Radio Shack®

Service Manual

26-1123

TRS-80®

Model III - to - Model 4 Upgrade Kit

Catalog Number 26-1123

CUSTOM MANUFACTURED IN U.S.A. BY RADIO SHACK, A DIVISION OF TANDY CORPORATION

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TRS-8Ø®
Model III to Model 4 Upgrade Kit
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Introduction

The Model III to Model 4 Upgrade Kit enables you to convert the Model III to a Model 4 thus gaining the Model 4's additional memory (64K), sound board and other functions and keys. This manual is designed to enable you to make this conversion and contains step by step disassembly and reassembly instructions and a parts list.

The Model III to Model 4 Update Kit includes:

- The Model 4 Chassis and Logic Board.
- The Model 4 Keyboard and Bezel.
- The Sound Board.
- Additional RFI Shielding.

1/ Disassembly

1. Remove all cables from the bottom and rear of the Computer.

2. Turn the Computer onto its rear panel to provide easy access to the case bottom. Use a pad under the computer to prevent scratching of the case.

3. Remove the ten screws (Figure 1 Item 1) holding the bottom of the case (Figure 1 Item 2) to the top. Notice the different types and lengths of screws and note their positions.

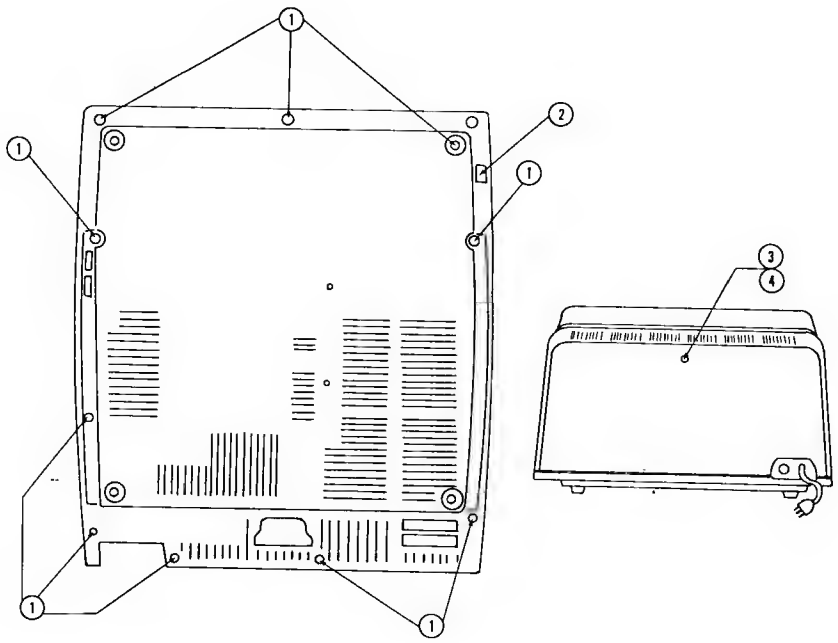

Figure 1. Outer Case Assembly

4. Set the screws aside in groups.

5. Set the Computer upright and remove the #6 screw and washer (Figure 1 Items 3 and 4) from the top of the back panel of the case.

6. Very carefully remove the top of the case (Figure 2 Item 1), lifting it straight up and setting it aside to the left. Disconnect the video harness from the board (Figure 2 Item 2) in the top of the case.

