

***K2000 and K2000R
Sound ROM Option Kits
Installation Manual***

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K2000 and K2000R Sound ROM Option Kits Installation Manual

This document instructs Kurzweil service technicians in the installation of a Sound ROM Expansion Board and/or ROM-1 & ROM-2 into either a K2000 or K2000R. It is intended *only* for authorized Kurzweil service technicians. Installation by unauthorized personnel will void the warranty.

Important Notices

As always it is a good idea to back up the K2000 or K2000R's RAM contents before opening it. If the owner of the unit has not already done this, you can quickly back up all of the RAM by entering Disk mode, pressing the Save soft button, and selecting the option "Everything" to save all RAM objects to a floppy or hard disk.

Unit Requirements

IMPORTANT: Installation of an Orchestral Sound ROM Expansion Kit requires that you have Engine Software Version 1.3 or later; installation of a Contemporary Sound ROM Expansion Kit requires Engine Software Version 3.18 or later. Since all of the Sound ROM Option Kits are now shipped with the EPROMs for Engine Software Version 3.18 (or later), you should perform a software upgrade when you add the Sound ROM option(s).

Tools and Materials Required For Installation

- #1 (small) Phillips screwdriver
- #2 (medium) Phillips screwdriver
- 3mm Open End Wrench
- 1/2" Nut Driver*
- 3/16" Nut Driver*
- 5 mm Nut Driver*
- EPROM Puller (important)
- Soldering Iron
- Headphones

*NOTE: The tools marked with an asterisk are only required for K2000R installations.

Determine which kit is right for you

There are ten kits available to suit a variety of situations, as described below. Select the appropriate kit depending on the owner's requirements.

Calvin and Janis kits differ from each other only in the Engine Software EPROMs included with the kits. This is because different chips are required, depending on whether the K2000 has a Calvin or a Janis Engine Board. The "Read This First" document (910263) explains how to determine the type of Engine Board a K2000 has.

Part Number 140012 (Calvin), 140029 (Janis)

Sound ROM Expansion Daughter Board with ROM-1 (*Orchestral ROM*)

This kit is for a unit whose owner would like the ROM-1 sounds and has never had a ROM Expansion Kit installed.

- Item 1 ROM-1 PCB
- Item 2 EPROM: Setup LO for ROM-1*
- Item 3 EPROM: Setup HIGH for ROM-1*
- Item 4 (2) M3.0 x 10mm Pan Head, Phillips Screws (machine screw)
- Item 5 (2) M3.0 Hex Nuts
- Item 6 (2) M3.0 Flat Washers
- Item 7 (2) M3.0 Lock Washers
- Item 8 Push-on jumper
- Item 9 1" of Jumper wire
- Item 10 (2) M3.0 x 14mm Self-Tapping Pan Head, Phillips Screws (for plastic)
- Item 11 (2) RMB-K Sound ROM Expansion Daughter Board Mounting Brackets
- Item 12 RMB-K Sound ROM Expansion Daughter Board
- Item 13 **Orchestral ROM** Label
- Item 14 Documentation
- Item 15 EPROM: Engine Software LO
- Item 16 EPROM: Engine Software HIGH

Part Number 140013 (Calvin), 140030 (Janis)

Sound ROM Expansion Daughter Board with ROM-2 (*Contemporary ROM*)

This is for customers who want the ROM-2 sounds and have not had a ROM Expansion Kit installed.

- Item 1 ROM-2 PCB
- Item 2 EPROM: Setup LO for ROM-2*
- Item 3 EPROM: Setup HIGH for ROM-2*
- Item 4 (2) M3.0 x 10mm Pan Head, Phillips Screws (machine screw)
- Item 5 (2) M3.0 Hex Nuts
- Item 6 (2) M3.0 Flat Washers
- Item 7 (2) M3.0 Lock Washers
- Item 8 Push-on jumper
- Item 9 1" of Jumper wire
- Item 10 (2) M3.0 x 14mm Self-Tapping Pan Head, Phillips Screws (for plastic)
- Item 11 (2) RMB-K Sound ROM Expansion Daughter Board Mounting Brackets
- Item 12 RMB-K Sound ROM Expansion Daughter Board PCB
- Item 13 **Contemporary ROM** Label
- Item 14 Documentation
- Item 15 EPROM: Engine Software LO
- Item 16 EPROM: Engine Software HIGH

Part Number 140014 (Calvin), 140031 (Janis)

ROM-1 (*Orchestral ROM*) Upgrade Kit

This kit is for a unit whose owner would like the ROM-1 sounds and already has the RMB-K Sound ROM Daughter Board with the ROM-2 sounds installed.

- Item 1 ROM-1 PCB
- Item 2 EPROM: Setup LO for ROM-1 & ROM-2*
- Item 3 EPROM: Setup HIGH for ROM-1 & ROM-2*
- Item 4 **Orchestral ROM** Label
- Item 5 Documentation
- Item 6 EPROM: Engine Software LO
- Item 7 EPROM: Engine Software HIGH

Part Number 140015 (Calvin), 140032 (Janis) **ROM-2 (*Contemporary ROM*) Upgrade Kit**

This kit is for a unit whose owner would like the ROM-2 sounds and already has the RMB-K Sound ROM Daughter Board with the ROM-1 sounds installed.

- Item 1 ROM-2 PCB
- Item 2 EPROM: Setup LO for ROM-1 & ROM-2*
- Item 3 EPROM: Setup HIGH for ROM-1 & ROM-2*
- Item 4 *Contemporary ROM* Label
- Item 5 Documentation
- Item 6 EPROM: Engine Software LO
- Item 7 EPROM: Engine Software HIGH

Part Number 140034 (Calvin), 140033 (Janis) **Sound ROM Expansion Daughter Board with both ROM-1 and ROM-2**

This kit includes all the components necessary to update a K2000 with both of the Sound ROM options.

***NOTE:** The old components marked with an asterisk that you will be updating during this installation should be returned to Young Chang America. The address can be found on the front page of this document.

Before Installing

You'll need to run diagnostic tests before and after installing a sound ROM option. This will ensure that the unit is functioning properly before the installation, and will help you to identify any difficulties you might encounter with the installation.

NOTE: As stated earlier, installation of an *Orchestral Sound ROM Expansion Kit* requires that you have Engine Software Version 1.3 or later, while installation of a *Contemporary Sound ROM Expansion Kit* requires Engine Software Version 3.18 or later. Without the proper software your unit will not function correctly. Refer to the "Read This First" document (910263) for more information.

Diagnostics for Engine Software Version 1.3 or later

The Diagnostic test requires a blank Kurzweil-formatted (DOS 1.44M) blank floppy disk to be inserted into the floppy disk drive. If you don't already have a formatted disk, now would be a good time to format one. It is also recommended that you connect a SCSI device (like an external hard disk drive) to the unit's SCSI port, to enable you to test the operation of the SCSI link.

NOTE: You must insert a blank floppy disk into the floppy disk drive *before* starting the diagnostics; failure to do so will cause the sequence of tests to freeze at the floppy test. If this happens, you will have to turn the unit off, then start the diagnostics again, inserting the floppy disk before starting the test.

To run the internal diagnostic software, start with the unit's power off. Press and hold the 1, 2, 3 buttons on the alphanumeric buttonpad, and turn the unit on. A short menu will appear, prompting you

to select a hard reset or diagnostics. Use the Alpha Wheel to select "DIAGNOSTICS", then press ENTER.

A menu of tests will appear. The test you will be running is called "BurnIn", and includes most of the tests on the diagnostic menu. To run the "BurnIn" test, press number "1" on the alphanumeric buttonpad to start the test.

