

TANDY 10

Showroom Service Guide

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Hauppauge, N.Y.

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TANDY 10 Showroom Maintenance Service

The TANDY 10 has been designed to provide many hundreds of hours of maintenance-free operation. If the system should require repair, however, it has been designed for maximum maintenance accessibility of the major sub-assemblies. The electronic components such as power supplies, P.C. Boards, Disc Drives, etc., can be readily removed and replaced.

Technical assistance to help you identify the faulty sub-assembly and process your order for a replacement is provided by:

Applied Digital Data Systems Inc. (ADDS)
100 Marcus Blvd.
Hauppauge, N.Y. 11787
Phone: 516/231-5400
Attn: Customer Service Department

When calling for service, please have the following information available to insure prompt processing of your order.

Your full address for Shipping and Billing
Purchase Order Number
The machine Serial Number
A description of the problem
The method of shipment you prefer

ADDS will make every effort to ship your order within 24 hours and will contact you with confirmation and shipping information.

This service guide includes sections on the power supply, physical access, automatic system diagnostics and troubleshooting.

You will find a list of the sub-assembly part numbers along with the replacement cost for equipment that is out of warranty in Section 5.

As you know, with any electronic equipment, the major causes of failure are abuse and a heavy build-up of dust and dirt causing a restriction of air flow for cooling. In order to minimize the failures on your equipment, it is suggested that you periodically remove the rear compartment cover to inspect and clean the system if required.

SECTION 1:
POWER SUPPLY

ADJUSTMENT OF THE TANDY 10 POWER SUPPLY

When adjusting the Tandy 10 Power Supply, it is necessary to remove the complete assembly and reposition the power pack so that the adjustments for the +12 volts, -12 volts, and +5 volts DC are readily accessible. This section is not concerned with the +24 VDC used to power the Shugart disc drives since this adjustment is not critical.

J5, J6 and the two red and two black wires on the terminal strip must be connected for these measurements.

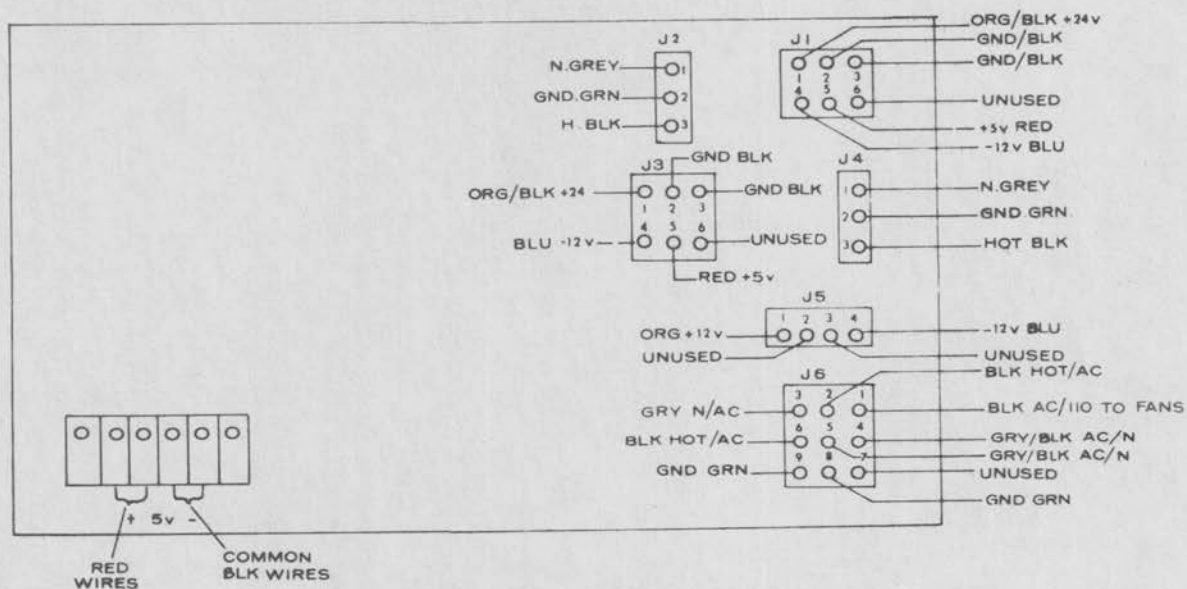


Figure 1-1. Power Supply Jumper Plug Layout

TOP VIEW	+ 24V 3A □
	+ 12V 2A □
○ + 5V 30A	- 12V 4A ○

Power Supply Adjustment Label

Test points are taken on the MPU board which is the most accessible in this case. Test points are:

-12 VDC bottom of C2

+12 VDC top of C3

+ 5 VDC top of C1

Ground on MPU card is taken from top or bottom pins of S1.

Tolerances:

+5 VDC is the most critical value since it is used for logical levels. Adjust for exactly +5 VDC if possible.