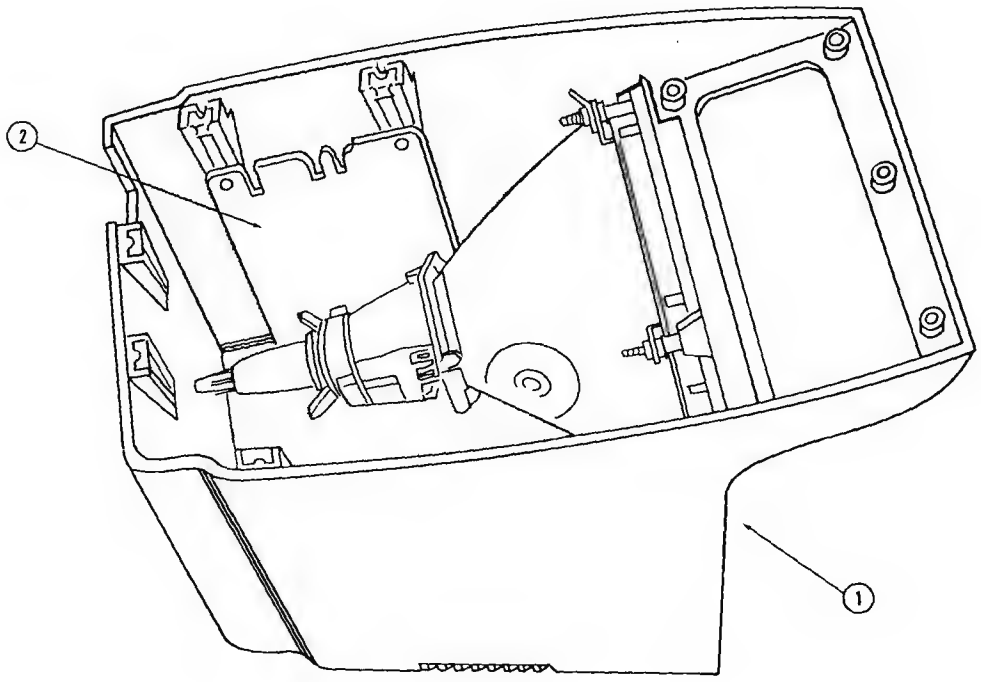

Figure 2. Case Top Assembly

7. Remove the six screws which attach the Logic (CPU) Board RFI rear shield (if present) (Figure 3 Item 1), to the chassis (Figure 3 Item 2) and ground connectors. This shield is also held in place with tape along the lower edge. Carefully peel the tape away from the bracket so that the tape can be reused.