The time required for the entire burn-in test depends on the amount of sample RAM installed in the unit. The Sound RAM test requires approximately 20 seconds per megabyte of sample RAM, and the remaining tests take a total of approximately 5 minutes. As each test is run, the display will indicate the status of the test. Mark the results of each test on the checklist included at the end of this manual.

All of the diagnostic tests should pass the first burn-in test (if you do not connect a SCSI device to the SCSI port the SCSI test will fail). A failure of any of the tests indicates that the component in question is either malfunctioning or is not installed. Malfunctioning components should be repaired before proceeding further. Refer to the unit's service manual. When the faulty component is repaired or replaced, the diagnostics should be run again. Repeat this process until all tests have passed.

IMPORTANT: Although the SCSI test will fail if you do not have a SCSI device connected to the SCSI port, this does not necessarily indicate a malfunction in the SCSI link. If there is a SCSI device in the unit and you get a fail indication, try writing a file to and reading a file from the device in the unit's normal operating mode. Not all SCSI devices are alike. The SCSI diagnostic test may not recognize the particular SCSI device you are using and give you a false fail indication.

NOTE: When using diagnostics under V2.07, Calvin / Hobbes failure #8 is normal. Also, using diagnostics under V1.30J, setup test failure is normal.

When you have corrected any malfunctions that may have occurred, and run a successful diagnostic test, you are ready to proceed with the Sound ROM Option installation.

Beginning The Installation

The installation procedure is divided as outlined below:

Section I Instructions for the K2000 & K2000S

- Step** 1. Disassembly
- 2. Installation
 - Part** A. For an Expansion Kit
 - B. For an Upgrade Kit
- 3. Reassembly

Section II Instructions for the K2000R & K2000RS

- Step** 1. Disassembly
- 2. Installation
 - Part** A. For an Expansion Kit
 - B. For an Upgrade Kit
- 3. Reassembly

Go to the appropriate section depending on which unit you are working on and follow the instructions. Note that the *Installation* step is divided into two parts: one for expansion kits and one for upgrade kits.

Section I - Installation for the K2000 and K2000S

Step 1 - K2000, K2000S Disassembly

1. Unplug all external wires, cables and connectors from the unit.
2. Turn the unit face down on a soft carpet or foam pad, with the keys pointing toward you.
3. Using a #2 Phillips screwdriver, remove the six screws that fasten the bottom enclosure to the top enclosure (the enclosure is the unit's outer case). There is one screw in each corner of the bottom enclosure, and two in the middle.
4. See Figure 1. Slowly lift the edge of the bottom enclosure that is closest to you, check to see if there are any wires connecting the bottom enclosure to the top. If the FK1 fan kit has already been installed, be sure to disconnect the fan/hard disk drive power cable from the unit's audio board before removing the bottom enclosure completely. **Be sure that there are no cables connected between the bottom and top enclosures.** If there are any ribbon cables to be disconnected, make note of the orientation of the red border on the ribbon cable, so you can reconnect them properly. Set the bottom enclosure aside.

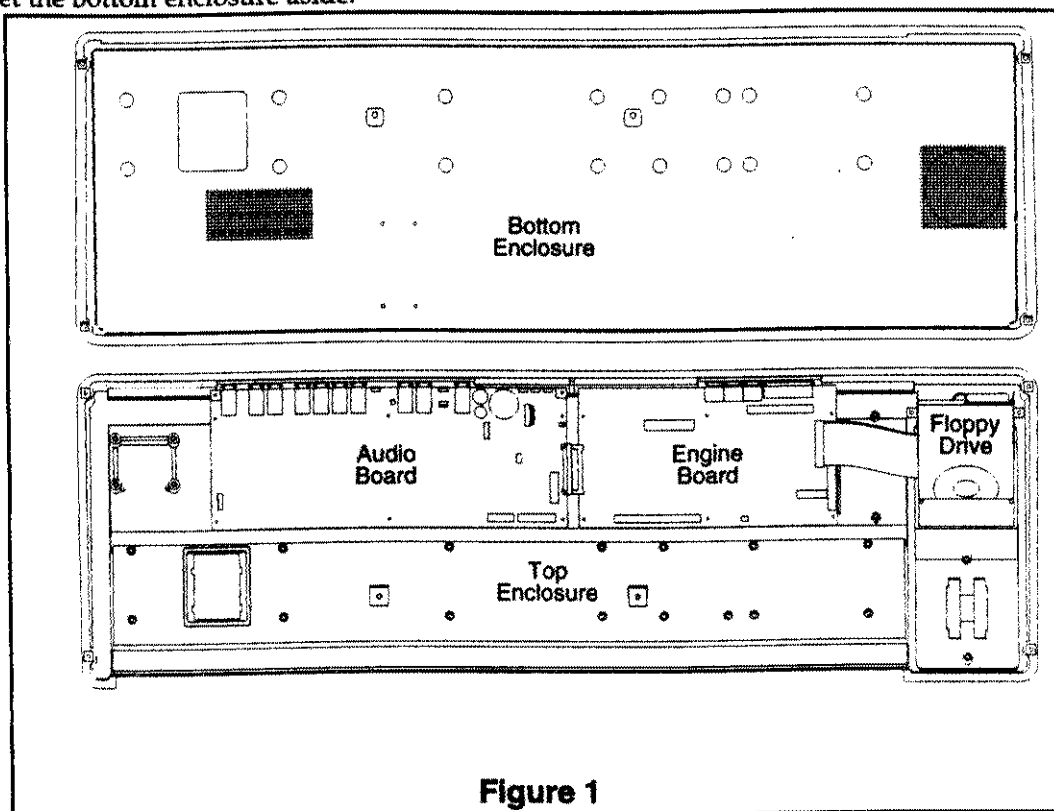


Figure 1

Step 2 - Installation

Part A - Instructions for an Expansion Kit

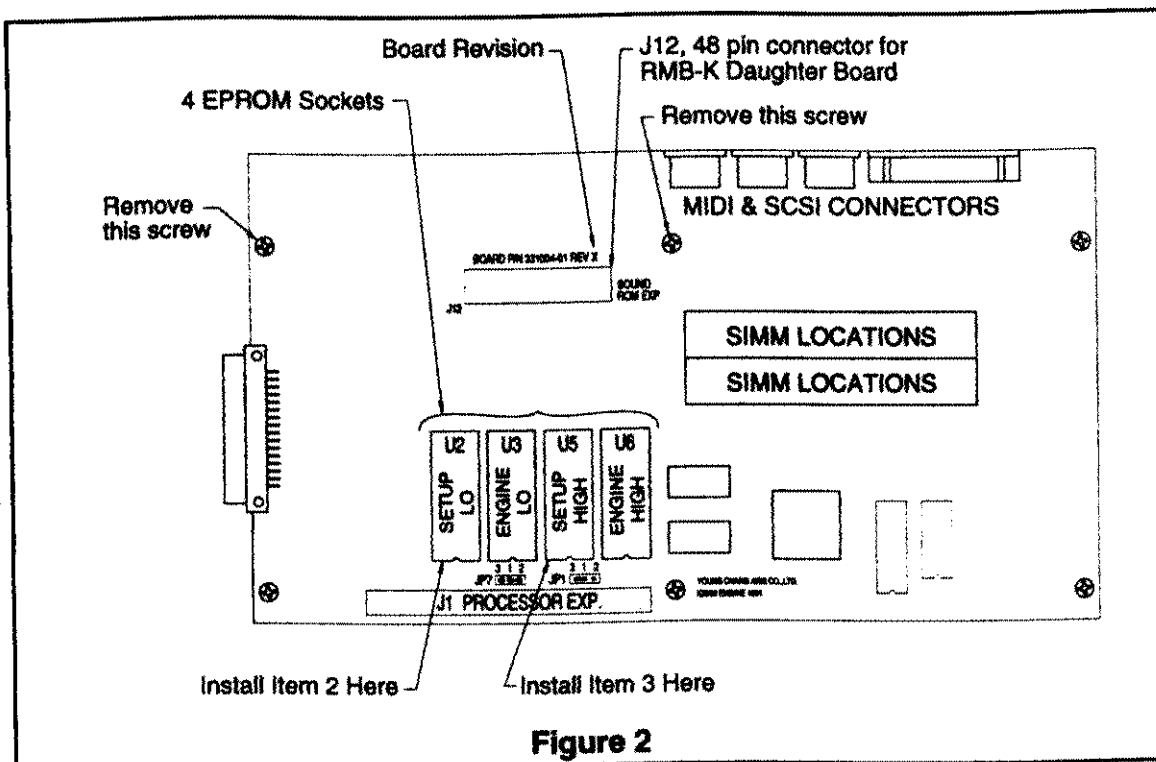
Part Numbers - 140012, 140013, 140029, or 140030

