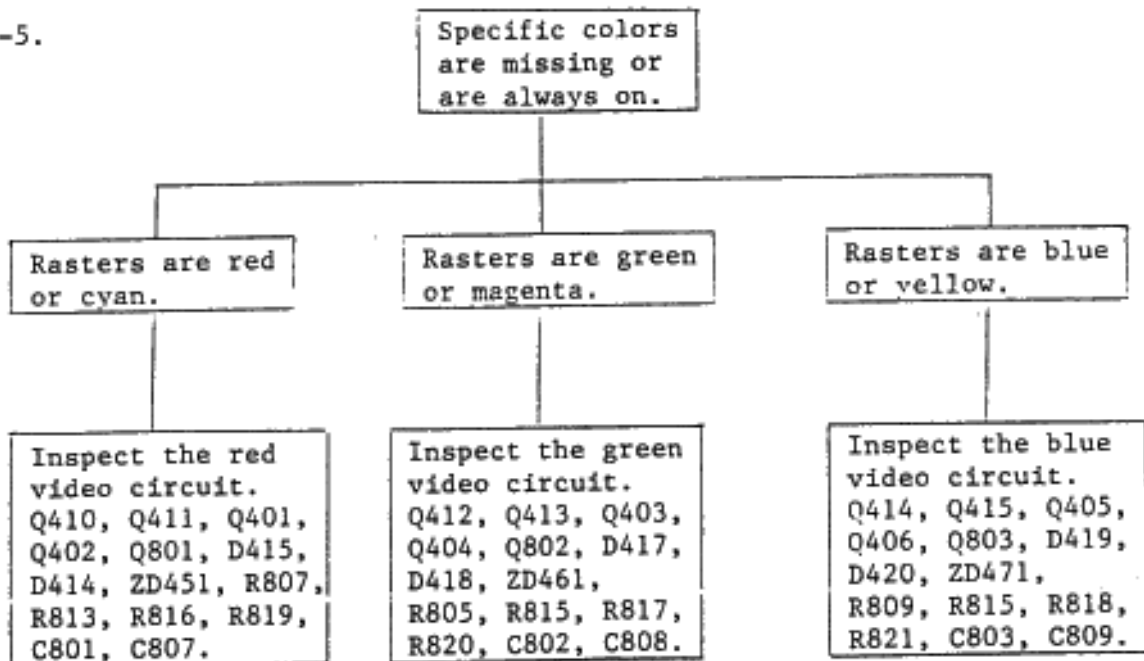


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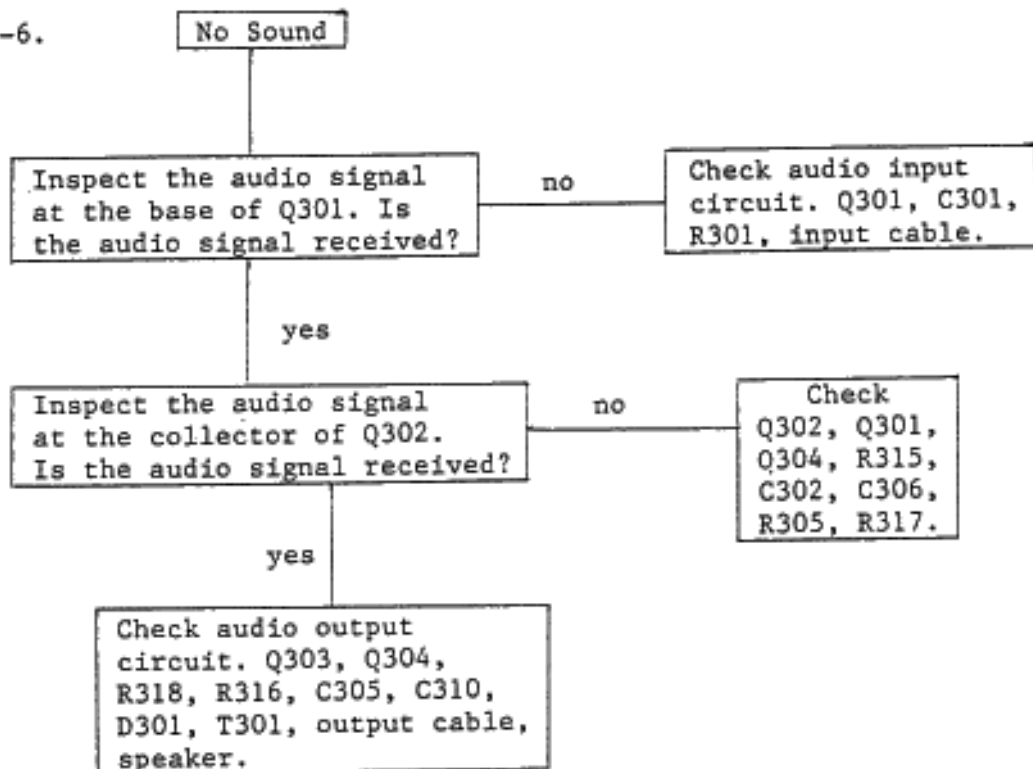


