

Model: 618

Troubleshooting Aids

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

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|------|---------|-----------------------------------|
| O.K. | If not: | 1) Check fuse |
| | | 2) Check for twisted or bent caps |
| | | < 5 V. Short to ground! |
| | | 3) Check CI |
| | | 4) Check 5 V. regulator |
| | | 5) Check if top shield shorts to |
| | | + 5 V. (shown later) |
| | | 6) Check if top shield is |
| | | shorting 5 V. to ground |

B) Check for oscillation at pin 14 of U1

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|------|---------|---------------------------------|
| O.K. | If not: | 1) Check for good connection at |
| | | pin 24 of U1 |
| | | 2) Check for good connection at |
| | | U1 pins 27 |

C) Check for 10M signal at pin 21 of U1, at pin 8 of the Modulator, at pin 9 of the Modulator, at EP3 and at pin 1 of D08

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|------|---------|---------------------------------|
| O.K. | If not: | 1) Check for 10M signal shorted |
| | | to ground |
| | | 2) Check for open traces |
| | | 3) Check Modulator |

D) Check for reset

O.K.

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E) Check for control signals:

Signal	I.C.	Pin	Signal	I.C.	Pin
ABC	U1	20	R/W	U1	7
ABC	U3	4	C	U1	12
C&E	U1	12	R&C	U1	9
CS1	U1	8	TRQ	U1	8
CS1	U14	15	STR	U3	3
CS2	U1	5	SA	U1	24
CS2	U14	3	R&B	U1	10

- 2) **RAM TIMED** - Scrolling lines on screen - Random blocks on screen - Blurred display
- A) Check R1 for proper operation
 - O.K. IF NOT: 1) Check socket for good solder
 - 2) Check for bad U1
 - B) Check U1 for proper operation
 - O.K. IF NOT: 1) Check sockets
 - 2) Check for bad U2
 - C) Check RAM data lines for correct amplitude
 - O.K. IF NOT: 1) Check for bad surface of RAM
 - 2) Jump out RAM to verify
 - D) Check multiplexers U7, U8 - signals at U7 and U8 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 28 of U3 and U4
 - O.K. IF NOT: 1) Check for signal generation at U4
 - F) Check that all ROM addresses are present and correct amplitude
 - O.K. IF NOT: 1) Trace problem address A0-A15
 - G) Check U16, U1, U8 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) **RAM BASIC** - Random characters on screen - Random colors - Power-up message is missing
- A) Check BASIC ROM U1
 - B) Check & Data 0 above (Bad video)

5) NO COLOR OR BAD COLOR

- A) Check U1 pin 18 for 18.21818 MHz with frequency counter
 O.K. If not: 1) Check solder joints of CR1 and adjust for correct frequency
 2) Check crystal, CR and CR
 3) Check clock circuit for opens or shorts
- B) Check U1 pin 13 for Color Red signal.
 O.K. If not: 1) Swap U1 w/known good
- C) Check Modulator M1 pin 5 for Color In signal and pin 4 for Color Out signal
 O.K. If not: 1) Check M1 operation
- D) Check CR1 and CR2 pin 4 to see if color signal is present.
 1) Check for shorts

6) NO SOUND OR BAD SOUND

- A) Check U1 pin 21 for SMO 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 Q9 - No wire emitter and base are not shorted to 5 V.
- C) Check Modulator M1 pin 3 for SMO signal
 1) Adjust T.P. on (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 PR14-19 for shorts to shield or each other (has caused serial port problems)
- B) Check PR10 for shorts to shield or each other
- C) Check PR, VR and OR