1. See Figure 1. Locate the Engine PCB. It is the PC board with the MIDI and external SCSI connectors on it.

2. See Figure 2. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate the four EPROM sockets. They are on the lower left half of the board above J1, the 64 pin connector labeled "PROCESSOR EXP".

NOTE: If the unit you are working on has a "PRAM Option" installed, it must be removed temporarily to allow access to the EPROM sockets. Consult the PRAM Option Installation Manual for information about the removal of the PRAM board.

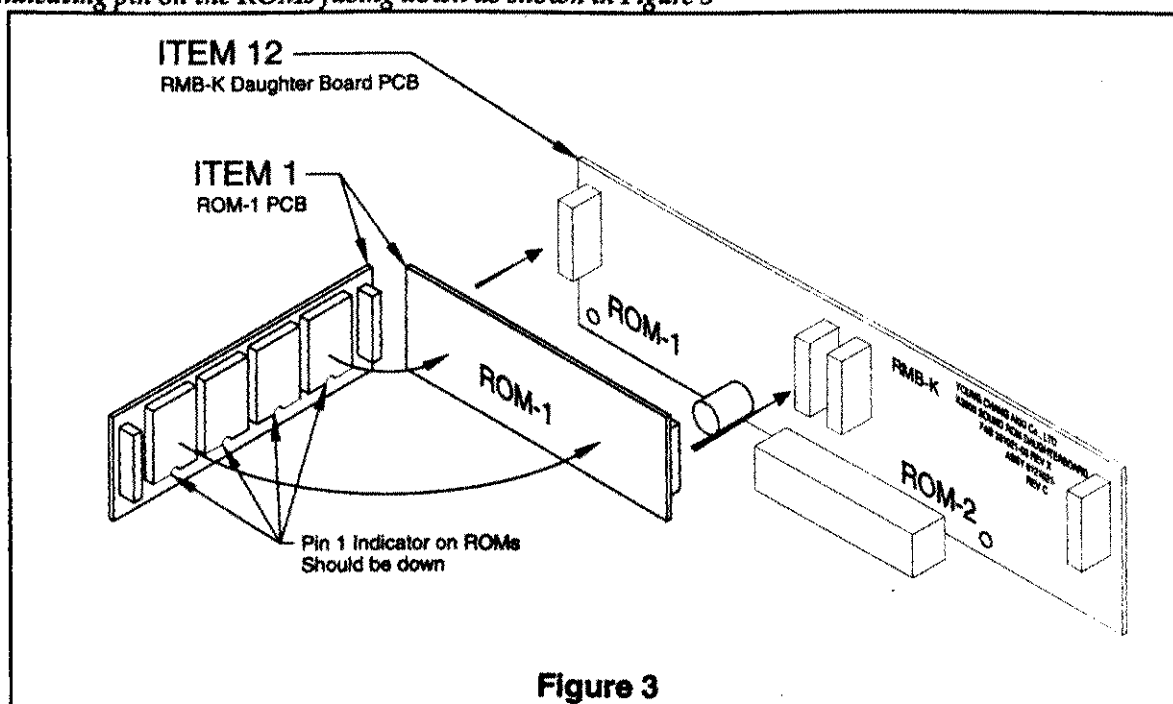
3. See Figure 2. Find the two setup EPROM sockets. The two sockets will have EPROMs already installed in them if you have Engine Software 2.x. If there are EPROMs present then use an EPROM puller to carefully remove them from their sockets.
DO NOT use a screwdriver to remove the EPROMs. Doing so can cause serious, possibly unreparable, damage to Engine board.
4. See Figure 2. Take Item 2, Setup **LO** EPROM, and place it into the left-most socket. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.
5. See Figure 2. Take Item 3, Setup **HIGH** EPROM, and place it into the second socket from the right. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.



WARNING: The notch on the EPROMs, indicating pin 1, must be toward connector J1. Installing these EPROMs backwards will destroy them and could possibly damage the unit.

6. See Figure 2. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate J12, the 48 pin connector labeled "SOUND ROM EXP". It is to the left of the SIMM sockets and above the software and setup EPROMS.

7. See Figure 2. Remove the two Engine PCB mounting screws to the left and right side of J12, the 48 pin connector labeled "SOUND ROM EXP" and discard them. You will be using replacement screws, supplied with the kit, later on in the installation.
8. See Figure 3. Determine which ROM board is in the kit. The masked ROMs are labeled 1-1, 1-2, 1-3, 1-4 on the ROM-1 board and 2-1, 2-2, 2-3, 2-4 on the ROM-2 board. Note that the RMB-K Sound ROM Daughter board is marked ROM-1 on one end of the board and ROM-2 on the other end. Install Item 1, the ROM-x PCB, onto the appropriate side of the RMB-K Sound ROM Daughter board by pushing the two connectors on both sides of the ROM board simultaneously into the matching two connectors on the RMB-K Daughter board. **The notches indicating pin one on all four of the masked ROMs should be facing down.**
NOTE: The connectors on both the RMB-K Daughter Board and the ROM board are keyed so that they can only be installed into their proper connectors. However, it is possible to install them upside down which may destroy the ROMs. *Be sure to install the ROM board with the notches indicating pin on the ROMs facing down as shown in Figure 3*



