

**OSBORNE COMPUTER CORPORATION
SCREEN-PAC OPTION
INSTALLATION PROCEDURE
FOR THE OCC 1/1A COMPUTER
SBXNES021**

Prepared by:
XEROX Corporation
XEROX Service Business
Service Education & Customer Support
1341 W. Mockingbird Lane
Dallas, Texas 75247

OCTOBER 1983

INTRODUCTION TO THE SCREEN-PAC OPTION

PURPOSE:

The purpose of this document is to provide you with the procedures necessary to upgrade the OSBORNE COMPUTER CORPORATION (OCC) 1/1A COMPUTER to the 52-80-100-column screen option.

REQUIRED TOOLS:

- _____ Tool kit
- _____ WORDSTAR DISKETTE
- _____ 1/8" Drill Bit (XEROX part no. 600T980)
- _____ 3/8 " Drill (XEROX part no. 600T871)
- _____ Micro Soldering Tip (XEROX part no. 600T1039)
- _____ Soldering Heat Element (23-27 watt XEROX part no. 600T1036)

COMPONENTS IN THE SCREEN-PAC OPTION INCLUDE:

- _____ 1 SCREEN-PAC PWB With (2) Pin Spacers (OCC part no. 6N00001-01)
- _____ 1 SCREEN-PAC Ribbon Cable and Clips (OCC part no. 5N00002-01)
- _____ 1 2732 Rev. 1.44 Monitor ROM (OCC part no. 3A10082-00)
- _____ 1 SCREEN-PAC Power Harness (OCC part no. 5N00005-01)
- _____ 1 RCA External Video Connector and Cable OCC part no. 5N00006-01)
- _____ 1 Template (OCC part no. 3N00009-01)
- _____ 2 PWB Retainer Clips (OCC part no. JN00008-01)
- _____ 1 SCREEN-PAC Users Guide and Extended Utility Disk

NOTE:

The Logic PWB in the computer must be revision G or higher for installation of the Screen-Pac Option. Return earlier revision PWBs to OCC for upgrading until further notice.

OCC 1/1A & SCREEN-PAC are registered trademarks of the OSBORNE COMPUTER Corp. WORDSTAR is a registered trademark of DIGITAL RESEARCH Inc.

SCREEN-PAC OPTION INSTALLATION PROCEDURE

If the computer is receiving both the Double Density & the SCREEN-PAC options, complete the Double Density upgrade first.

1.0 Before starting the installation of the option, inspect the computer being upgraded as follows.

- A.** Check the case, handle, and AC power panel for damage.
- B.** Check that all keys are in place on the keyboard.
- C.** Detach the keyboard from the unit. Check the keyboard cable and connector for damage.
- D.** Check the keyboard connector on the front bezel for bent or broken pins.
- E.** Check the video monitor and contrast/brightness knobs for damage.

2.0 After completing the visual inspection, turn the computer on.

3.0 Verify computer operation in all modes of operation.

- A.** Load the OSBORNE Disk Exerciser program and select the SEEK TRACK function. Step to track 16.
- B.** Select the DRIVE TIMER function. The reading should be $200 \pm 1\%$. Clean the head, replace the load pad, and adjust R23 on the drive PWB if the reading are not within specification. Inform the customer of any problems encountered up to this point.

4.0 Using the Osborne Field Service Manual as reference, remove the Logic PWB from the computer.

- A.** Check the IC at location B13 on the Logic PWB. If it is a Fairchild or SG (SILICON GENERAL) the PWB must be replaced. Return the incorrect PWB to OCC for upgrade or credit.
- B.** Examine the CRT Assembly. It should contain (1) Video PWB. If it contains (2) PWBs the CRT assembly must be replaced. Return the Video Assembly to OCC for upgrade or credit.
- C.** Place the Logic PWB flat on a soft work surface, component side up and the video shafts closest to you.