Set -12 VDC to - 12.5 VDC \pm 5%

Set +12 to + 12.5 VDC \pm 5%

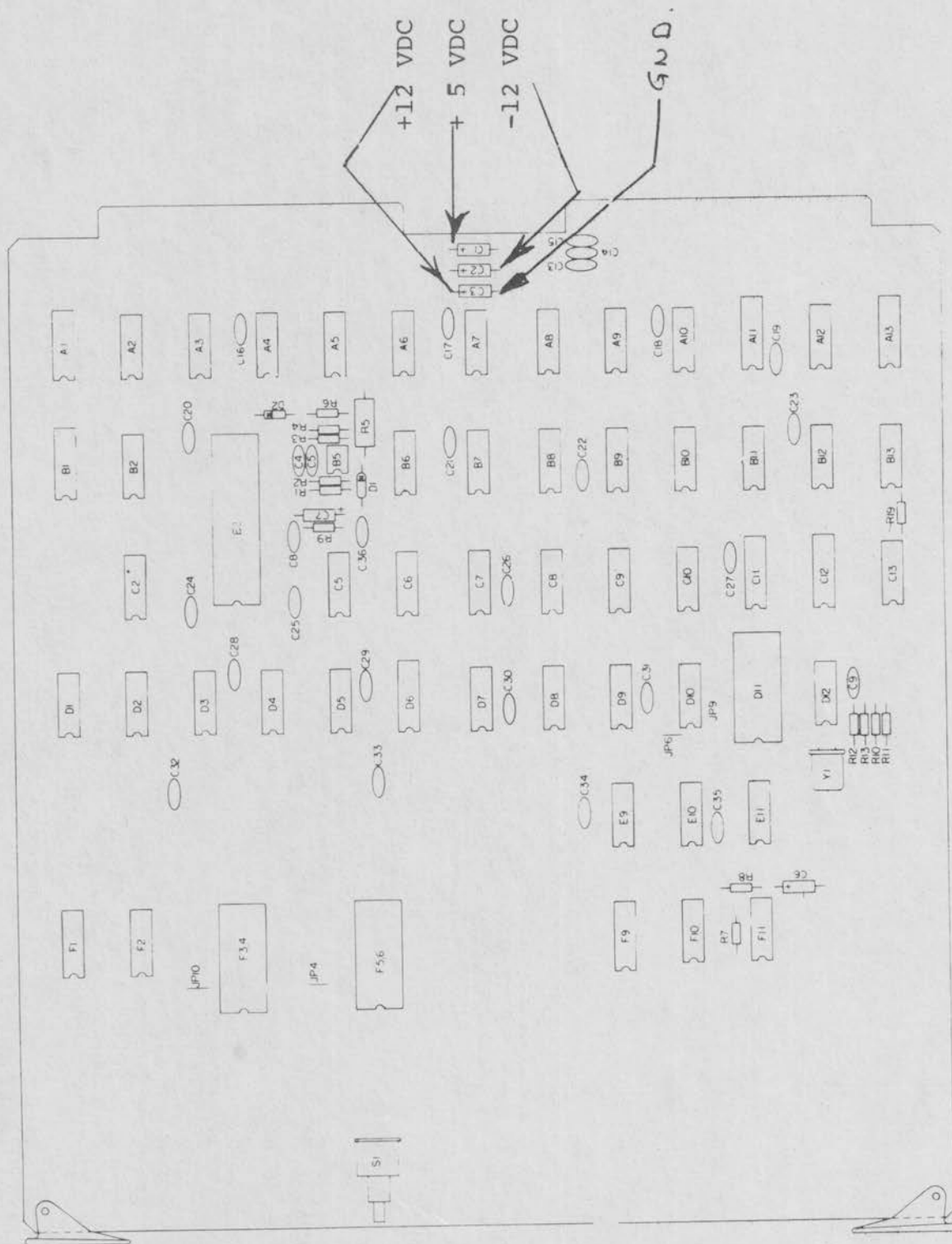


Figure 1-2. Power Supply Test Points on MPU Board

SECTION 2:
PHYSICAL ACCESS

CONTROLS AND CONNECTORS

Figure 2-1 shows the back panel of the CRT.

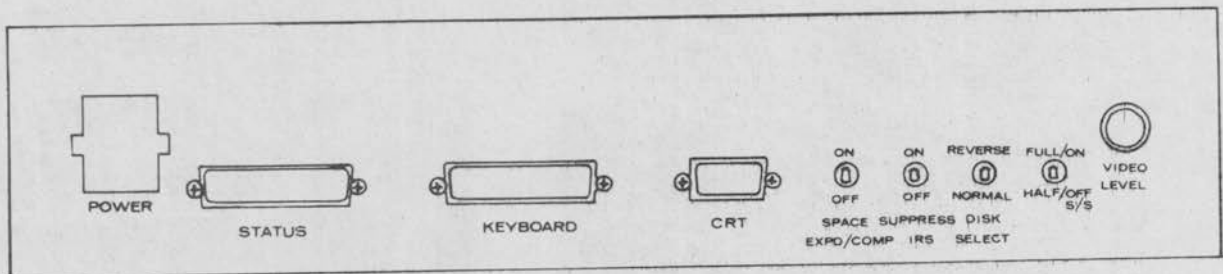


Figure 2-1. Back Panel of CRT

The connectors to the printer and the location of fuses are shown in Figure 2-2.

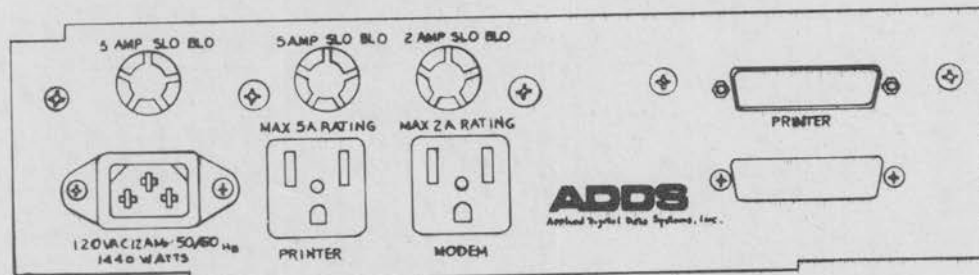


Figure 2-2. Connector Panel

ACCESS TO SUBASSEMBLIES AND CARDS

PC Cards

1. At the rear of the work station, tilt the back panel towards you and set aside (photo 1).
2. Remove the card-retaining bar by removing 1 Phillips head screw and loosening the other (photo 2).