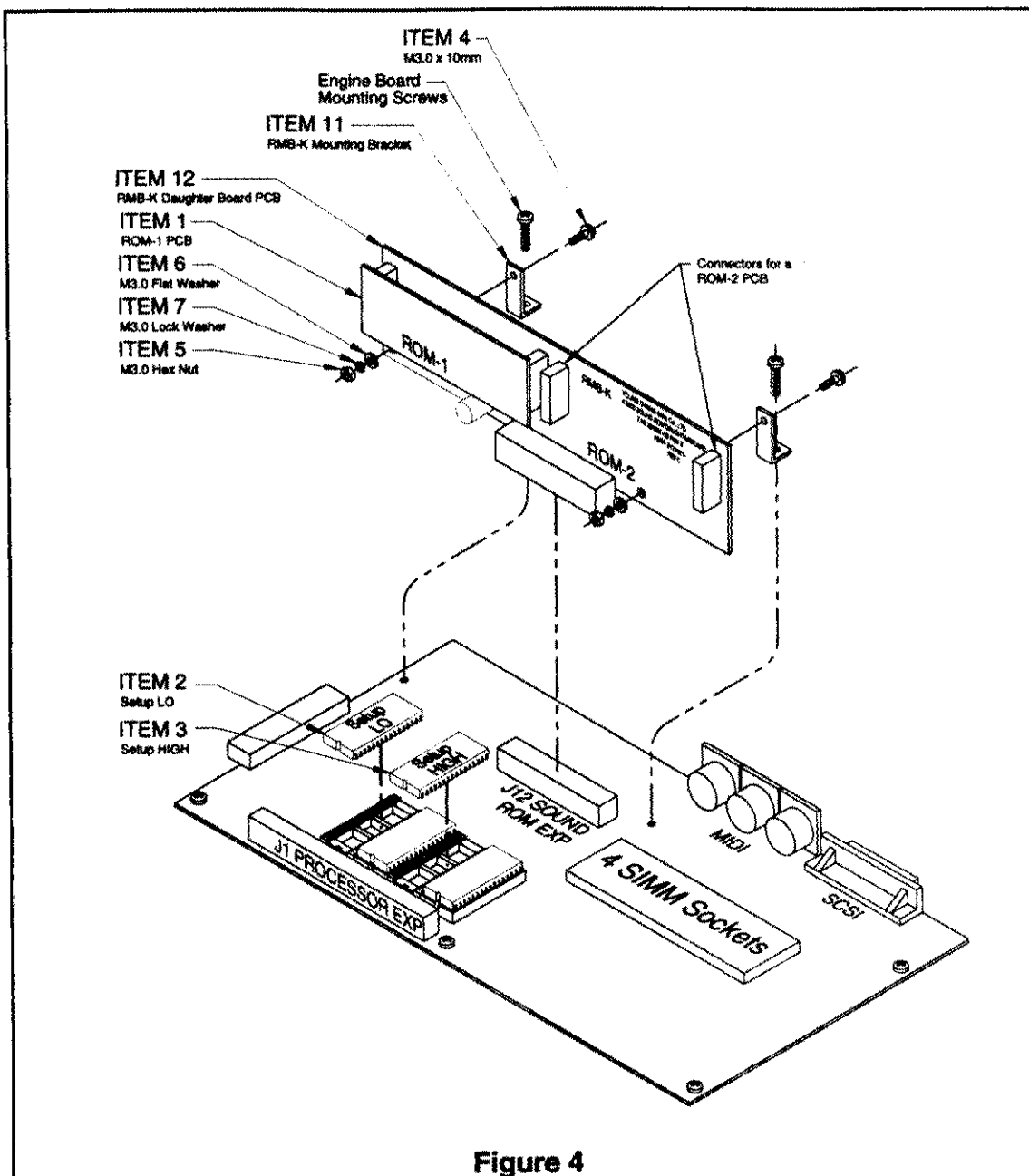
9. See Figure 4. Put Item 4, the (2) M3 x 10mm Screws through the two holes in Item 11, the mounting brackets, and RMB-K Daughter Board as shown. Secure the RMB-K Daughter Board to the brackets with Item 6, the M3 Flat Washers, Item 7, the M3 Lock Washers, and Item 5, the M3 Hex Nuts.
10. See Figure 4. Push the RMB-K Sound ROM Daughter Board, with the ROM board installed, onto J12, the "SOUND ROM EXP" connector. The side of the RMB-K Daughter Board with the ROM board on it should be facing connector J1, the 64 pin connector labeled "PROCESSOR EXP".
NOTE: The connector on the RMB-K Daughter Board is keyed and cannot be installed backwards.
11. See Figure 4. Using Item 10, the (2) M3.0 x 14mm Self-Tapping Screws, secure the Item 11, the (2) RMB-K Mounting Brackets, to the Engine Board.
12. See Figure 2. Identify what type and revision Engine Board is in the unit. The revision of the board is silk-screened above J12, the 48 pin connector labeled "SOUND ROM EXP". This connector is to the left of the SIMM sockets. On Calvin boards, the silk-screen says "BOARD P/N 331004-

01 REV. X", where "X" is the revision of the board; on Janis boards, the silk-screen says "BOARD P/N 331030".

13. See Figure 2. If the type and revision of the Engine Board is "Janis" or "Calvin C", you may have to install a wire jumper. Locate JP7 between the four EPROM sockets and connector J1, the 64 pin connector labeled "PROCESSOR EXP.". A jumper header may be installed or there may just be 3 pads.

NOTE: You will not find "JP7" on Calvin Rev. A or Rev B Engine PCBs. Also if the unit has Engine Software V2.0 or later then jumper JP7 will be correct.

14. See Figure 2. If there is a jumper header, then install Item 8, Push-on Jumper, on pins 1 and 2, the middle and right pins.



15. If there are just 3 pads, then using Item 9, Jumper Wire, solder a connection between pads 1 and 2, the middle and right pads.

NOTE: If you had to remove a PRAM Option, you should re-install it now.

The Installation is complete! Go to Section I, Step 3 (K2000, K2000S Reassembly)

Step 2

Part B - K2000, K2000S

Installation for an Upgrade Kit

Part Numbers - 140014, 140015, 140031, or 140032

1. See Figure 1. Locate the Engine PCB. It is the PC board with the MIDI and external SCSI connectors on it.
2. See Figure 5. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate the four EPROM sockets. They are on the lower left half of the board above J1, the 64 pin connector labeled "PROCESSOR EXP."

NOTE: If the unit you are working on has a "PRAM Option" installed, it must be removed temporarily to allow access to the EPROM sockets. Consult the PRAM Option Installation Manual for information about the removal of the PRAM board.