- 5.0** Examine the MONITOR ROM at location D12 of the Logic PWB. If it is not revision 1.43 or higher, replace it with the 1.44 ROM which is part of the kit. The notch on the ROM aligns with the notch on the Logic PWB trace.
- 6.0** There must be a jumper at jumper position J3. Install one if necessary.
- 7.0** Remove the Z-80 Microprocessor from the Logic PWB. It is located in Row C between columns 11 and 14.
- 8.0** Remove the Character Generator from the Logic PWB. It is located in Row A between columns 15 and 17.
- 9.0** Examine the sockets on the Logic PWB where you removed the Z-80 and Character Generator. If you see the manufacturer's name, **AMP**, on either socket, **DO NOT** proceed with the installation. The pins on the underside of the 80-column PWB do not fit AMP sockets correctly. If the Logic PWB has AMP sockets, replace it with a PWB without AMP sockets before continuing. Return the PWB with AMP sockets to OCC for credit or upgrade.
- 10.0** Remove the SCREEN-PAC ribbon cable from the upgrade kit. The cable has a 14-pin connector on one end, 12 long wires and 2 shorter wires on the other end (the 2 shorter wires, red and yellow, will not be connected).
- A.** Attach a piece of double back foam tape (OCC part no.7P70032-00) to the Logic PWB approximately ½ inch in from the edge of the PWB, centered between the Keyboard Connector and the video controls.
- B.** With the ribbon cable connector towards you and the pins facing up, press the cable to the tape approximately ½ inch before the wires separate. Approximately (2) to (3) inches of the ribbon cable should be hanging off of the end of the Logic PWB.
- C.** Using the low wattage heat element and the micro soldering tip, connect the leads to the Logic PWB in the order listed in TABLE 1.

TABLE 1 SOLDER CONNECTIONS

NOTE: The yellow wire on the edge of the SCREEN-PAC cable is wire 1.

LOGIC PWB		SCREEN-PAC CABLE	
IC LOCATION	PIN NUMBER	COLOR CODE	WIRE NUMBER
D17	14	GREEN	10
D17	13	VIOLET	8
D17	12	WHITE	6
D17	11	BROWN	4
D16	5	BROWN	14
D16	4	RED	13
E13	1	YELLOW	1
D14	5	ORANGE	12
B16	1	GREY	7
B11	12	BLUE	9
E22	12	BLACK	5
D18	14	ORANGE	2
NOT USED	NOT USED	RED	3
NOT USED	NOT USED	YELLOW	11

11.0 Remove the 80-column PWB from the kit. The PWB includes a coaxial cable which has one end already connected. The other end will be soldered to the Logic PWB. To prevent the heat of the soldering iron from melting the shield of the inner conductor a heat sink must be used. A heat sink can be an alligator clip, needle nose pliers, or surgical forceps which are attached to the item being soldered. The purpose of the heat sink is to draw to that point, rather than to other components which might be damaged. Place the heat sink on the shield behind the pre-tinned area and in front of the coaxial casing. Solder the pre-tinned leads to the following locations.

A. Connect the coaxial cable shield to Pin 7 of B13.

B. Connect the inner conductor to Pin 6 of B13.

12.0 Install the Z-80 Microprocessor and Character Generator on the Logic PWB. Connect the Logic PWB to the computer and verify proper operation in all modes before continuing..

13.0 Remove the Logic PWB from the computer. Remove the Z-80 Microprocessor and the Character Generator. Place the Logic PWB on a soft work surface with the video shafts towards you. Hold the SCREEN-PAC PWB component side up and align it with the Logic PWB as follows (Refer to Table 2 and Figure 1).