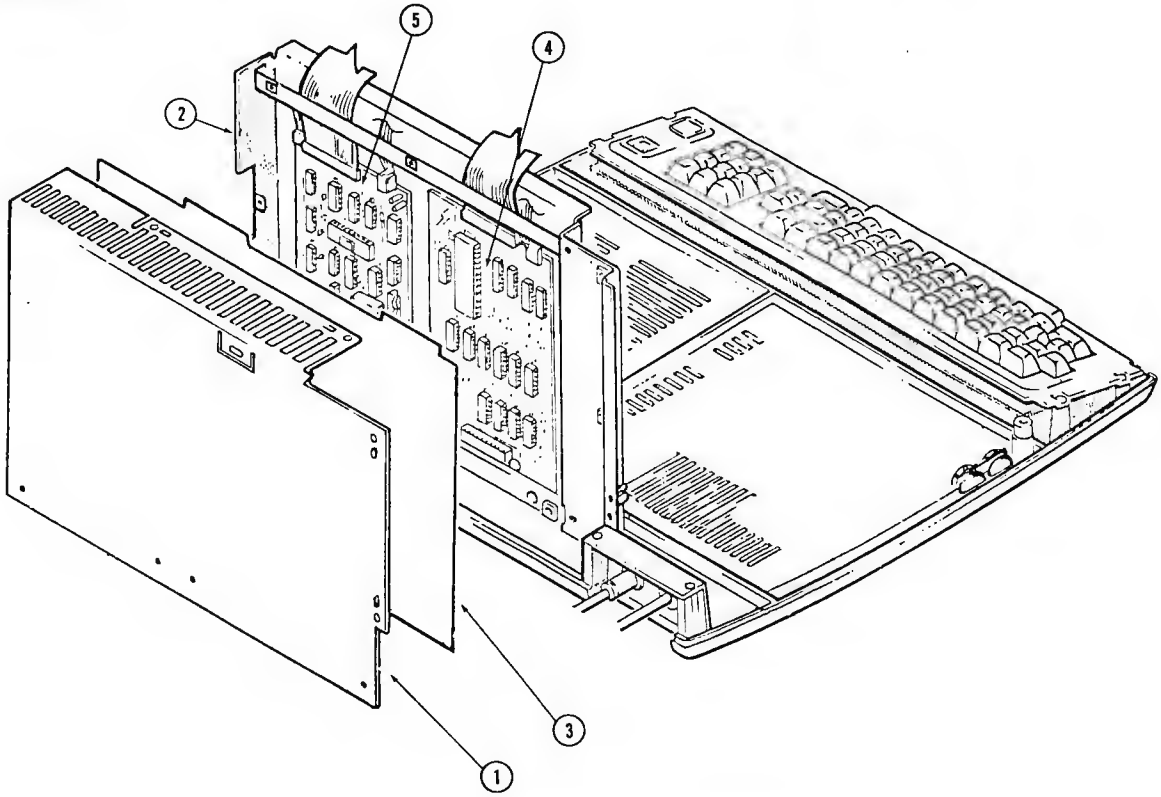

Figure 3. Model III Chassis Assembly

8. Disconnect all cables (power supply, video, keyboard, floppy disk, RS-232 board and cassette) from the Logic (CPU) board (Figure 3 Item 3).

9. Remove the screws (5 for the earlier Model III, or 8 for the later Model III) that hold the Model III Logic board to the metal chassis.

10. Make sure all cables to the Model III Logic (CPU) board have been disconnected then remove the board. If your unit uses plastic spacer mounts to hold the board, press the small tabs on the mounts through the mounting holes in the board and gently pull the board off.

11. Disconnect the power from the RS-232 and the Floppy Disk Controller (FDC) boards (Figure 3 Items 4 and 5) and be sure to label the connectors.

12. Remove the screws (2 for the earlier Model III, or 4 for the later Model III) that hold the RS-232 board to the chassis and remove the RS-232 board.

13. Disconnect the floppy disk drive cable from the Floppy Disk Controller board.

14. Remove the screws (2 for the earlier Model III, or 4 for the later Model III) that hold the Floppy Disk Controller board to the chassis and remove the FDC board.

15. Remove the 4 screws fastening the chassis to the bottom of the case.

16. Tilt the frame toward the back of the Computer.

17. Remove the 110 V. line, the 3 D.C. connections and the ground connection from the main power supply.

18. If any harnesses (Figure 4 Item 1) are tied down to the chassis, untie them. Remove the harness clips.

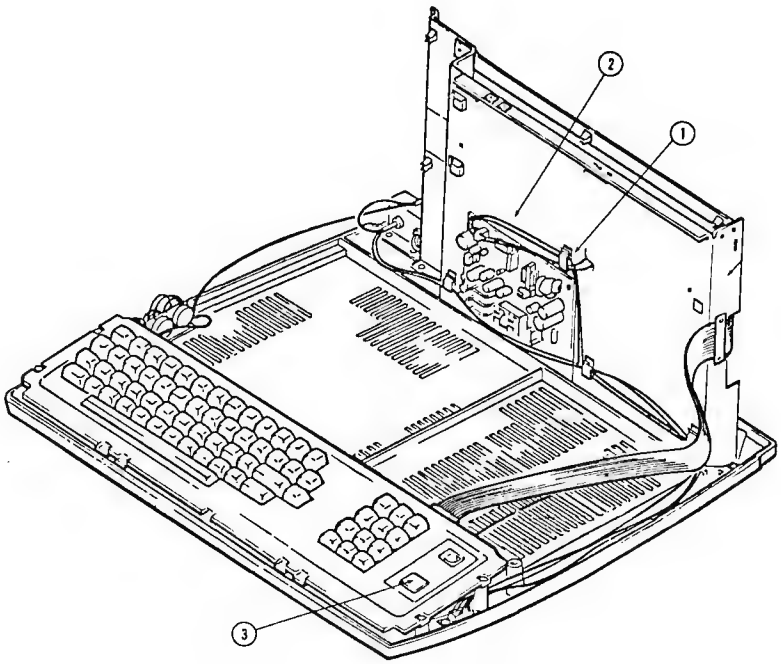

Figure 4. Base Assembly

19. Carefully remove (lift out) the chassis.

2Ø. Remove the 4 screws fastening the main power supply (Figure 4 Item 2) to the chassis and carefully remove the power supply.