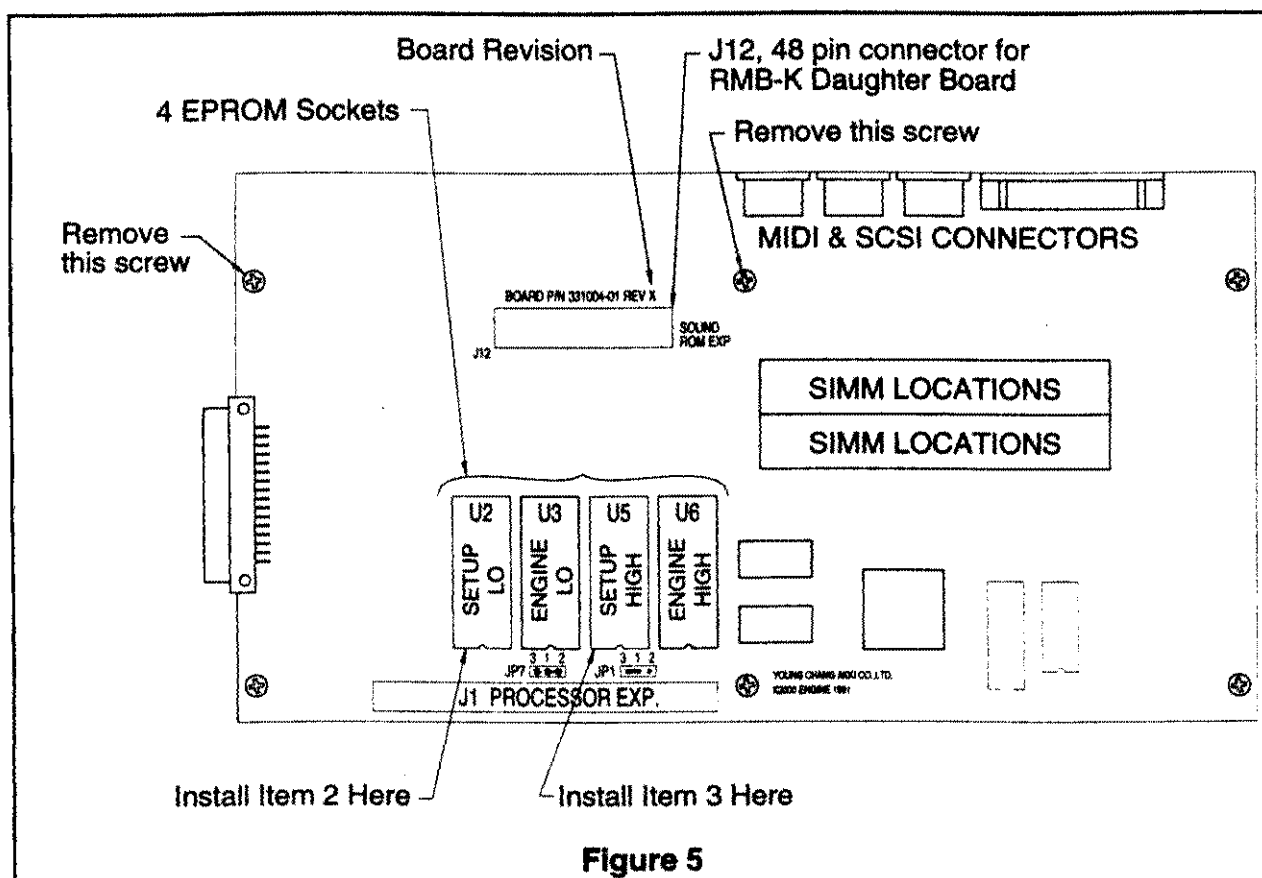


Figure 5

3. See Figure 5. Find the two Setup EPROMs. Carefully remove the EPROMs using an EPROM puller.
DO NOT use a screwdriver to remove the EPROMs. Doing so can cause serious, possibly unreparable, damage to the Engine board.
 4. See Figure 6. Take Item 2, Setup **LO** EPROM, and place it into the left-most socket. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.
 5. See Figure 6. Take Item 3, Setup **HIGH** EPROM, and place it into the second socket from the right. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.
- WARNING:** The notch on the EPROMs, indicating pin 1, must be toward connector J1. Installing these EPROMs backwards will destroy them and could possibly damage the unit.

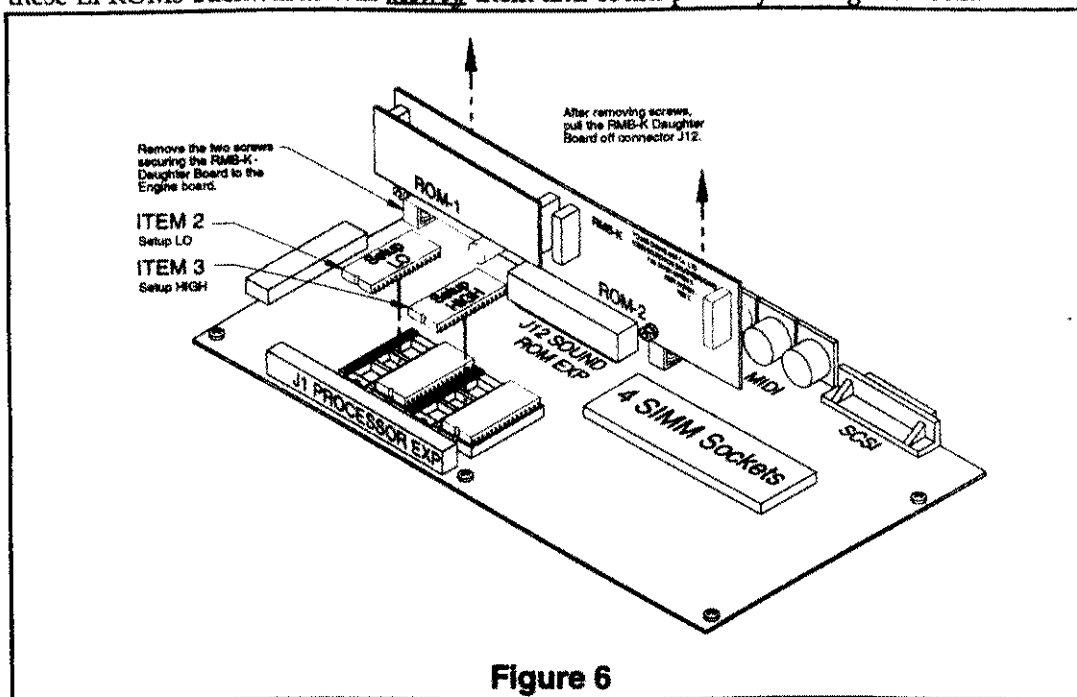


Figure 6

6. See Figure 6. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate J12, the 48 pin connector labeled "SOUND ROM EXP". It is to the left of the SIMM sockets and above the software and setup EPROMs. Currently installed in this connector is the RMB-K Daughter Board with one of the ROM Boards.

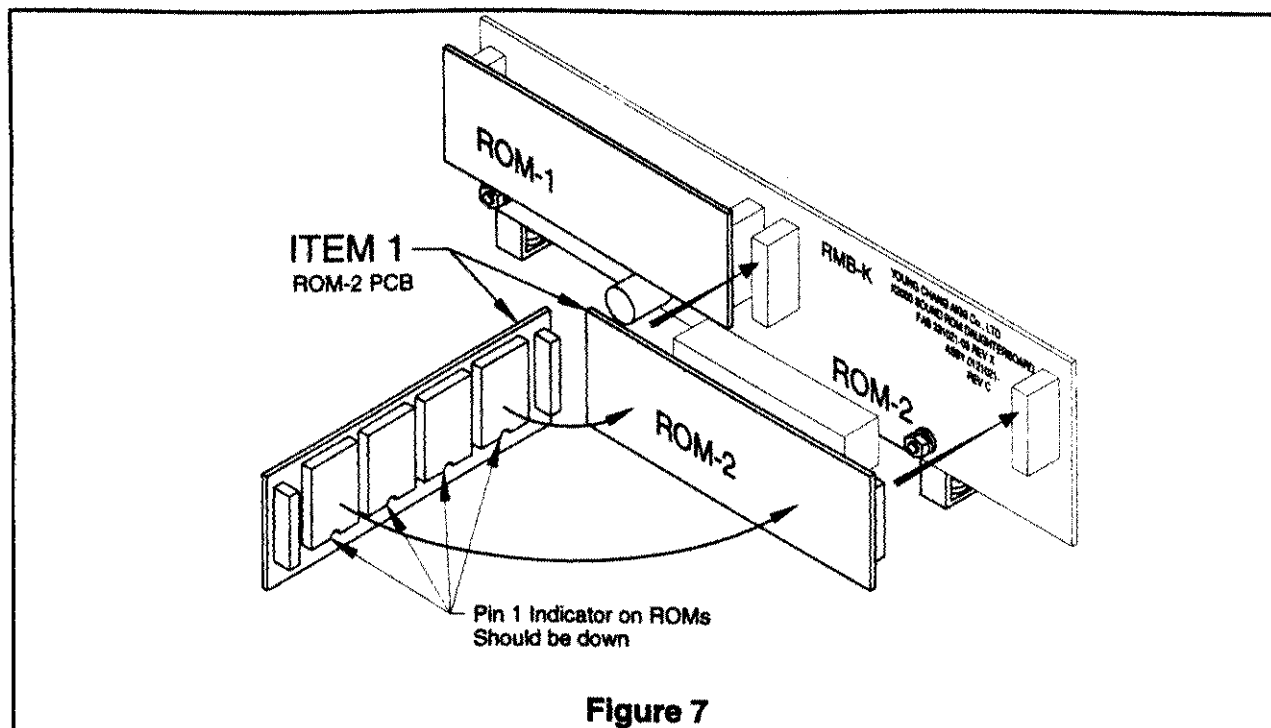


Figure 7

7. See Figure 6. Remove the two Engine Board mounting screws which go through the RMB-K Daughter Board mounting brackets. Then carefully disconnect the RMB-K Daughter board from connector J12.
8. See Figure 7. Install Item 1, the ROM-x PCB, into the unused pair of connectors on the RMB-K Daughter Board by pushing the two connectors on both sides of the ROM board simultaneously into the matching two connectors on the RMB-K Daughter board. **The notch indicating pin one on all four of the masked ROMs should be facing down.**
NOTE: The connectors on both the RMB-K Daughter Board and the ROM board are keyed so that they can only be installed into their proper connectors. However, it is possible to install them upside down which may destroy the ROMs. *Be sure to install the ROM board with the notches indicating pin on the ROMs facing down as shown in Figure 7*
9. See Figure 8. Push the RMB-K Daughter Board, with the both ROM boards installed, back onto J12, the "SOUND ROM EXP" connector. The side of the RMB-K Daughter Board with the ROM board on it should be facing connector J1, the 64 pin connector labeled "PROCESSOR EXP.". **NOTE:** The connector on the RMB-K Daughter Board is keyed and cannot be installed backwards.