TABLE 2 PIN ALIGNMENT

<u>SCREEN-PAC PWB</u>		<u>LOGIC PWB</u>
Z-80 Microprocessor	ALIGN WITH	40-PIN SOCKET
Character Generator	ALIGN WITH	24-PIN SOCKET
10-PIN CONNECTOR P1	ALIGN WITH	10-PIN CONNECTOR P9

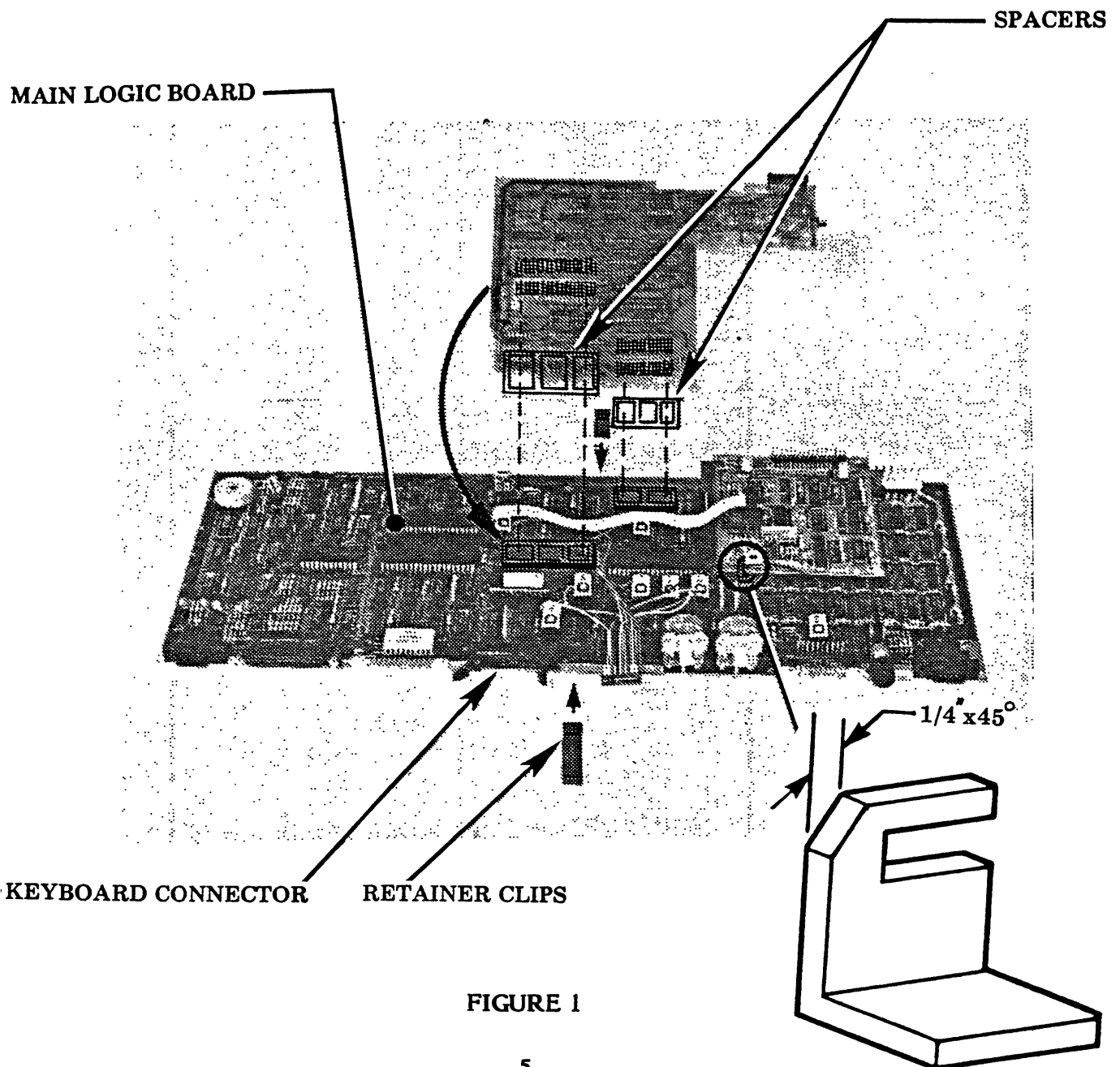


FIGURE 1

14.0 Press the SCREEN-PAC PWB into place on the Logic PWB with the spacers on the pins. Use caution not to bend or break any pins.

