

# RAM BOARD INSTALLATION

## **WARNING! Read This First!**

The 256K RAM chips are extremely sensitive to static electricity, especially from your own body. Damage may be catastrophic, or may degrade the RAM chip just enough to take a few weeks or months to fail. Follow the procedure outlined in step number 3 before handling the RAM chips. These RAM chips are guaranteed *only* if they are handled and installed properly. RAM chips damaged due to static electricity are void from the guarantee or warranty. *Opening the case to your COCO 3 may void your computer's warranty.*

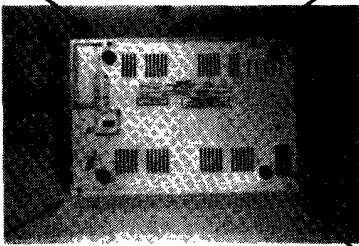


Figure 1

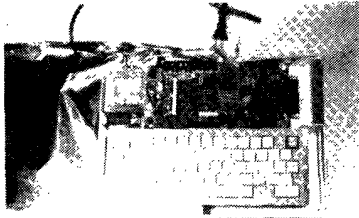


Figure 2

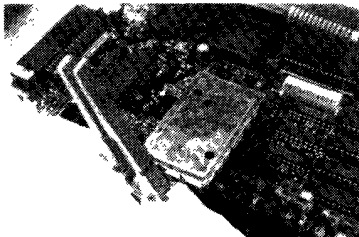


Figure 3

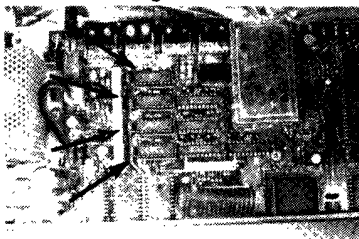


Figure 4

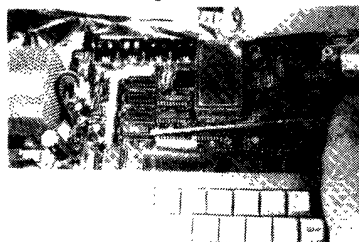


Figure 5

### **1 Unplug COCO 3**

Remove the plug from the wall socket and place it near the COCO 3. It is always safer to unplug your computer before doing any work inside.

### **2 Remove Top Cover of COCO 3**

Turn the COCO 3 upside down and remove the six screws from the bottom of your COCO 3, as shown in Figure 1. Place these screws where they will be found later. Turn the COCO 3 back upright and remove the top cover. Place the cover aside.

### **3 Create a Local Ground**

First spread out about 3 feet of aluminum foil on a table or worksurface. If you are left-handed, place your COCO 3 toward the left side of the foil in an upright position. If you are right-handed, place it on the right, as shown in Figure 2. Wrap a portion of the foil around the outside of the connector labeled RF OUT on the rear of the COCO 3. Secure the foil to the connector (a clothespin or other clamping device works nicely), as shown in Figure 3. This ensures electrical contact between the COCO 3 chassis ground and the aluminum foil.

When you handle the RAM chips or touch any part of the COCO 3, you will place a bare elbow or hand on the aluminum foil. This ensures that you and the COCO 3 are at the same potential (0 volts between you and the COCO 3 chassis).

**Caution:** Do not wear gloves, especially rubber or surgical gloves. Do not wear synthetic fabrics (under or outer garments, especially nylon hosiery for the ladies). Some ladies' undergarments have been found to destroy sensitive ICs even in a static-controlled environment. Cotton fabrics are best. Remove shoes, especially if you are on a carpet. Avoid scooting around in a chair, as this also gathers up static electricity. It is best to first gather all necessary items and place them on the foil in front of you before starting.

### **4 Remove RAM Chips from COCO 3**

Locate the RAM chips labelled IC16, IC17, IC18, and IC19. They are located as shown in Figure 4. Carefully remove each chip by inserting a flat-blade screwdriver between the chip and its socket as shown in Figure 5. Slowly twist the screwdriver back and forth to loosen the chip until it is lifted high enough for you to remove it with your fingers. After all four chips are removed, place them aside on the aluminum foil.