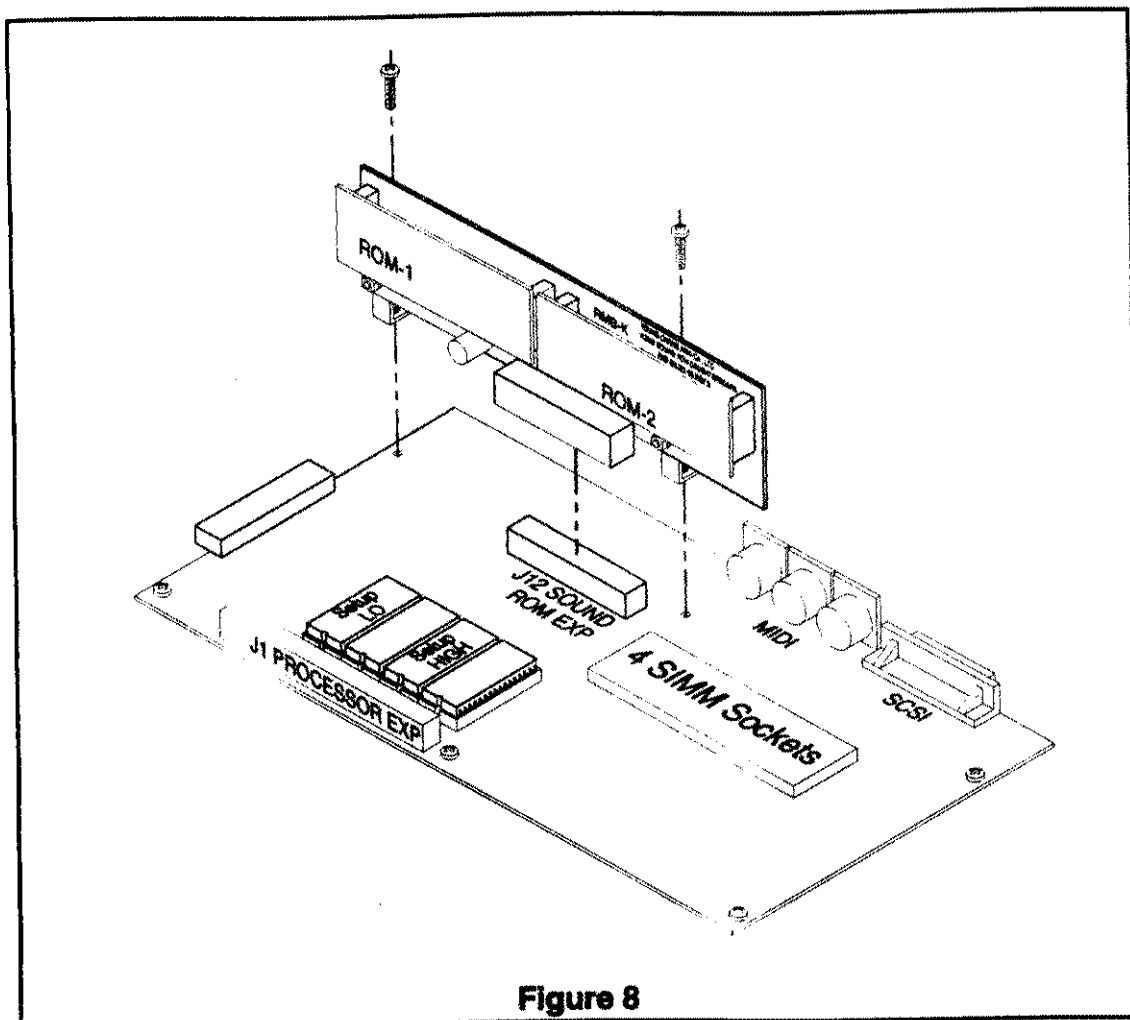


Figure 8

NOTE : If you had to remove a PRAM Option, you should re-install it now.

The Installation is complete! Go to Section I, Step 3 (K2000, K2000S Reassembly).

Step 3 K2000, K2000S Reassembly

1. See Figure 9. Lift the bottom enclosure, placing its back edge (the edge with the KURZWEIL logo) on the back edge of the top enclosure, and hold the unit partially open as shown.

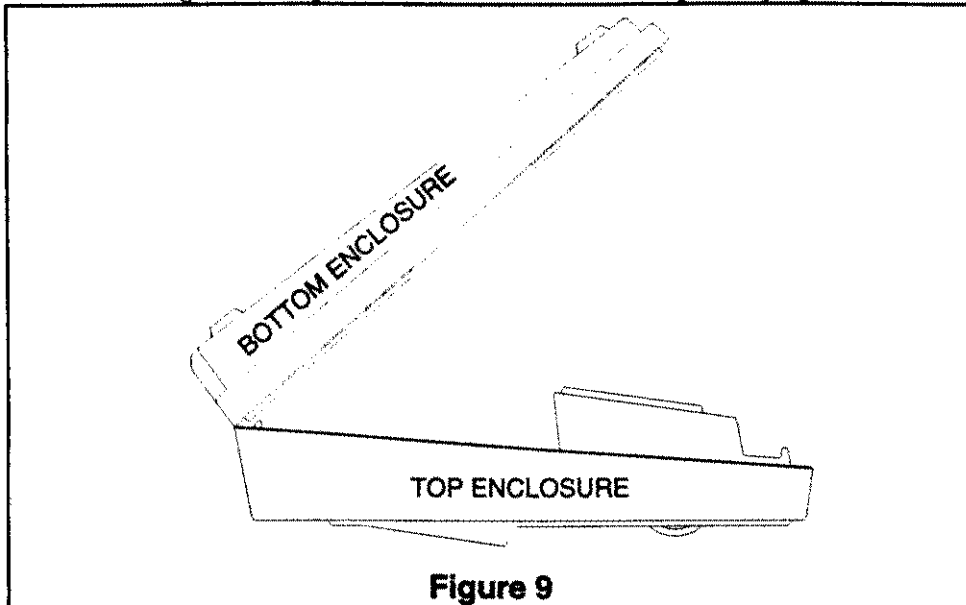


Figure 9

2. If the unit has an FK1 Fan Kit, reconnect the fan/hard disk power cable. If a hard disk is present, reconnect the hard disk drive ribbon cable. Make sure the red border of the cable is on the Pin 1 side of the connector. See the HDC-1, Hard Disk Installation Kit, installation manual if necessary.
3. Carefully close the unit and replace the six enclosure fastening screws.
4. Before operating the unit, you **MUST** do a hard reset to initialize the software. This is done by simply pressing and holding buttons 1, 2, and 3 on the alphanumeric buttonpad, and turning the unit on. Use the Alpha Wheel to select the "HARD RESET" option, and press ENTER. The LCD will have a message prompting you to power the unit down and up again. Upon powering up the new software will initialize. This will take approximately two minutes.