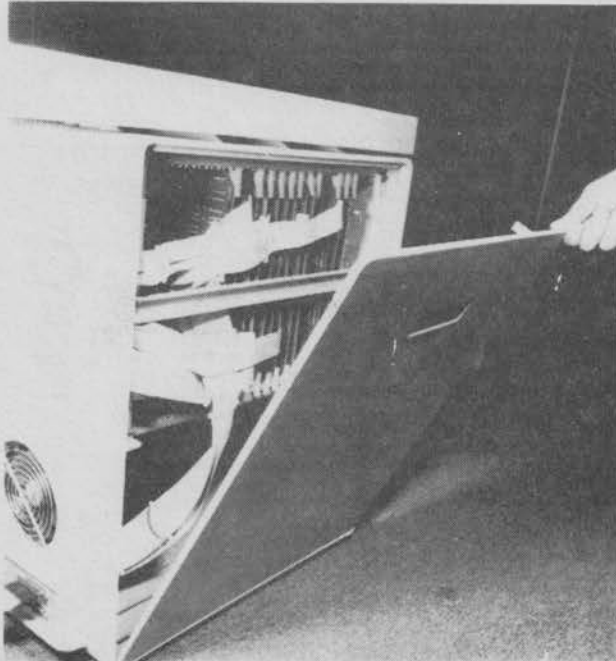


Photo 1

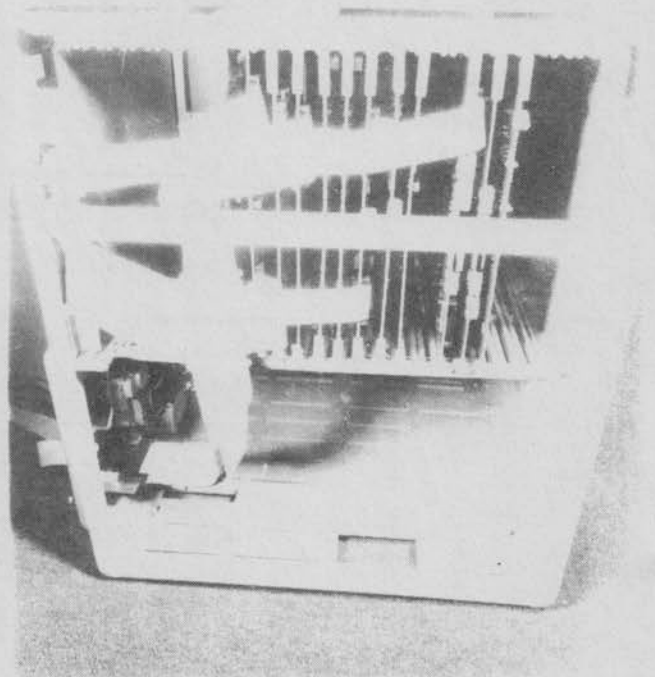


Photo 2

3. Before removing a faulty printed circuit card, identify its position using the card location guide shown in Figure 2-3, and remove all applicable cables.

18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
			SPARE	MEM 3	DC C	DC B	P B	MEM 2	MEM 1	S B	V G	MP U				SPARE	SPARE

Figure 2-3. Card Cage Layout

4. The card can be removed easily by spreading the card retainer tabs, then sliding the card towards you.

CAUTION

When replacing a PC card, do NOT force the card into its connectors. Apply firm but constant pressure until the card seats itself. The edge card connectors "float" and will align themselves when constant pressure is applied.

5. If it is necessary to remove the entire card bucket assembly, remove all cables and the 4 Phillips head screws on the two side walls (photo 2).
6. Slide the subassembly towards you, taking care not to damage the cables. Place the subassembly face down (photo 3).
7. Complete removal of the card bucket subassembly requires removing 6 wires from the power supply subassembly directly below it.

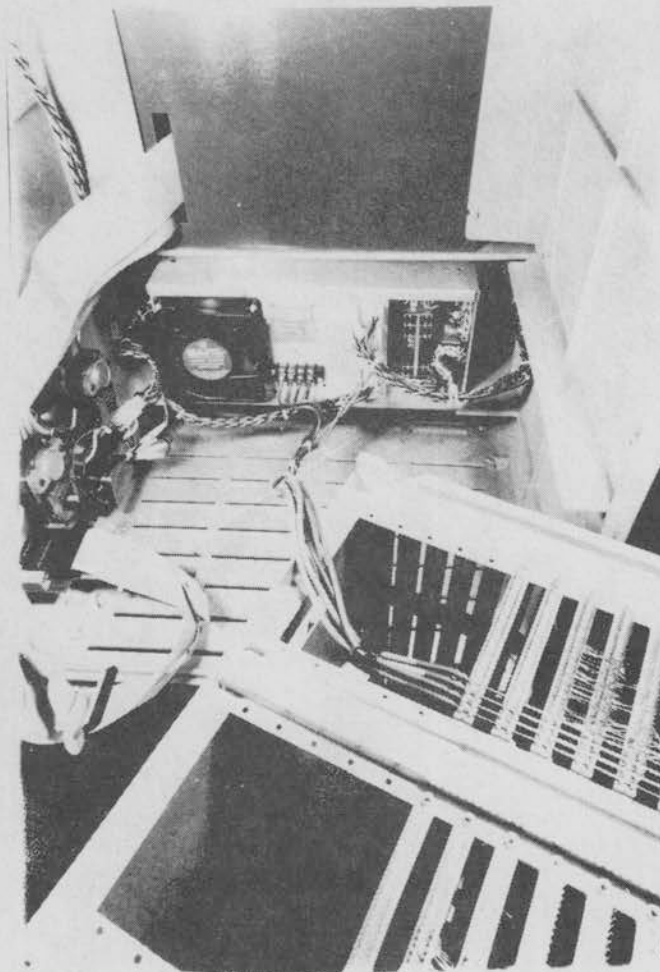


Photo 3

CRT

1. Disconnect 3 ribbon cables and 1 power cable from the rear panel.
2. As shown in photos 4 and 5, firmly grasp the unit from the rear, tilting it up and towards you while lifting the assembly out. Then rest it on the workstation.



Photo 4



Photo 5

3. To remove top cover, remove 4 Phillips head screws as shown in Figure 2-4.
4. Standing at the rear of the unit, carefully lift the shroud to your left, as shown in photo 6.
5. Remove 3 Phillips head screws and disconnect the display panel from the shroud.

