



# Tech Info Library

## Disk III Analog PCB Troubleshooting

DESCRIPTION: Use this procedure only if a Disk III Analog PCB problem is confirmed. To obtain the procedure to confirm a Disk III problem, search on "HTS and Disk III and General".

### YOU WILL NEED:

1. The following Disk III Analog PCB chips:
  - \* IC 2003 (APN 327-2003)
  - \* IC 74LS125 (APN 305-0125)
  - \* IC CA3146 (APN 351-3146)
  - \* IC 3470 (APN 355-3470)
  - \* IC 74LS74 (APN 305-0074)
  - \* IC 74LS32 (APN 305-0032)
2. Disk alignment aid
3. Level I Tech Procedures binders

### BEFORE YOU START:

1. Refer to the Technical Procedures if removal/replacement or adjustment procedures are needed.
2. Before replacing a component on the Analog PCB, make sure that the power is off and remove the Analog PCB.
3. If replaced module/part doesn't fix the problem, reinstall the original module/part.

### INSTRUCTIONS:

1. Remove the problem drive's case to expose the Analog PCB.
2. Examine the Analog PCB for:
  - \* R32 at location D1 missing (send to Apple)
  - \* IC 74LS74 at location E1 missing (replace)
  - \* Jumper wires soldered to back (send to Apple)
  - \* Damage (e.g., burns, cracks, etc.) if board is beyond repair, throw it away. Examine each chip and its socket.
  - \* If repair is possible but it can't be made by replacing a socketted chip send the Analog PCB to Apple.
3. Find the PROBLEM below and perform appropriate FIX.

PROB: Known good internal Disk III in test bed Apple III won't boot when the problem drive is installed externally

FIX: Recheck for the problem after each of the following steps

- (1) Replace IC 2003 at location C4
- (2) Replace IC 3470 at location B1 and IC 74LS125 at location G2  
then if it boots, perform the comparator offset adjustment
- (3) Replace IC 3146 at location A3
- (4) Replace IC 74LS74 at location E2
- (5) Send the Analog PCB to Apple

PROB: Drive will not perform the D-Speed adjustment

FIX: Recheck for the problem after each of the following steps

- (1) Replace IC 3470 at location B1 and IC 74LS125 at location G2  
then perform the comparator offset adjustment
- (2) Replace IC 3146 at location A3
- (3) Replace IC 2003 at location C4
- (4) Replace IC IC 74LS74 at location E2
- (5) Replace IC 74LS32 at location F1
- (6) Send the Disk III Analog PCB to Apple

PROB: Drive does not come on.

FIX: Recheck for the problem after each of the following steps

- (1) Replace IC 2003 at location C4
- (2) Replace IC 74LS125 at location G2
- (3) Send the Disk III Analog PCB to Apple

PROB: Drive with the problem Analog PCB installed reads but doesn't write

FIX: Recheck for the problem after each of the following steps

- (1) Replace IC 74LS125 at location G2
- (2) Replace IC 2003 at location C4
- (3) Replace IC 3146 at location A3
- (4) Send the Disk III Analog PCB to Apple

PROB: Drive writes when the disk is protected

FIX: Recheck for the problem after each of the following steps

- (1) Replace IC 74LS125 at location G2
- (2) Send the Analog PCB to Apple

PROB: None of the symptoms above match those of the problem

FIX: Recheck for the problem after each of the following steps

- (1) Perform the D-Speed adjustment
- (2) Replace IC 3470 at location B1 and IC 74LS125 at location G2  
then perform the comparator offset adjustment
- (3) Replace all socketted chips one at time
  - \* IC 2003 at location C4
  - \* IC 3146 at location A3
  - \* IC 74LS74 at location E2
  - \* IC 74LS32 at location F1
- (4) Every chip on the PCB has been replaced. If it still doesn't work, send the Analog PCB to Apple.

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