NOTE:

If the Double Density Option PWB has been installed, you may need to make a diagonal cut in the stand-off used to mount it to the Logic PWB. This will allow the SCREEN-PAC PWB to be mounted next to the Double Density PWB (Refer to Figure 1).

15.0 Locate the 40-pin socket near the center of the PWB, and the 24-pin socket near the edge of the PWB (Refer to Figure 2).

- A.** Check there are no obstructions in the 40-pin socket by carefully probing each of the sockets with a sharp pin.
- B.** Insert the Z-80 which you removed from the Logic PWB, into the 40-pin socket of the SCREEN-PAC PWB. Align the notch of the Z-80 with the notch on the PWB trace.
- C.** Insert the Character Generator which you removed from the Logic PWB, into the 24-pin socket near the edge of the SCREEN-PAC PWB. Align the notch on the Character Generator with the notch on the PWB trace.

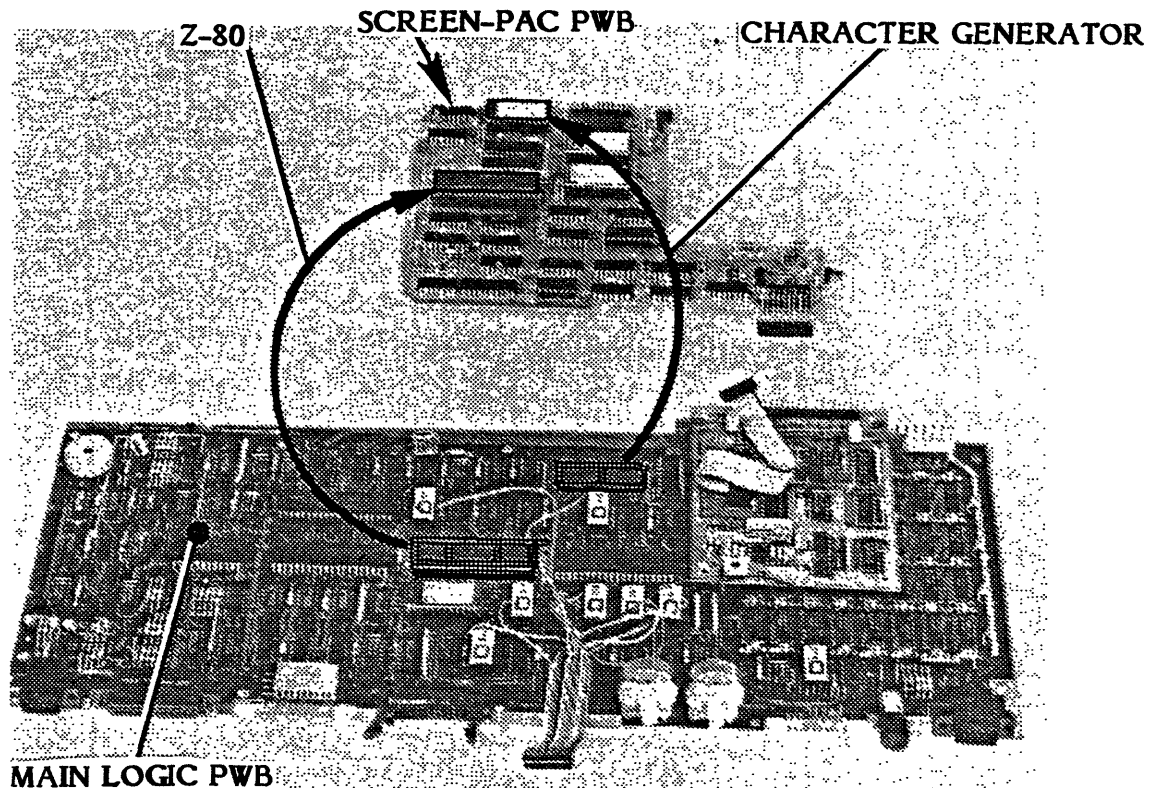


FIGURE 2

16.0 Connect the ribbon cable from the Logic PWB to P3 on the 80-Column PWB. Remove the (2) PWB Retainer Clips from the upgrade kit.