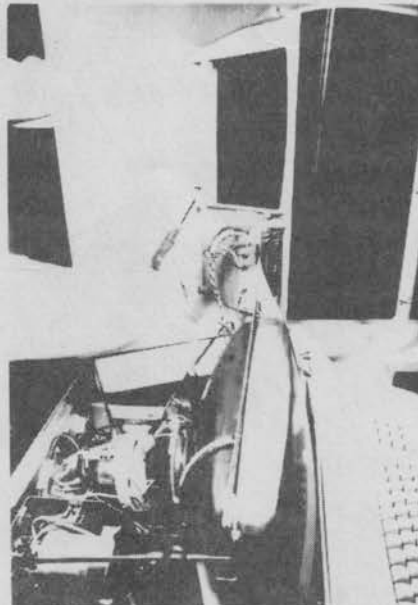
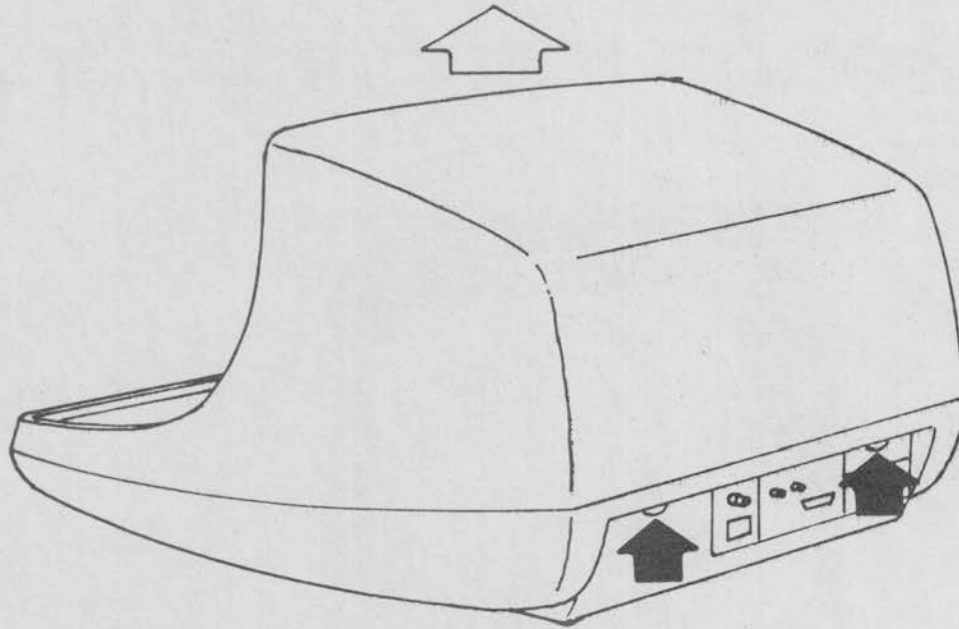


Photo 6

GRASP SIDES OF SHROUD AND LIFT UP



REMOVE 4 PHILLIPS HEAD
SCREWS (ARROWS)

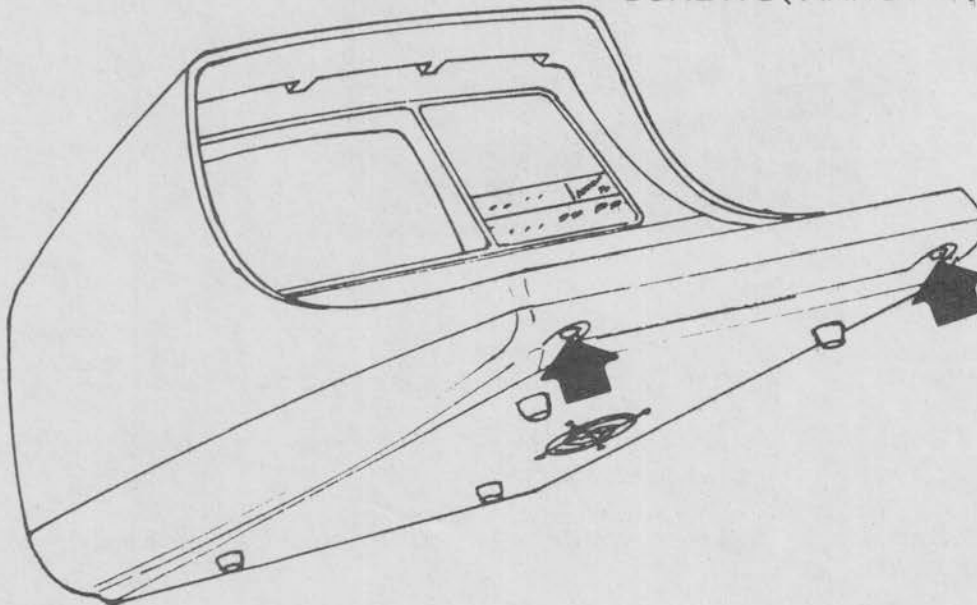


Figure 2-4. Shroud Removal

6. To remove the keyboard assembly, tilt up the front of the unit and remove the 4 Phillips head screws that retain the keyboard assembly. The 2 front screws are visible; the 2 rear screws are in the 2 wells under the unit.
7. After removing the 4 screws, the keyboard may be laid over (as shown in photo 7) or detached by removing the cable.

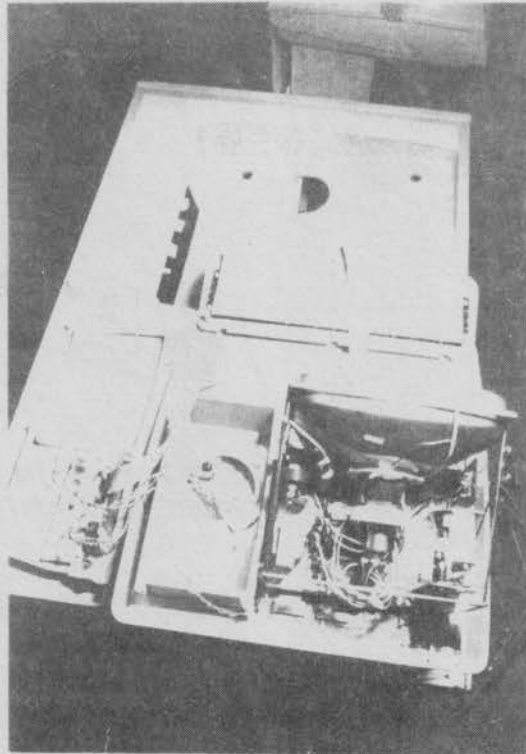


Photo 7

8. The monitor assembly may now be removed.
 - a. Remove 4 Phillips head screws from the four corners of the monitor assembly base.
 - b. Remove 2 cables connecting the monitor assembly to the rear panel.
 - c. Lift out the monitor assembly.

