

Model: C16

Troubleshooting Aides

NOTE: Visual inspection is critical in this unit!
The upright position of many of the components used on the board can create problems. It is possible for them to be shorted to the shield or to each other. Make sure they are evenly spaced and do not contact the shield.

1) NO VIDEO - Absolutely no video on screen

A) Check for 5 volts

O.K.

If not:

- 1) Check fuse
- 2) Check for twisted or bent caps (5 V. short to ground)
- 3) Check L1
- 4) Check 5 V. regulator
- 5) Check if top shield shorts to + 9 V. (Blown fuse)
- 6) Check if top shield is shorting 5 V. to ground



B) Check for oscillation at pin 14 of U1

O.K.

If not:

- 1) Check for good connection at pin 14 of U1
- 2) Check for good connection at R1 thru R7



C) Check for LUM signal at pin 23 of U1, at pin 4 of the modulator, at pin 8 of the modulator, at EM3 and at pin 1 of CN6

O.K.

If not:

- 1) Check for LUM signal shorted to ground
- 2) Check for open traces
- 3) Check modulator



D) Check for reset

O.K.



E) Check for control signals:

Signal	I.C.	Pin	Signal	I.C.	Pin
AEC	U1	35	R/W	U1	7
AEC	U2	4	0	U1	12
CAS	U1	11	MUX	U1	9
CS1	U1	6	IRQ	U1	8
CS1	U14	15	RDY	U2	2
CS0	U1	5	BA	U1	34
CS0	U14	1	RAS	U1	10

- 2) BAD VIDEO - Scrolling lines on screen - Random blocks on screen - Blurred display
 - A) Check U1 for proper operation
O.K. If not: 1) Check socket for good solder
↓ 2) Check for bad U1
 - B) Check U2 for proper operation
O.K. If not: 1) Check socket
↓ 2) Check for bad U2
 - C) Check RAM data lines for correct amplitude
O.K. If not: 1) Check for hot surface of RAM
↓ 2) Jump out RAM to verify
 - D) Check multiplexers U7, U8 - signals at RP3 and RP4 should be similar in frequency and amplitude
O.K. If not: 1) Suspect U7 or U8
↓
 - E) Check ROM for chip select signal at pin 22 of U3 and U4
O.K. If not: 1) Check for signal generation
↓ at U14
 - F) Check that all ROM addresses are present and correct amplitude
O.K. If not: 1) Trace problem address A0-A15
↓
 - G) Check U16, U3, U4 by replacement with known good
- 3) NO POWER
 - A) Verify voltage +5 and +9 volts
 - 1) Check for shorts to ground
 - 2) Check switch
 - 3) Check power supply
- 4) BAD BASIC - Random characters on screen - Random colors - Power-up message is missing
 - A) Check Basic ROM U3
 - B) Check A thru G above (Bad Video)

5) NO COLOR or BAD COLOR

- A) Check U1 pin 14 for 14.31818 MHz with frequency counter
O.K. If not: 1) Check solder joints of CT1 and adjust for correct frequency
↓ 2) Check crystal, Q1 and Q2
3) Check clock circuit for opens or shorts
- B) Check U1 pin 13 for Color Out signal.
O.K. If not: 1) Swap U1 w/known good
↓
- C) Check modulator M1 pin 5 for Color In signal and pin 6 for Color Out signal
O.K. If not: 1) Check M1 operation
↓
- D) Check EM4 and CN6 pin 6 to see if color signal is present.
1) Check for shorts

6) NO SOUND or BAD SOUND

- A) Check U1 pin 33 for SND signal
O.K. If not: 1) Check socket for open circuit
↓ 2) Swap U1 w/known good
- B) Check audio circuit for short to ground or loss of signal.
O.K. If not: 1) Check Q3 - Be sure emitter and base are not shorted to 5 V.
↓
- C) Check modulator M1 pin 2 for SND signal
1) Adjust I.F. can (top right of modulator) for clean, loud volume
2) M1 pin 2 to ground should read approximately 480 ohms
3) Check M1 for component failure

7) SERIAL FAILURES

- A) Check FB14-19 for shorts to shield or each other (has caused serial port problems)
B) Check FB1-5 for shorts to shield or each other
C) Check U9, U2 and CN7