21. Remove ground bracket if present.

22. Remove the 6 screws in the Model III keyboard bezel (Figure 4 Item 3) and remove the Model III keyboard bezel.

23. Disconnect the Model III keyboard grounding wires (if present) - one at each end.

24. Remove the Model III keyboard and its cable.

25. Disconnect keyboard cable from keyboard.

26. Disconnect the input power cord's soldered leads at the power switch.

27. Disconnect the power line ground.

2/ Reassembly

NOTICE: Included in this upgrade kit are certain parts required to ensure compliance of the upgraded machine with FCC limits for RF interferance. Failure to install all of these parts exactly as described could result in harmful interference to radio and television services. Please pay particular attention to steps no. 1,2,7,15,16, and 18.

1. Slip the RFI toroid coil (Figure 5 Item 1) on the power lines and the ground wire. Wrap the wires around the coil twice. Resolder the leads to the power switch and reconnect the ground.

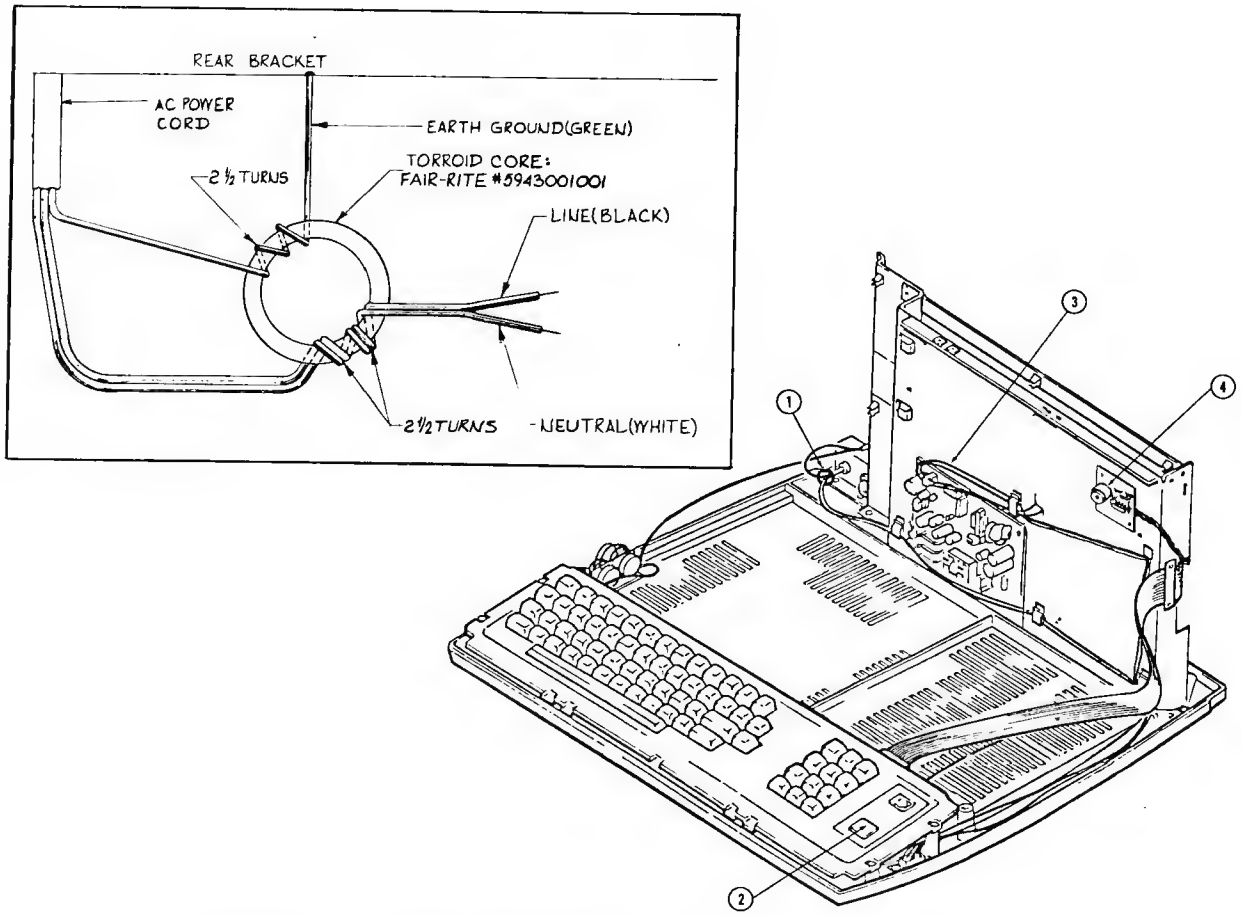

Figure 5. Base Assembly with Sound Board

2. Connect the Model III keyboard cable to the Model 4 keyboard.

3. Connect the grounding wires to the Model 4 keyboard.

4. Install the Model 4 keyboard and run its cable under the disk drive(s).

5. Install the Model 4's 64K Ram Button (Figure 5 Item 2) in the Model 4 keyboard bezel.

6. Install the Model 4 keyboard bezel and fasten it with the 6 mounting screws. Be sure the RESET switch is free to operate before tightening down the mounting screws.