Power Supply

1. With the front storage compartment door open, remove the 4 Phillips head screws from the front of the power supply (Figure 2-5).

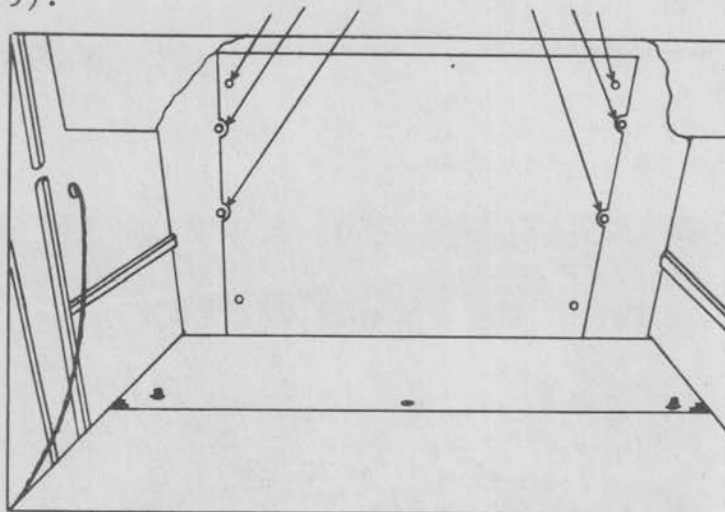


Figure 2-5. Power Supply Removal

2. At the rear, remove the 6 Molex connectors and the 4 wires (2 red, 2 black) from the 4-position barrier strip. (photo 8)

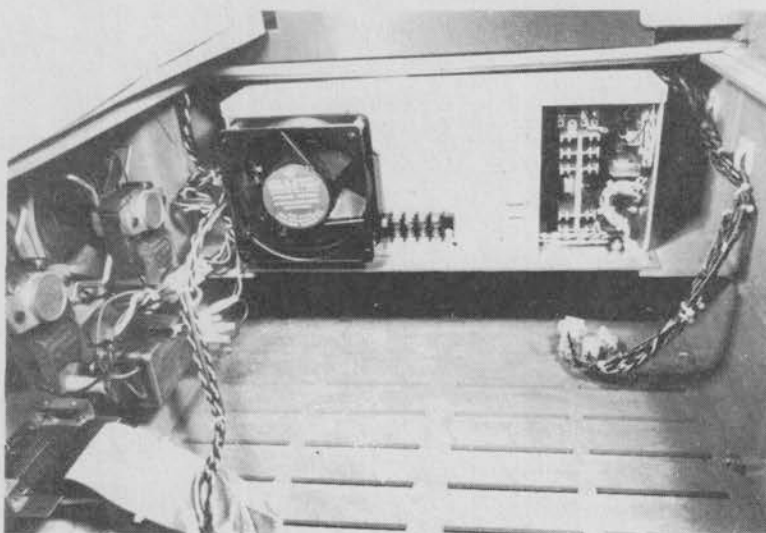


Photo 8

3. Remove 2 Phillips head screws from the lower rear corners of the power supply.
4. Slide the power supply assembly towards you, taking care not to damage the cables.
5. The top of the power supply is shown in photo 9. The two holes on the metal plate are for voltage adjustment as described on the identification label on the rear of the power supply and on Figure 2-6.

