Start here

Blank screen?

NO → Is the picture too small?

YES → Test fuse F501

BLOWN → **Shorted horizontal output transistor Q352.** Test with the diode check or ohms setting of your meter. Ground the black meter lead to the chassis and touch the red lead to the metal case of transistor. Open or high resistance is good. Shorted when bad. Test with power off!

Shorted diodes D501 - 504
This is rare but can be caused by operating the monitor without an isolation transformer. Also, try unplugging the degaussing coil. Sometimes it will rub on the frame and short circuit.

Bad high voltage unit (flyback transformer)
Examine for cracks or melted areas. This is VERY RARE in this monitor

OK → Check the regulated power supply at resistor R503 (that's the 150 ohm, 15 watt, ceramic resistor.) The terminal closest to the fuse should measure +130 VDC.

low → Check the voltage at the other end of R503. It should be around +145 VDC.

low → Filter capacitor C505 may be bad. This is not too common. Test by connecting replacement capacitor in parallel.

0 VDC → R601 may be open. Look for cracks or bad solder joints in the area.

OK → **Voltage regulator failure.** Replace IC 501. Also, try replacing capacitor C507.

+145 VDC

+160 VDC → Examine the small wire jumper J33 and others on the 130V trace. These are on the edge of the PCB under the CRT.

Looks OK to me! → **You have a horizontal deflection failure.** Before you go any further, visually inspect the chassis for bad solder joints (especially around the high voltage unit) and hairline cracks in the PCB.

Looks OK to me! → Measure the voltage at the metal case of Q352

0 VDC → Test Q351. Test R363 Substitute IC 301. Look for bad connections on T351. If all else fails, call Randy Fromm for help!

+160 VDC → Electrolytic capacitor failure. This is the most common problem of all. It's best to replace all electrolytic capacitors at this time.

OK → Turn up the screen control. Do you see just a white screen (raster?) with diagnol white lines running through the picture like this?

YES → Test Q201 and Q202

NO → Is the CRT heater glowing?

NO → Open CRT heater circuit. Check R416 on neck PCB, bad solder joints on HV unit.

Is the picture too small?

NO → Is the picture perfectly stable?

YES → Is the picture shrunken like this?

YES → **You have a vertical deflection problem.** Check vertical output transistors Q302 & Q303. Resistor R313 may be open. Try replacing C311, C306, C308 & C313. IC 301 may be bad (rare.)

NO → Does it look like the picture is doing the hula? The sides of the screen may be moving in and out with a slow wave moving up or down the screen.

YES → Check the regulated power supply at resistor R503 (that's the 150 ohm, 15 watt, ceramic resistor.) The terminal closest to the fuse should measure +130 VDC.

NO → Is the picture rolling from top to bottom? (Can't lock vertical hold.) Is the picture shifting left and right? (Can't lock horizontal hold.) or both at the same time? Is there a sever, horizontal "tear" at the top of the picture?

YES → You have a sync problem. Make sure that the composite, negative sync from the game PCB is connected to pin 3 of P201 only. Do not jumper pins 2&3 as is commonly (and mistakenly) done. Test transistor Q301. Try changing capacitor C315. Substitute IC 301.

Is the picture perfectly stable?

YES → Too Much color? Missing a color?

NO → Screen dark on left and bright on right Change capacitor C702.

NO → Is the picture distorted or curved?

YES → Electrolytic capacitor failure. This is the most common problem of all. It's best to replace all electrolytic capacitors at this time.

Red	Green	Blue	
Q203	Q204	Q205	Main PCB
Q206	Q207	Q208	
Q401	Q402	Q403	Neck PCB

Wells-Gardner K4900