7. Install the main power supply (Figure 5 Item 3) to the back of the Model 4's chassis.

8. Connect the 11Ø V line, the 3 DC connections and ground connection. Be sure none of the AC leads pass closer than 2" to the heatsinks on the power supplies.

9. Reinstall the tie downs (or harness clips) for the cables, except the Power and Video cables, for the Model 4 Logic (CPU) board.

1Ø. Install the Model 4 chassis and grounding bracket to the bottom of the case using the 4 screws.

11. Peel off the backing on the tape attached to the sound board (Figure 5 Item 4) and attach the sound board to the side of the chassis that the main power supply is mounted on, near the edge so that the connection can be made to the Logic board. Route the wiring through the top of the notched-out area on the side of the chassis to prevent trouble when replacing the top of the case.

12. Install the Floppy Disk Controller (FDC) board (Figure 6 Item 1) on the chassis using 4 AHD-1552 screws.

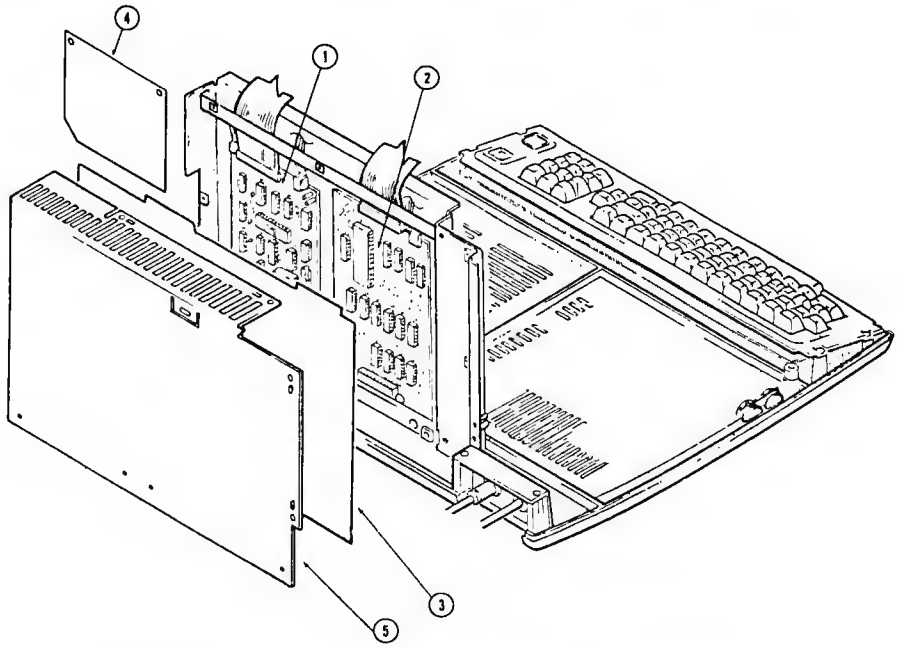

Figure 6. Model 4 Chassis Assembly

13. Connect the floppy disk drive cable to the FDC board.

14. Install the RS-232 board (Figure 6 Item 2) on the chassis using 4 AHD-1552 screws.

15. Connect the power to the FDC board and the RS-232 board.

16. Install the Model 4 Logic (CPU) board and the mylar RFI shield (Figure 6 Items 3 and 4) that goes between the Logic board and the chassis using 8 AHD-1546 screws.