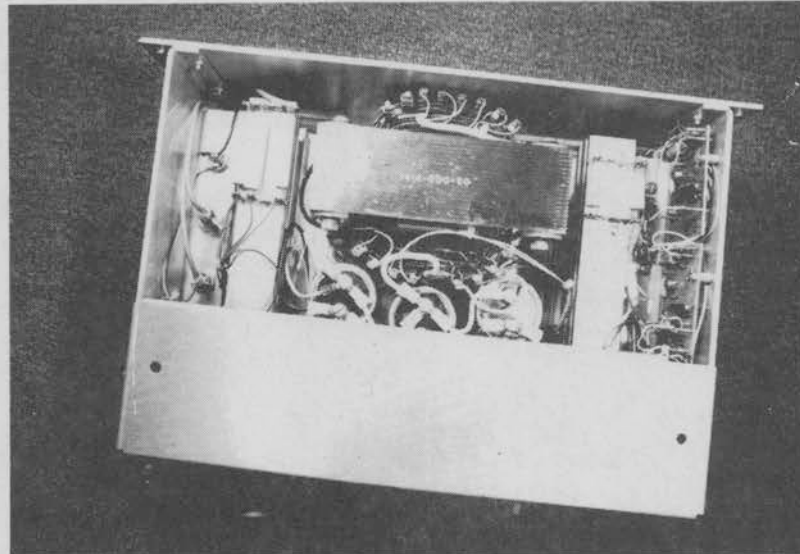


Photo 9

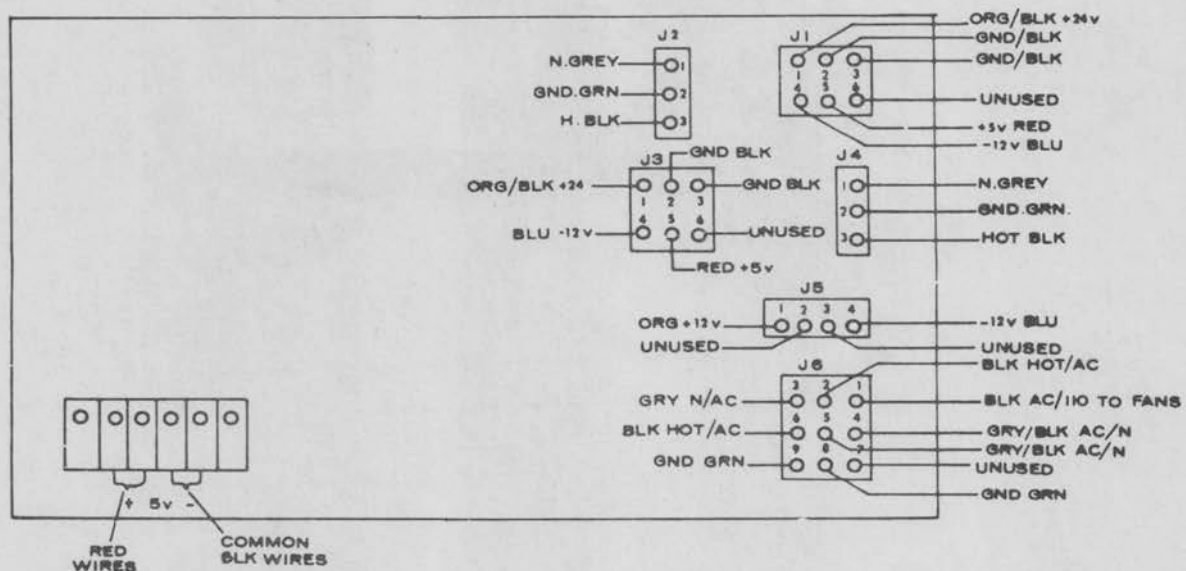
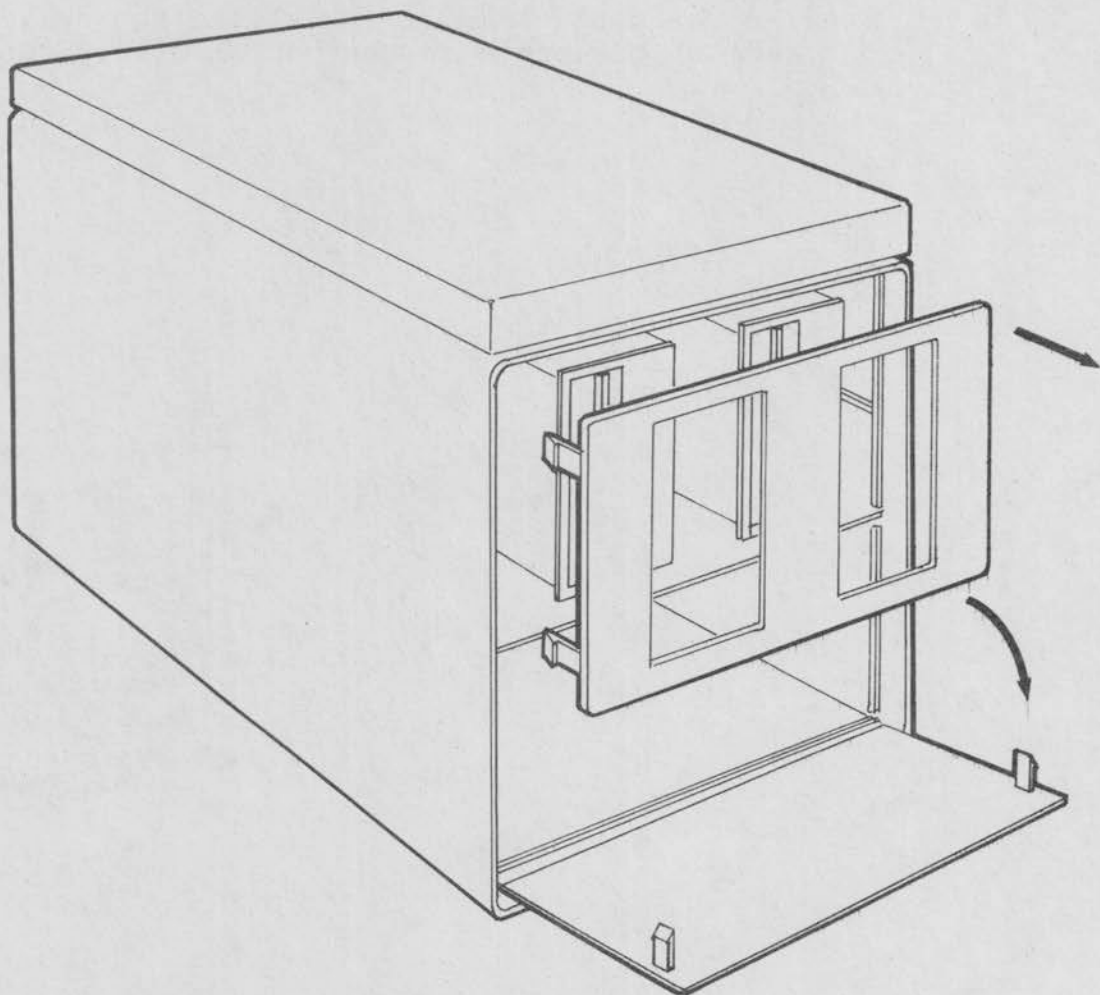


Figure 2-6. Tandy 10 30AMP Power Supply Layout

Disk Drives

1. Open front storage compartment by lowering the door to the floor.
2. Remove the disk drive face plate.



3. Remove 6 Phillips head screws on the disc drive mounting plate.
4. Slide disc drive forward approximately 6" to remove power cables. There are 2 Molex connectors on the rear left side of the drive, and one 50-pin edge card connector on the rear right side of the drive. After removing these cables, slide the drive completely out of the machine.

CAUTION

Note the position of pin 1 on the edge connector so that you do not reverse the cable when re-installing the drive. Pin 1 is the red edge of the cable on the bottom of the connector.