### **5 Cut Capacitors**

Locate capacitors C65 and C66. They are located as shown in Figure 6. Cut one leg (any side is OK) of each capacitor. Bend the capacitor out of the way to ensure the cut leg is not touching anything. It is OK to cut both legs and remove each capacitor if you prefer. If so, set them aside.

**Note:** Be very careful to not damage circuit board traces.

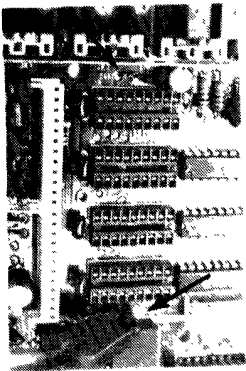


Figure 6

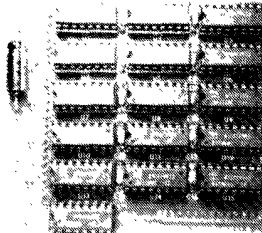


Figure 7

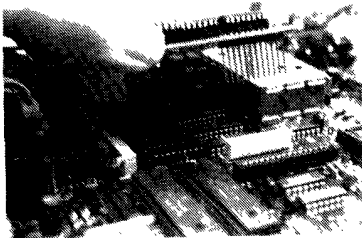


Figure 8

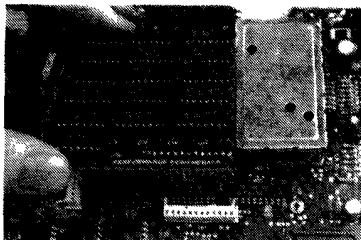


Figure 9

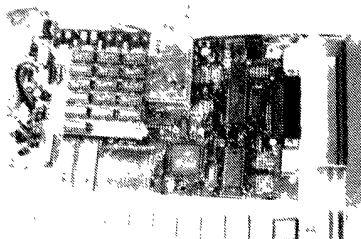


Figure 10

## 6 Install RAM Chips Into RAM Board

**Note:** If you purchased a fully assembled RAM board, proceed to step number 7.

Unpackage the RAM chips and bare board and place them on the foil. Notice the small notch on the end of each RAM chip. This is used for proper orientation on the board. When installing the RAM chips, this notch should be on your left when you can read the reference designators straight on. This is shown in Figure 7.

Insert all chips into all sockets (sockets are labeled U1 to U16). There should be no empty socket.

Be sure that all notches are on your left, as shown in Figure 7. When inserting the chip, carefully align all chip leads with the socket holes, one row at a time. When all legs are in the holes, slowly apply downward pressure while slightly rocking the chip until it is firmly seated all the way into its socket.

**Note:** If you use your own chips, use NEC D41256C-12 RAM chips (256K x 1 bit, 120 nsec) or equivalent.

## 7 Install RAM Board Into COCO 3

The RAM board has two rows of pins (called header strips) on the underside of the board, as shown in Figure 8. Align the header pins directly over the two connectors in the COCO 3, as shown in Figure 9. Insert the header pins into the socket holes until all pins are slightly inserted. Slowly apply downward pressure with your thumbs directly over each header strip until all pins are firmly seated into the connectors.

**Note:** Do not seat the board all the way. If the board is pushed in too far, back it out about 1/8 inch.

## 8 Replace Cover

Remove the foil from the RF OUT connector. Replace the top cover on the COCO 3. Turn the COCO 3 over and reinstall the six screws. Store RAM chips (and capacitors if you removed them) in a safe place. The COCO 3 now looks like Figure 10 when the RAM board is installed. This completes the installation process.

**Note:** The two longest screws go into the holes nearest the rear of the COCO 3.

## If You Have Trouble

If you have trouble with the installation, and have closely followed these instructions, call our Technical Support line for technical assistance. *Technical Support Line:* (714) 681-3007.

In the unlikely event of a defective board or RAM chips, we will either repair, replace, or refund your purchase price within one year from the date of shipment.

**Performance  
Peripherals**

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