17. Connect all cables (power supply, video, keyboard, floppy disk, RS-232 board, sound board and cassette) to the Logic board. **Caution: Do not mix-up the RS232 and FDC power cables.**

18. Place the top of the case next to the bottom of the case in such a way that the video harness can be connected to the board in the top of the case.

19. Connect the video harness to the board in the top of the case.

20. If you have been having intermittent problems with drive 1, such as read/write errors, lost data, sector not found etc., these problems are usually caused by drive malfunction. Carefully check the drive alignment, paying particularly close attention to the head amplitude and raw data jitter.

    If this does not help, RFI may be considered as a possible cause of errors. The installation of the Drive 1 RFI shield (Part No. ART-4815) to the 'chimney' which holds the drives in place must be undertaken. This installation must done even if there have been no problems but the shielding is not present. Also disk drive side shielding (if not already present) must be installed (Part No. ART-3085 for left side shield and Part No. ART-4485 for right side shield). The top shield is mounted between the drive chassis and the 'chimney' on the right side of the drive. The shield goes over the top of the drive and fits between the 'chimney' and the shield on the left side of the drive.

21. Run the diagnostics to be sure the Computer is working properly. Caution: Be careful as power has now been applied to the chassis.

22. If the diagnostics run OK, disconnect power and tie down the Model 4 Logic board Video and Power supply cables on the top of the chassis.

23. Install the Logic (CPU) board rear RFI shield (Figure 6 Item 5) and ground connections to the chassis using 6 screws. Then press the bottom edge of the shield against the chassis so that the tape along the lower edge of the shield adheres to the chassis.

24. Be sure the cassette cable is out of the way. Very carefully slide the top of the case down onto the bottom of the case. Do not hit the CRT neck. It could break off and implode.

25. Install the #6 screw and washer in the top of the back panel of the case.

26. Turn the Computer onto its top panel to provide easy access to the case bottom. Be sure to use a pad under the top to avoid scratching the case.

27. Install the ten screws that hold the bottom of the case to the top. Be sure to get the right size screws in the correct place.

28. Replace the Model III label on the front of the top of the case with the Model 4 label.

29. Run the diagnostics again to be sure the Computer is working properly.

Hints and Tips

1. Rear RFI Shield is replaced with current version.
2. Keyboard connector must be desoldered from Model III keyboard and soldered to Model 4 keyboard.
3. Use screws included in kit to attach new chassis.
4. Replace flat flex cables with cables provided.
5. Secure wiring with clips provided.

3/ Parts List

ITEM NO.	QTY	DESCRIPTION	PART NO.
3(Fig. 6)	1	LOGIC BOARD ASSEMBLY	8858Ø9Ø
1(Fig. 5)	1	FERRITE TOROID	8419Ø3Ø
4(Fig. 6)	1	MYLAR SHIELD, CPU	8539Ø34
	1	FOAM TAPE, 2 SIDED	869ØØØ1
	1	MODEL 4 NAMEPLATE	8719266
	1	CARTON, SHIPPING	8769Ø48
2(Fig. 5)	1	64K RAM ID	87898ØØ
	1	LABEL, UPGRADE	8789949
	1	METAL CHASSIS (PCB)	8858Ø34
4(Fig. 5)	1	PCB SOUND BOARD ASSY	8858121
	2	2Ø POSTION FLAT FLEX CABLE (SPECTRA STRIPS)	8459Ø2Ø
	5	TIE WRAPS(4")	8559Ø27
	6	SCREWS, #6 x 3/8 CRIMPTITE	8569128
	1	REAR RFI SHIELD	8729Ø49
	1	BAG COVER FOR MANUALS	859Ø1Ø8
	1	TRSDOS MANUAL	8749415
	1	DISK SYSTEM INTRODUCTION	8749433
	1	BINDER, MODEL 4	8754Ø84
	1	BASIC REF. CARD	8759192
	1	SOFTWARE REGISTRATION CARD	875921Ø
	1	LETTER, "READ ME FIRST"	8759242
	1	DISKETTE, MODEL 4 TRSDOS	8792Ø51
	1	KEYBOARD, MODEL 4	879Ø524
2(Fig. 5)	1	KEYBOARD BEZEL, MODEL 4	8719264