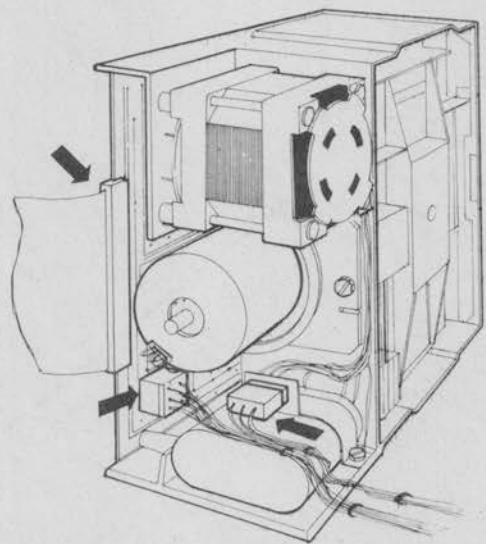
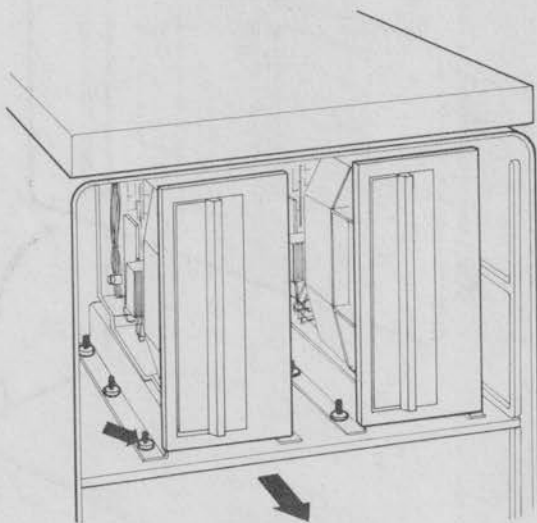


Photo 10 shows the disc drive removed from its housing.



SECTION 3:

AUTOMATIC SYSTEM DIAGNOSTICS

When the Power ON/OFF switch on the front of the Tandy 10 CRT is turned ON, the system diagnostic routine is automatically initiated. This routine tests the system and indicates the reason for any failure. The test can be repeated by holding down the PREV PAGE key.

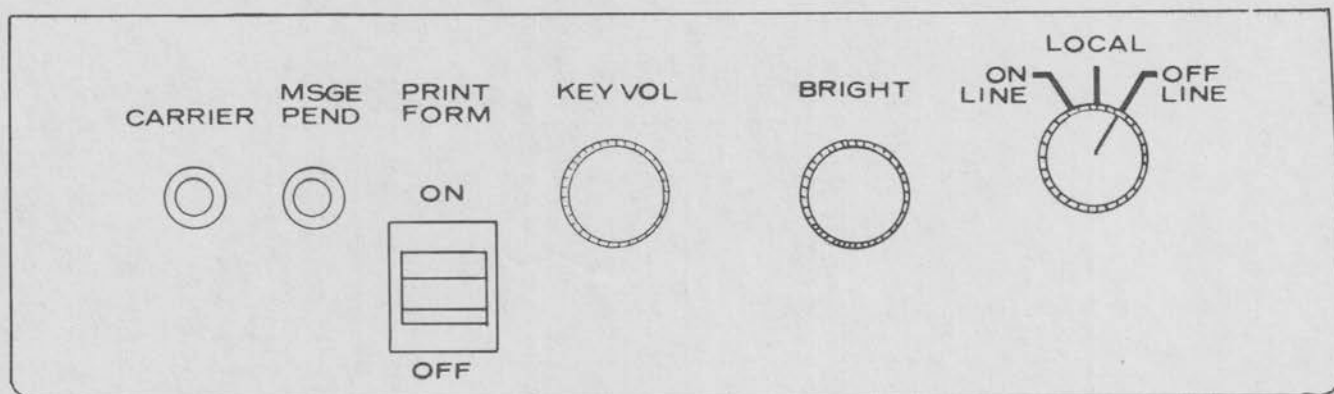
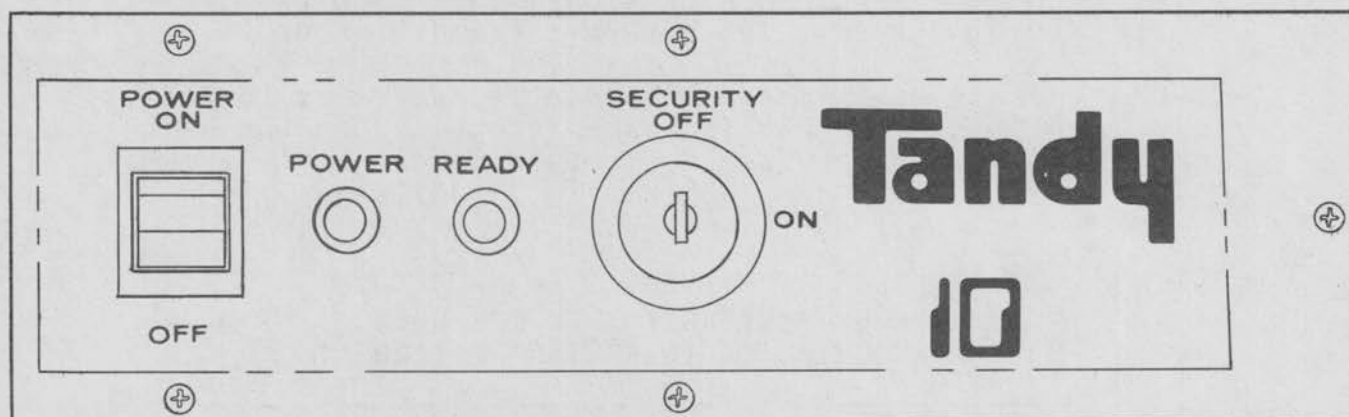


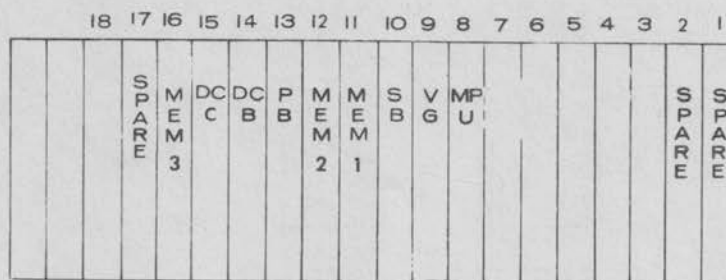
Figure 3-1. Front Panels - Tandy 10

Procedure

- NORMAL: The normal message displayed will be "TESTING."
Under a no-fault condition, after several seconds,
the message "MEM SIZE = nnK" and "LOAD PRGM" will
be displayed. The system is ready for use.

