Issue 1, 1985 : Monitor 1

Model: 1702

commodore

TECHTOPICS

Additional information to aid in the troubleshooting of the 1702 monitor has become available from our technical support group. It has been collated into chart form and is being provided to facilitate repairs on this model. The 1702 is the most common monitor in the field at this time.

CHART TERMINOLOGY:

CHECKPOINTS	Point of circuit to be tested
CAUSE	Possible reason for INCORRECT signal or voltage
POSSIBLE SOLUTION	Most likely failure
MISSING	Signal or voltage not present or INCORRECT
PATH	COMPONENTS or TRACES directly related to that portion of the circuit being checked

TIPS:

- When testing IC circuits, always check for proper BIAS and B+ voltages on all legs of the chip.
- An open horizontal oscillator or driver circuit will cause the B1, 125 volt line, to raise to 158 VDC. To troubleshoot this failure, use the DEAD SET, B+ ABNORMAL Chart.
- An improperly regulated B1 will cause a BLOOMING effect. Use the DEAD SET, B+ ABNORMAL to troubleshoot this SYMPTOM.
- When the horizontal oscillator is triple firing, the monitor makes a BUZZING sound and may blow the 1A. FUSE. The horizontal/vertical oscillator chip, IC 501, is the most common problem.
- If the monitor blows the 1A. fuse, it may short out the horizontal output transistor. A common problem is that the 2 matched diodes, D523, test good but actually are shorted.
- A wavy picture and weak video are often repaired by replacing C101, the 470μF, 6.3V. cap.

TROUBLESHOOTING GUIDE

Dead Set, B+ Abnormal

NOTE: DC Voltages may be LOWERED due to open ELECTROLYTIC CAPACITORS.

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

CHECKPOINT	CAUSE	POSSIBLE SOLUTION
Is F901 open? (4 amp fuse)	Possible short in bridge rectifiers.	Check for shorted diode(s) D901-904, T901 or D905.
Is F902 open? (1 amp fuse)	Possible short in high voltage or excessive load.	Check for shorted Q522, D523 or scan voltage source.
Is voltage at pin 1 of IC901 148 VDC? (voltage regulator)	Possible open path from bridge to regulator.	Check for open R902, R907, or C904 or F902.
Is voltage at pin 2 of IC901 126 VDC? (voltage regulator)	Possible open reference circuit.	Check for open R904, R908, R906 or C907.
Is voltage at pin 4 of IC901 125 VDC? (voltage regulator)	Possible open feed back path or defective chip.	Check for open R901 or IC901.
Is voltage at positive side of C905 18 VDC?	Possible defective bridge.	Check for open or shorted D905.
If the DC fuse (902) is open and no SHORTED parts are readily apparent, then TEMPORARILY jump it out with a 100 watt 125 volt LIGHT BULB. This will absorb MOST OF THE OVER CURRENT ON THE (125) B1 LINE. EXTREME caution should be used in this operation, as some resistors on the scan voltage lines may start to burn due to shorted components.		
LIGHT BULB GLOWS AT 75% INTENSITY		
Is voltage at pin 4 of IC901 or 125 VDC?	High resistance short or short on secondary side of Flyback.	Check Q522 for leakage — CONTINUE to next line.
Is voltage on cathode side of D422 25 VDC?	Defective diode or short on 125V line.	Check D422 for a short or open — CONTINUE to next line.
Is R421 open or BURNING?	Short in 25.8 VDC line.	Check IC421 for a short.

No Chroma, Sound Normal, Black & White Tracking Normal

NOTE: This chart was written with the FIVE PIN cable installed in the front ports.

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

CHECKPOINT	CAUSE	POSSIBLE SOLUTION
Is Chroma signal at pin 7 of IC201?	Missing 7.2 VDC.	Check for proper DC voltage.
	Open IC201.	Replace IC201.
Is Chroma signal at base of Q341?	Missing 5.8 VDC.	Check for proper DC voltage.
	Open path from pin 7 of IC201.	Check R341, R342, C341 or Q341.
Is Chroma signal at emitter of Q341?	Missing 5.1 VDC.	Check for proper DC voltage.
	Open or shorted Q341.	Check DCV at emitter & collector R343.
Is Chroma signal at base of Q342?	Missing 6.2 VDC.	Check for proper DC voltage.
	Open or shorted Q342. Open path from Q341.	Check R346, R347, R345, C343 or AV Switch.
Is Chroma signal at emitter of Q342?	Missing 5.5 VDC.	Check for proper DC voltage.
	Open or shorted Q342.	Check R348. Replace Q342.
Is Chroma signal at pin 9 of IC301?	Missing 12 VDC pin 13.	Check for proper DC voltage.
	Open path from Q342.	Check C301, R324, T301 or R301. Replace IC301.
Is ADJUSTABLE 5.5 VDC at pin 12 of IC301?	Open Chroma or sub Chroma controls or DC voltages.	Check voltages from control PCB assembly.
	Open path from AV PCB.	Check R303, R302 or IC301.
Is horizontal keying pulse at pin 8 of IC301?	Open path from pin 11 of T523.	Check for open D301, R228, R529, R537 or C533.
Is 3.58 MHz signal at pin 5 of IC301?	Open oscillator circuit.	Check for open X301, C308, C309, C307, R307, R308 and R309 or replace IC301.
Are Chroma signals at bases of Q351, Q352 and Q353?	Open path from IC301.	Check for open L301, L302, L303, R310, R311, R312, R373, R374, R375 or shorted C311, C312 and C313.
	Defective output IC301.	Check IC301.