Rerun Diagnostics and Check New Programs

To be sure that the unit is functioning properly you must run the diagnostic tests again. To enter diagnostic mode, press and hold buttons 1, 2, and 3 on the alphanumeric buttonpad, and turn the unit on. Use the Alpha Wheel to select the "DIAGNOSTICS" option, and press ENTER. Run the "BurnIn" test by pressing 1 on the alphanumeric keypad. Mark the results of each test in the second column of the checklist. The results for each test of the second diagnostic test should match those of the first. If any test fails the second diagnostic test after passing the first, check the installation thoroughly, repair or replace the any failing component, and run the "BurnIn" test again. Repeat this process until all tests have passed. After running the diagnostics, scroll through the K2000's program list to confirm that the new ROM programs are displayed. The Contemporary (ROM-2) programs will be in the 800s bank; the Orchestral (ROM-1) programs will be in the 900s bank. Finally, connect a pair of headphones to the K2000, turn up the volume on the unit, and confirm that the new programs play.

Detach the last sheet in this installation manual and give it to the owner, along with the front panel label(s), and the provided user documentation.

Section II - Installation for the K2000R & K2000RS

Step 1 K2000R, K2000RS Disassembly

1. Unplug all external wires, cables and connectors from the unit and turn the unit so the front panel is facing you.
2. Using a #2 Phillips screwdriver, remove the four large truss head screws on both the left and right sides of the unit. Then using a #1 Phillips screwdriver remove the two small truss head screws located on the top edge of the rear panel.
3. See Figure 1. Lift the cover from the back, slide it off and place it aside.
NOTE: Notice that there is a groove on the top edge of the front panel that the top cover fits snugly into.

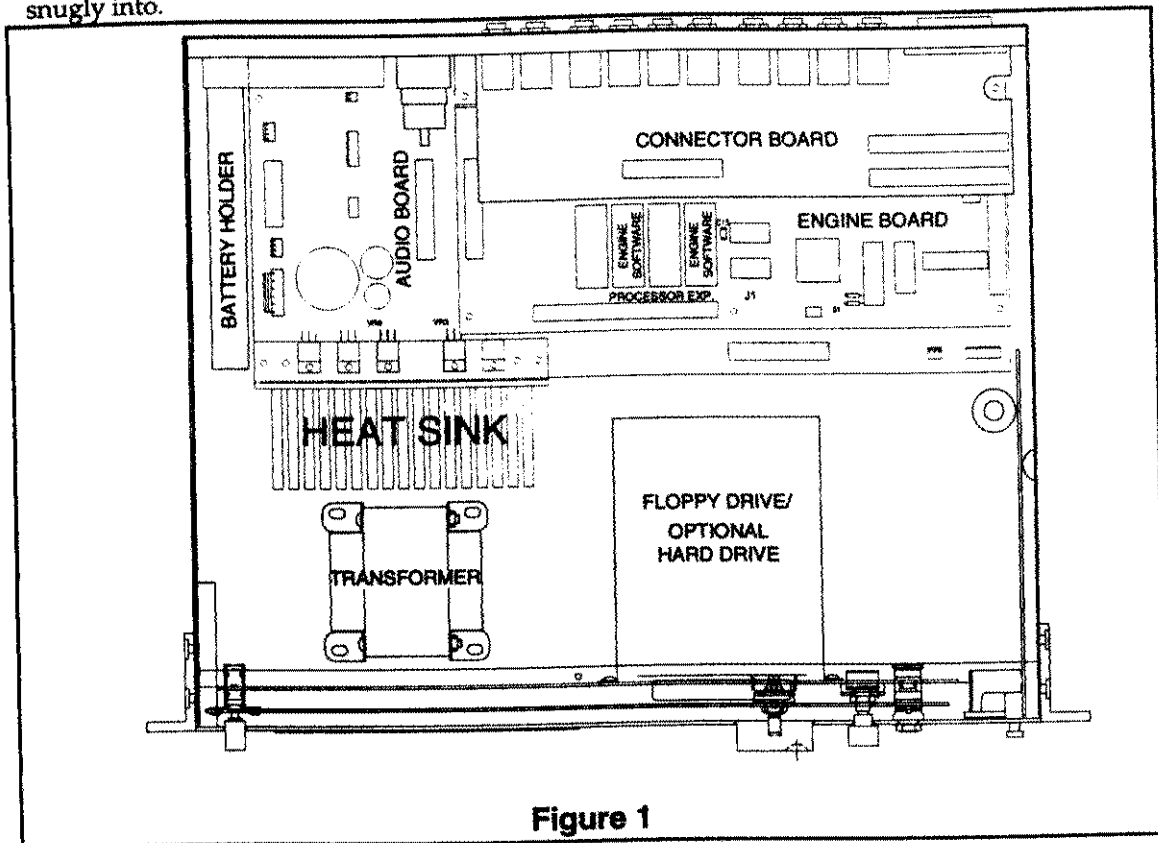


Figure 1

Step 2 Part A - K2000R, K2000RS Installation for an Expansion Kit Part Numbers - 140012, 140013, 140029, or 140030

1. See Figure 1. Locate the Connector PCB. It is the board with the ten 1/4" phone jacks on it.
2. Using a 1/2" Nut driver, remove the ten hex nuts and washers securing the ten 1/4" phone jacks to the rear panel.

3. Depending on the size of the standoffs, use a 3/16" or 5mm Nut driver, to remove the two hex standoffs and washers securing the SCSI Thru connector to the rear panel.
4. Remove the Connector PCB from the rear panel and place it aside. It is not necessary to remove the ribbon cables from the Connector PCB.
5. See Figure 2. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate the four EPROM sockets. They are on the lower left half of the board above J1, the 64 pin connector labeled "PROCESSOR EXP."
NOTE: If the unit you are working on has a "PRAM Option" installed, it must be temporarily removed to allow access to the EPROM sockets. Consult the PRAM Option Installation Manual for information about the removal of the PRAM board.
6. See Figure 2. Find the two setup EPROM sockets U2 & U5. The two sockets will have EPROMs already installed in them if you have Engine Software 2.x. If there are EPROMs present then use an EPROM puller to carefully remove them from their sockets.

DO NOT use a screwdriver to remove the EPROMs. Doing so can cause serious, possibly unreparable, damage to Engine board.