A. Insert (1) retainer clip into the hole on the Logic PWB between the ribbon cable and the keyboard connector. Fasten the SCREEN-PAC PWB to this clip (Refer to Figure 1.)

B. Position the other retainer clip on the opposite edge of the SCREEN-PAC PWB. Fasten this clip into the hole between locations A13 and A14 (Refer to Figure 1.)

17.0 Remove the RCA External Video Cable and template from the kit. The Video Cable includes a ground ring, washer, and 7/16 inch nut to secure it to the bezel (Refer to Figure 3). The cable requires a ¼ inch hole through the front bezel next to the battery cutout. The template will be used to position this hole correctly.

A. Press the template into position against the front surface of the bezel. Align the cutout on the template with the Battery cutout on the bezel (Refer to Figure 3.)

B. Using the 3/8 " drill and ¼" drill bit, drill a hole through the front of the bezel at the point marked on the template. Remove the template.

C. Remove the single pin connector from the video connector pin. Remove the 7/16 inch nut, flat washer, and ground ring from the video connector pin.

D. Insert the video connector from the outside of the bezel through the ¼ inch hole.

E. Install the ground ring, flat washer, and the 7/16 inch nut on the video connector shaft. Carefully tighten the nut until the connector is secure.

F. Plug the single pin connector into the video connector pin.

OCC 1/1A

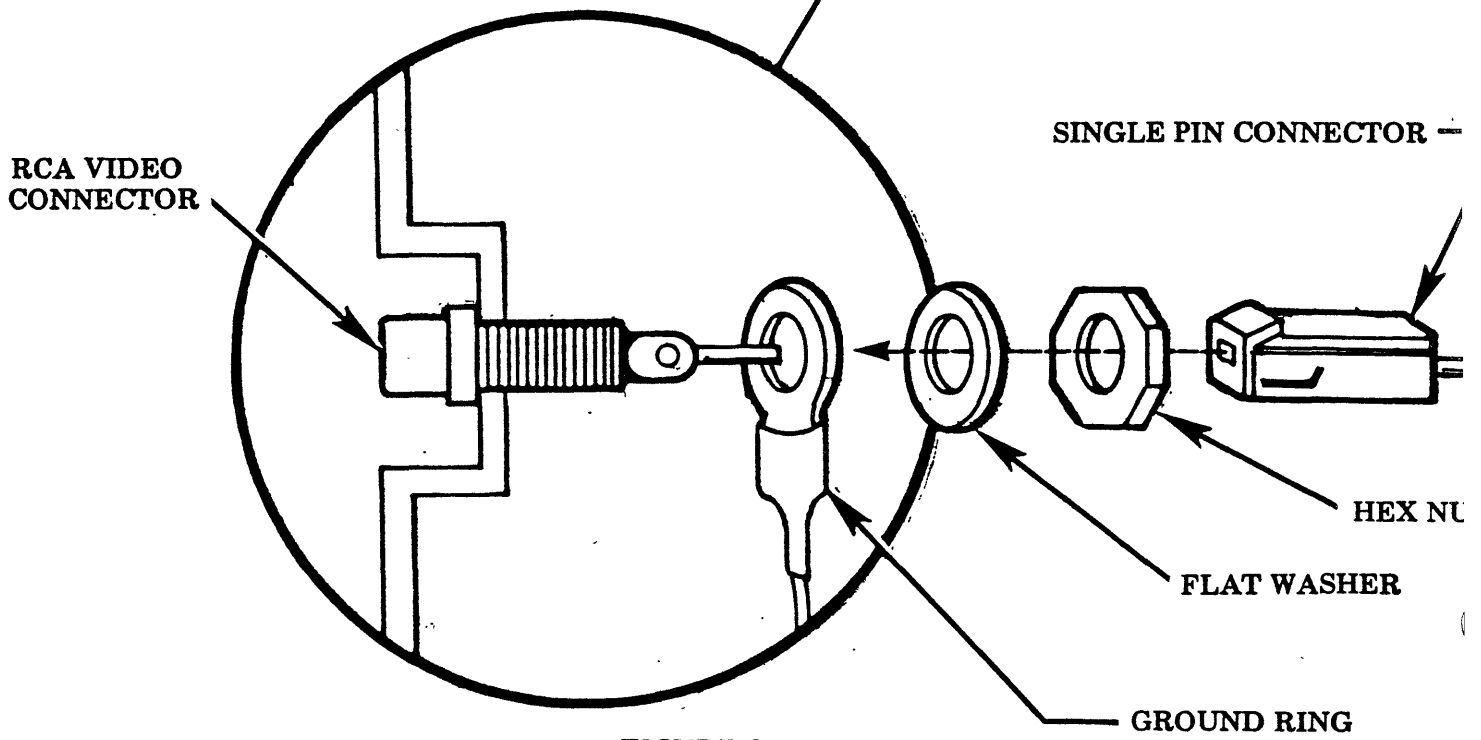
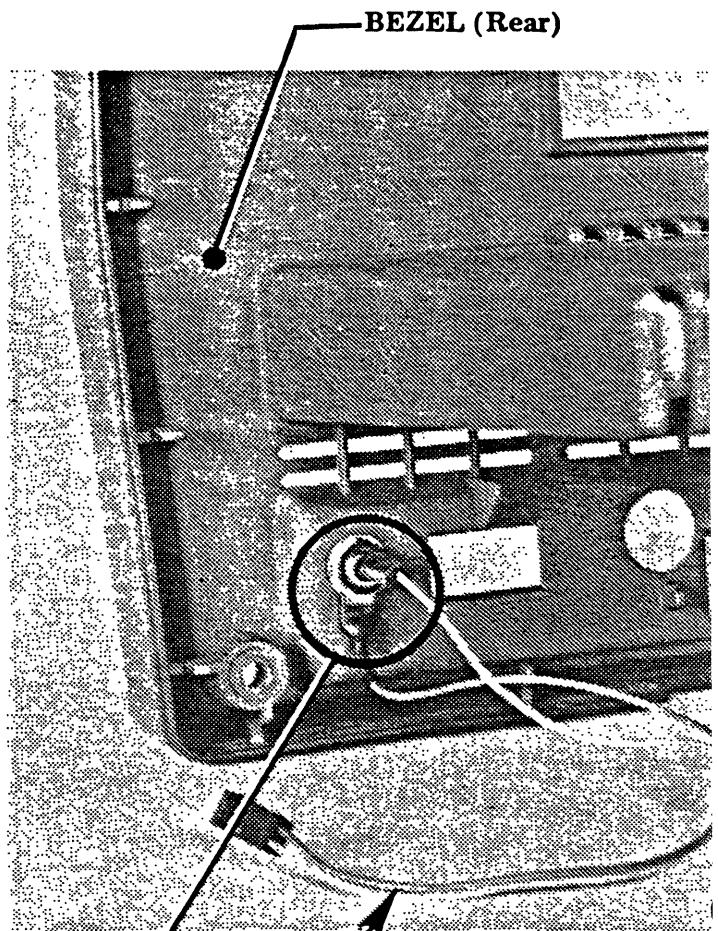
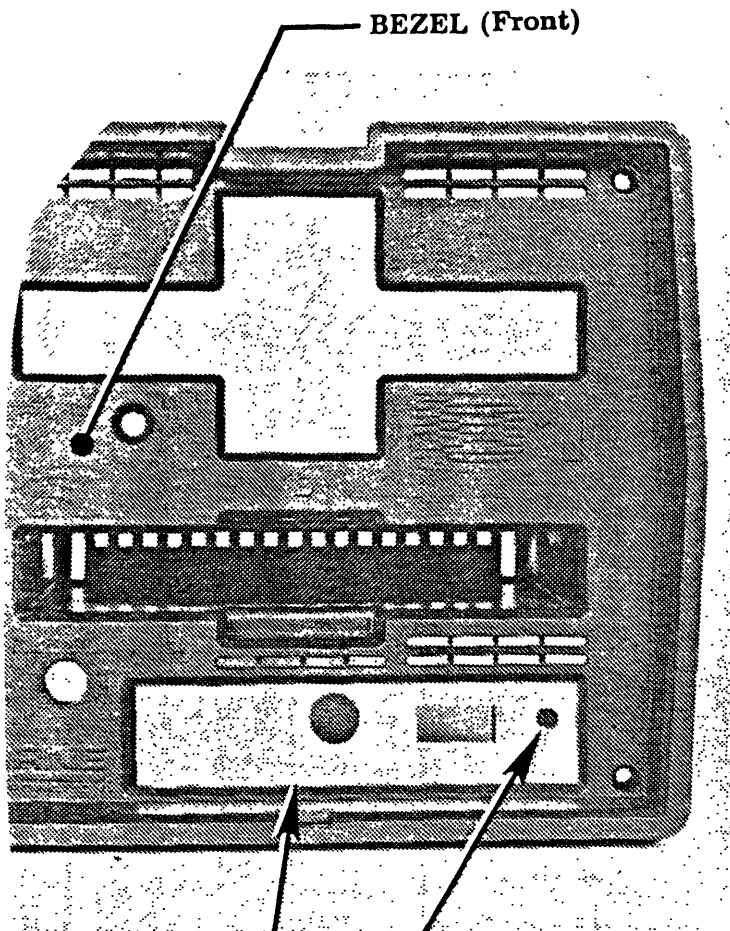