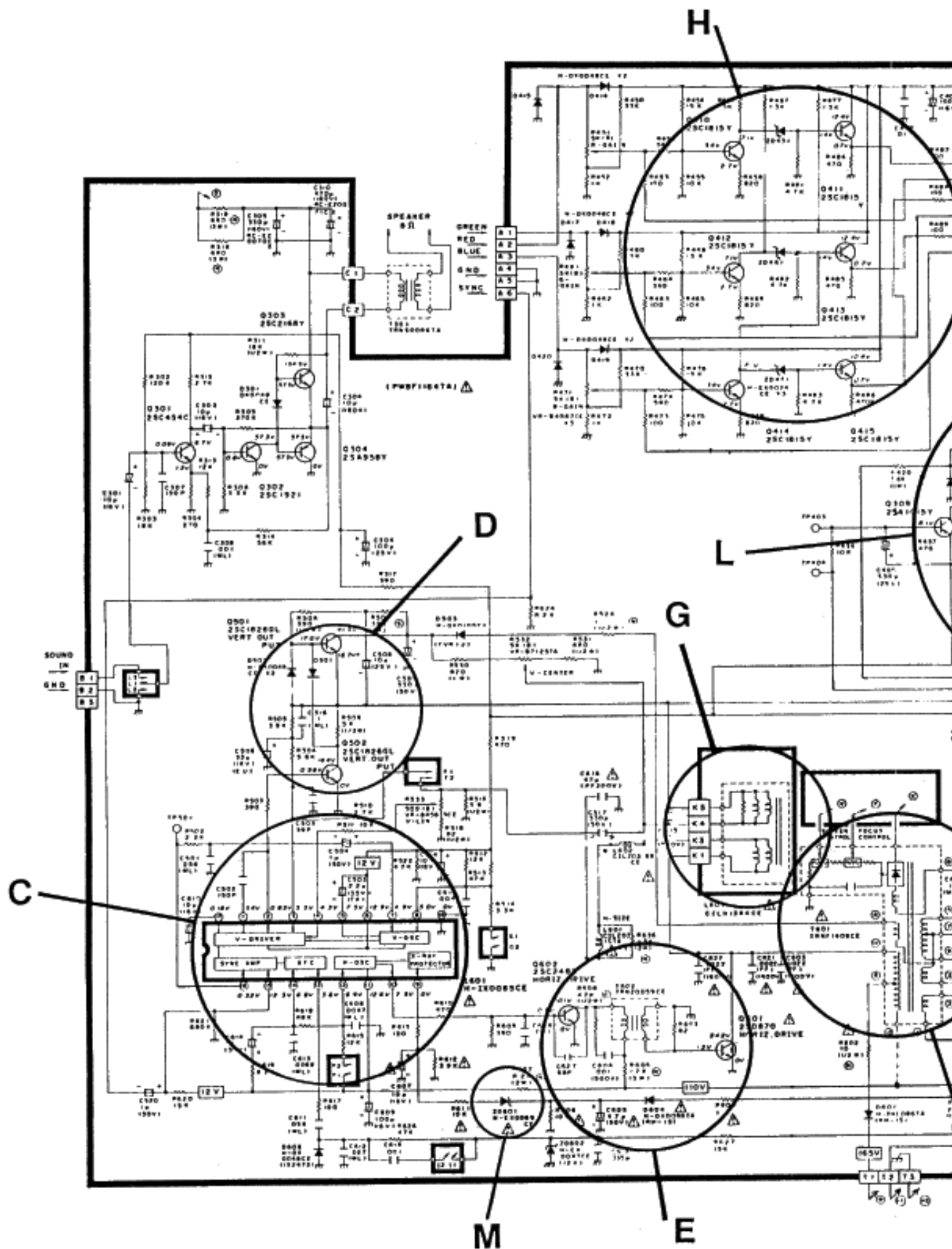


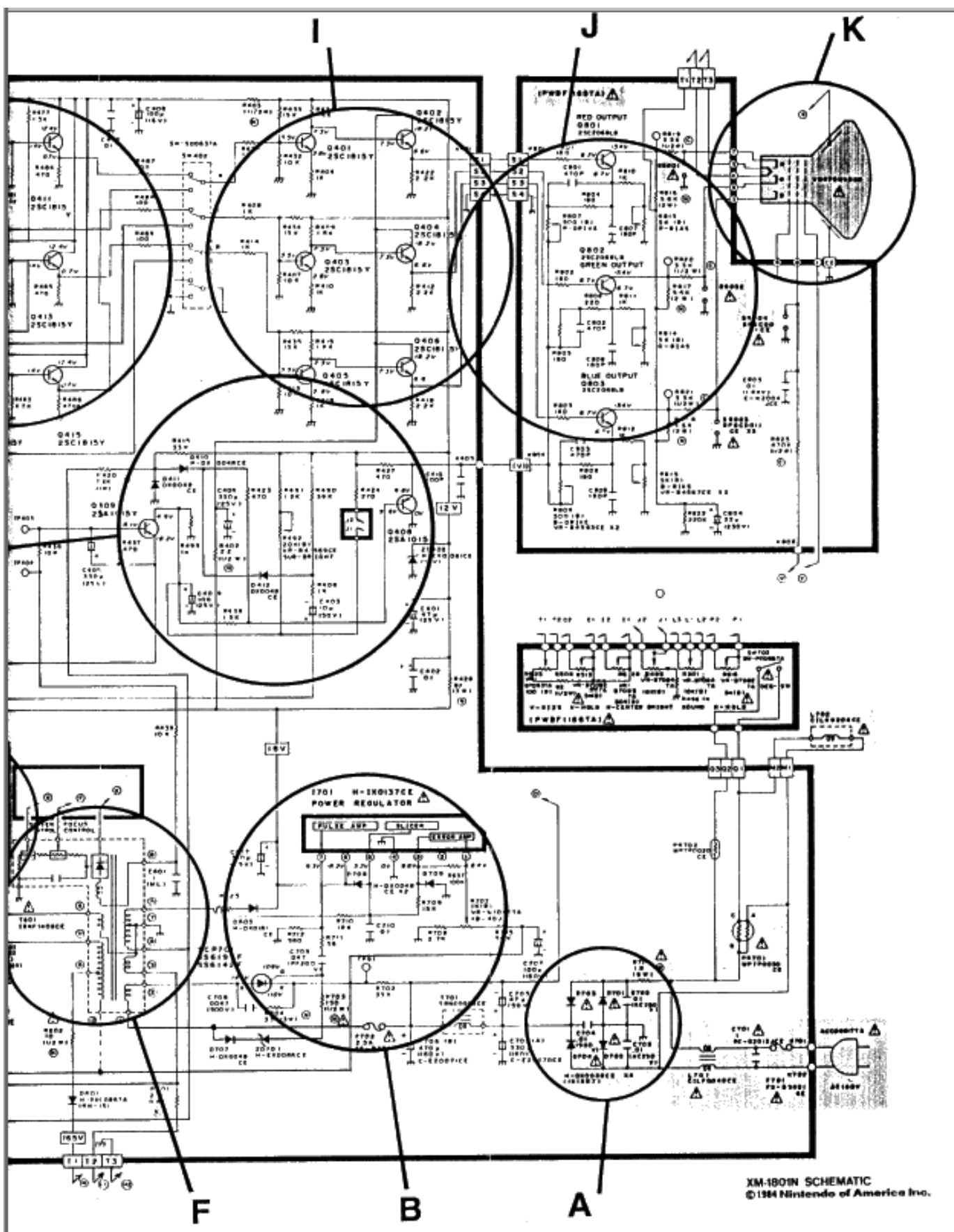
5-5.



5-6.







XM-180IN SCHEMATIC  
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