

- 2) BAD VIDEO - Scrolling lines on screen - Random blocks on screen - Blurred display
- A) Check J1-J6 for shorts to ground or each other
O.K.
↓
 - B) Check reset for correct operation
O.K.
↓
 - C) Check U1 for proper operation
O.K. If not: 1) Check socket for good solder
↓ 2) Check for bad U1
 - D) Check U2 for proper operation
O.K. If not: 1) Check socket
↓ 2) Check for bad U2
 - E) Check RAM data lines for correct amplitude
O.K. If not: 1) Check for hot surface of RAM
↓ 2) Jump out RAM to verify
 - F) Check multiplexers U9, U10 - signals at RP3
and RP4 should be similar in frequency and
amplitude
O.K. If not: 1) Suspect U9 or U10
↓
 - G) Check ROM for chip select signal at pin 22 of
U23 and U24
O.K. If not: 1) Check for signal generation
↓ at U20
 - H) Check that all ROM addresses are present and
correct amplitude
O.K. If not: 1) Trace problem address A0-A15
↓
 - I) Check U19, U23, U24 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 U23
 - B) Check B thru I 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 FB4 and CN7 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 FB23-26 for shorts to shield or each other
B) Check U7, U2 and CN2

8) KEYBOARD FAILURES

- A) Check pins on ribbon cable for good connection
O.K.
↓
- B) Check for shorts - CN5, CN6, FB's, Diodes
O.K.
↓
- C) Check chip select to U27 and the I.C. U27
O.K.
↓
- D) Check U1 for proper operation
O.K. If not: 1) Check socket
↓ 2) Check for bad U1

9) FAILURES IN SOFTWARE MODE - All units should be checked for proper operation, when any repairs are necessary.

- To Check:
- 1) Press 'F1' on keyboard
 - 2) Press 'Return' to enter Word Processing mode
 - 3) Press 'Commodore' key and 'C' key at the same time
 - 4) Type 'tc' and press 'Return' to enter Spreadsheet
 - 5) Press 'Commodore' key and 'C' key again
 - 6) Type 'tw' to return to Word Processing mode

Watch for video or loading problems, then:

- A) Check jumpers at J1-J6 for correct connection
O.K.
↓
- B) Check U1, U2, U25, U26