FIGURE 3

18.0 Place the Logic PWB (with the 80-column PWB connected) close to the chassis.

- A.** Remove the SCREEN-PAC power harness from the upgrade kit.
- B.** Attach the 4-pin connector (with only 3 wires inserted) on the power harness to the unused DC output connector on the power supply.
- C.** With the Logic PWB held vertically, connect the other 4 pin connector (with only 2 wires inserted) to P7 of the Logic PWB. The spare connector is used for the external fan which is optional.
- D.** Secure the Logic PWB to the chassis.

19.0 To verify the SCREEN-PAC option is functioning correctly perform the following procedure.

- A.** Use the copy of the EXTENDED UTILITY disk which came with the kit. Place a write protect strip over the notch.
- B.** Insert the disk into drive A.
- C.** Insert a WORDSTAR disk into drive B.
- D.** Reference the SCREEN-PAC USER'S GUIDE to SYSGEN CP/M from the EXTENDED UTILITY disk to the WORDSTAR disk.
- E.** Reference the SCREEN-PAC USER'S GUIDE to use the SETUP program with WORDSTAR in the 80-column format.
- F.** Insert the WORDSTAR disk in drive A and a formatted disk in drive B.
- G.** Boot WORDSTAR and log onto drive B. The characters on the screen should appear smaller and shifted to the left.
- H.** If the screen does not display the 80-column format, refer to the SCREEN-PAC TROUBLESHOOTING GUIDE in this manual.

20.0 Reassemble the chassis and case except for the front bezel.

21.0 Connect the RCA External Video Cable to the (2) pin connector next to C16 and I26.

22.0 Connect the front bezel to the chassis.

NOTE:

Osborne 12 inch video monitors need an adapter cable for connection to the RCA External Video Connector. OCC will provide this adapter to end users with these monitors.

TABLE 3 SCREEN-PAC TROUBLESHOOTING GUIDE

<u>PROBLEM</u>	<u>ACTION</u>
Computer "beeps" when powered-on	Turn power off for 5 seconds. Then turn power on again. Check Z-80 Microprocessor, Z-80 connector, and 40-pin socket for bent or broken pins.
Scrambled logo when computer is powered-on	Refer to SCREEN-PAC users Guide and check SETUP program for 128 logical screen size.
Lines across screen in 52 and 80	Check Character Generator for secure fit and bent or broken pins
Only 52 column format functions correctly	Check power cable connections to power supply and SCREEN-PAC PWB.