POWER MUST BE TURNED OFF WHEN
REMOVING OR INSERTING PC CARDS!!

Tandy 10



3-2

Table 3.1. Corrective Actions for Self-diagnostic Test Failures

Message	Cause	Action
DB FAIL	Disc buffer error	Replace either DC/A or DC/B. Try DC/A first.
M1 FAIL	Memory error	Replace memory card 1, with switches set identically to those on the removed card.
M2 FAIL	Memory error	Replace memory card 2, with switches set identically to those on the removed card.
M3 FAIL	Memory error	Replace memory card 3, with switches set identically to those on the removed card.
PB FAIL*	Printer buffer error	Replace Printer Buffer card PB.
SB/VG FAIL	Screen Buffer or Video Generator error	Replace Screen Buffer card SB or Video Generator card VG. Try SB first.
SYS/FAIL	Main processing unit error	Replace MPU card.

* To continue all system functions except Printer functions, depress NEXT PAGE key.

SECTION 4:
TROUBLESHOOTING

Refer to this section when a problem occurs despite an error-free automatic diagnostic test.

Table 4.1. Troubleshooting

Problem	Remedy or Board Replacement
CRT	Check brightness (back panel) Check contrast (front)
Geometric distortion	Adjust monitor
Adjustment doesn't correct	Replace monitor
Incorrect characters displayed	Replace VG card, SB card, keyboard, or cables.
DISC	
Disc error (Status Line message)	Try diskette on other drive.
No disc error on other drive	Replace either DC/A card, disc drive, or cable
Disc error on other drive also	Replace diskette
Disc error on both drives with good diskette	Replace DC/A card, DC/B card, cables, power supply, or both drives.
KEYBOARD	
Keys locked	Check security lock.
Lock OK	Replace SB card, keyboard cables or VG card.

Table 4.1. Troubleshooting (continued)

Problem	Remedy or Board Replacement
POWER	
Fails to power up correctly; test mode does not start; random characters on screen.	Check power supply, power cables and other cables. See Section 1, power supply, how to test voltage.
Power light on, but otherwise same as above	Replace MPU card, cables, VG card, and SB card.
Problem remains	Replace PB card, DC/A card, or DC/B card.
PROGRAM LOAD	
System will not perform program load properly	Try another program load diskette. Try another disc drive.
Other drive worked	On first drive, replace DC/A, cables, or drive.
Other drive did not perform program load, but head loaded the disc (LED lit)	Replace DC/A, DC/B or cables. Also check the power supply for appropriate voltages. Check Revision level of program load.
Test reappears	Replace the DC/A, DC/B card, cables, power supply, or both drives.
Test does not reappear	Replace either SB card or keyboard.

Table 4.2. Troubleshooting Guide

Problem	Action
System will not perform a program load.	Try the other disk drive.
The other drive worked.	On first drive replace either the drive, the DC/A card or the cables.
The other drive also did not perform the program load but the head loaded the disk (LED will light).	Replace either the DC/B card, the DC/A card or the cables. Also check the power supply for the appropriate voltages.
In the other drive the head did not load.	Depress RESTART and see if text reappears. Then depress PREV PAGE and see if test reappears.
Test reappears.	Replace either the DC/A card, DC/B card, cables, power supply, or both drives.
Test does not reappear.	Replace either SB card or keyboard.
Disk Error (as seen on Status Line message).	Try disk in the other drive.
No disk error on other drive.	Replace either DC/A card, disk drive or cables.
Disk error also on other drive.	Replace media (diskette).
Disk error on both drives with good diskette.	Replace either DC/B card, DC/A card, cables, power supply, or both drives.
Problem with CRT.	Check brightness and contrast.
Is there geometric distortion?	Adjust monitor.
Adjustment does not correct distortion.	Replace monitor.
Are incorrect characters being displayed?	Replace either VG card, SB card, keyboard or keyboard cables.
Failure to power up correctly. The test mode does not start. Random characters on the screen.	Check the power supply, power cables and other cables.

Table 4.2. Troubleshooting Guide (continued)

Problem	Action
Power light is on, but problem the same as above.	Replace either MPU card, cables or VG card.
Problem not corrected.	Replace either PC card, DC/A card, DC/B card, or SB card.
Problem with keyboard.	Check security lock.
Lock O.K.	Replace either SB card, keyboard, keyboard cables or VG card.

SECTION 5:

TANDY 10 Replacement Parts List

<u>Part Number</u>	<u>Description</u>	<u>Replacement Price</u>
129-12200	VG P.C.B.	\$ 85.00
129-12000	MPU P.C.B.	125.00
129-12300	S.B. P.C.B.	125.00
129-12800	RAM-16 M1/M2	125.00
129-12802	RAM-16 M3	125.00
129-12500 -	DC/B P.C.B. 205 <i>new / 85.00</i>	85.00
129-18800 -	DC/C P.C.B. 250 <i>new / 85.00</i>	85.00
129-12600	P.B. P.C.B.	125.00
405-05300	Dual Sided Drive	200.00
345-03600	T.V. Monitor (1)	125.00
345-03003	T.V. Monitor (2)	125.00
355-03300	Keyboard	100.00
285-01600	Power Supply	125.00

(1) Monitor with P.C.B. mounted below the tube neck

(2) Monitor with P.C.B. mounted above the tube neck

100 100 100
100 100 100
100 100 100