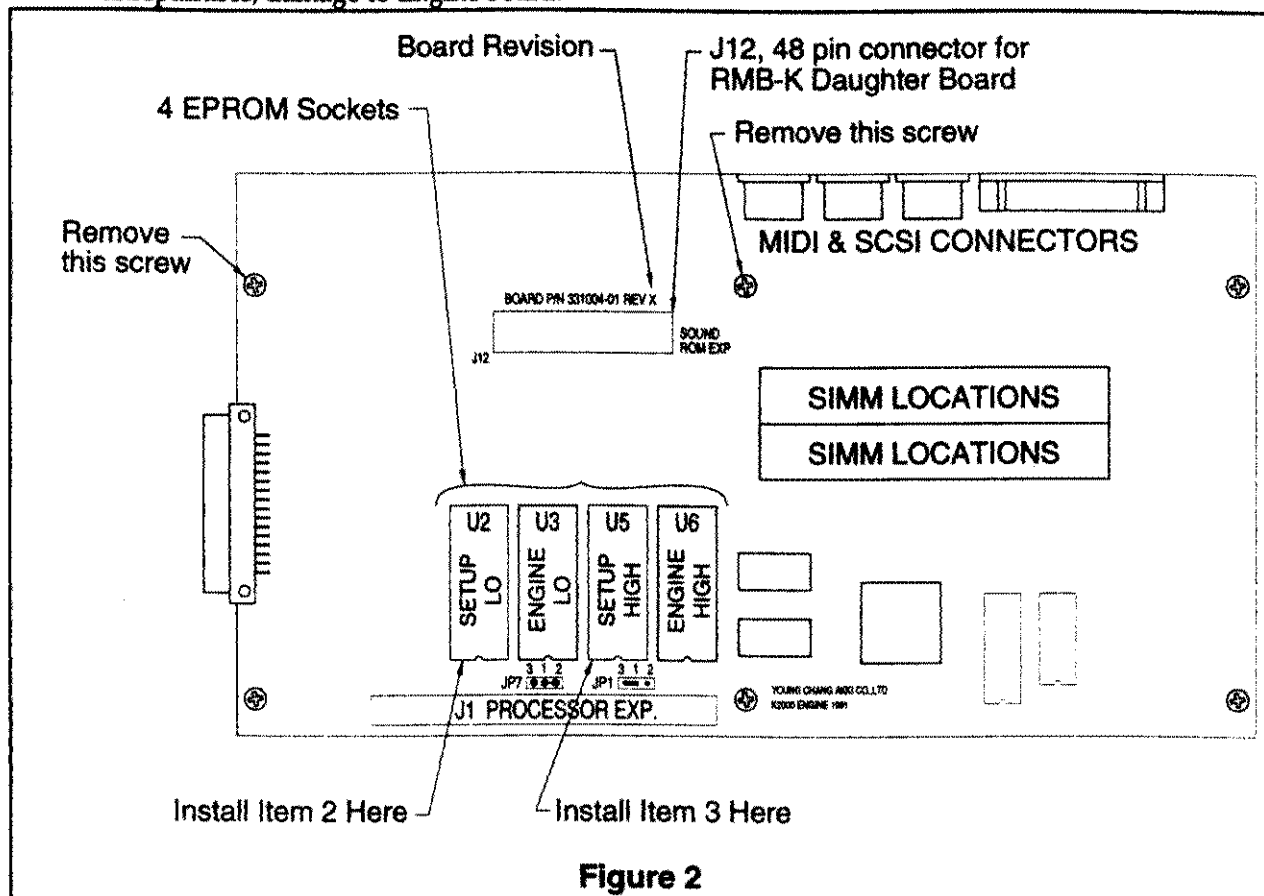


Figure 2

7. See Figure 2. Take Item 2, Setup **LO** EPROM, and place it into the left-most socket. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.

8. See Figure 2. Take Item 3, Setup **HIGH** EPROM, and place it into the second socket from the right. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.
WARNING: The notch on the EPROMs, indicating pin 1, must be toward connector J1. Installing these EPROMs backwards will destroy them and could possibly damage the unit.
9. See Figure 2. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate J12, the 48 pin connector labeled "SOUND ROM EXP". It is to the left of the SIMM sockets and above the software and setup EPROMS.
10. See Figure 2. Remove and save the two Engine PCB mounting screws to the left and right side of J12, the 48 pin connector labeled "SOUND ROM EXP".
11. See Figure 3. Determine which ROM board is in the kit. The masked ROMs are labeled 1-1, 1-2, 1-3, 1-4 on the ROM-1 board and 2-1, 2-2, 2-3, 2-4 on the ROM-2 board. Note that the RMB-K Sound ROM Daughter board is marked ROM-1 on one end of the board and ROM-2 on the other end. Install Item 1, the ROM-x PCB, from the kit onto the appropriate side of the RMB-K Sound ROM Daughter board by pushing the two connectors on both sides of the ROM board simultaneously into the matching two connectors on the RMB-K Daughter board. The notch indicating pin one on all four of the masked ROMs should be facing down.

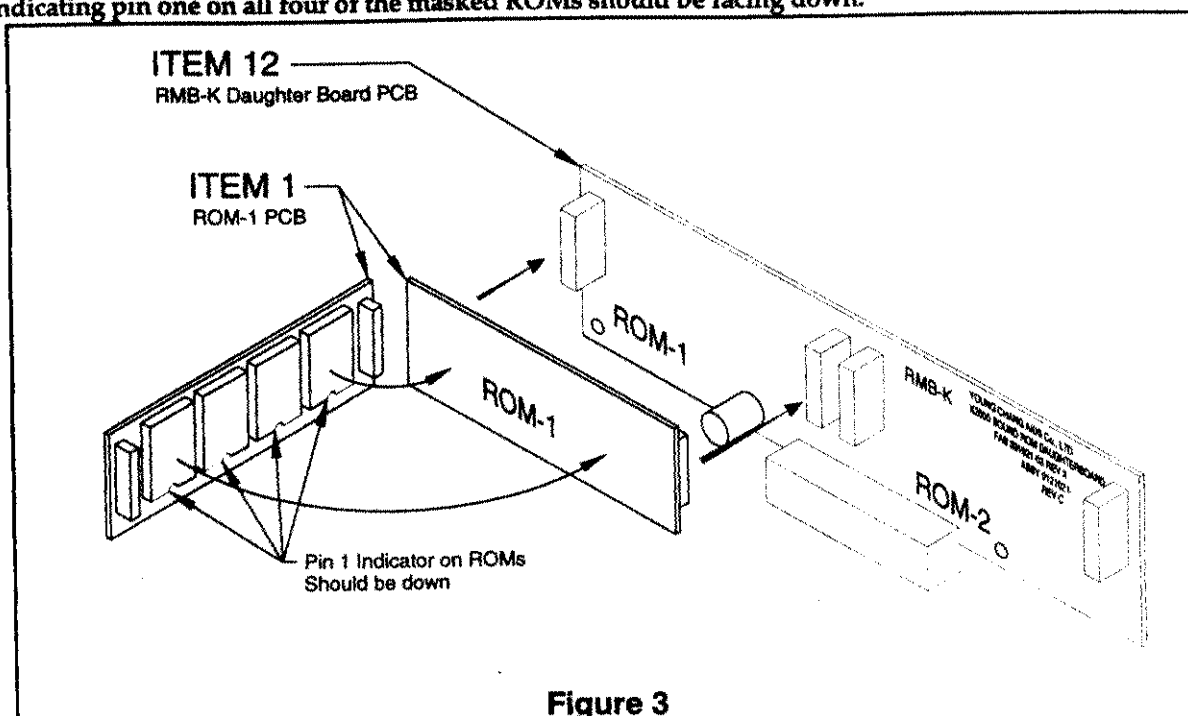


Figure 3

NOTE: The connectors on both the RMB-K Daughter Board and the ROM board are keyed so that they can only be installed into their proper connectors. However, it is possible to install them upside down which may destroy the ROMs. *Be sure to install the ROM board with the notches indicating pin one on the ROMs facing down as shown in Figure 3*

12. See Figure 4. Put Item 4, the (2) M3 x 10mm Screws through the two holes in Item 11, the mounting brackets, and RMB-K Daughter Board as shown. Secure the RMB-K Daughter Board to the brackets with Item 6, the M3 Flat Washers, Item 7, the M3 Lock Washers, and Item 5, the M3 Hex Nuts.

13. See Figure 4. Push the RMB-K Sound ROM Daughter Board, with the ROM board installed, onto J12, the "SOUND ROM EXP" connector. The side of the RMB-K Daughter Board with the ROM board on it should be facing connector J1, the 64 pin connector labeled "PROCESSOR EXP.". Replace the two Engine PCB mounting screws through the RMB-K Daughter Board mounting brackets.
NOTE: The connector on the RMB-K Daughter Board is keyed and cannot be installed backwards.
14. See Figure 4. Using the Engine Board mounting screws you removed to secure Item 11, the (2) RMB-K Mounting Brackets, to the Engine Board.
15. See Figure 2. Identify what type and revision Engine Board is in the unit. The revision of the board is silk-screened above J12, the 48 pin connector labeled "SOUND ROM EXP". This connector is to the left of the SIMM sockets. On Calvin boards, the silk-screen says "BOARD P/N 331004-01 REV. X", where "X" is the revision of the board; on Janis boards, the silk-screen says "BOARD P/N 331030".
16. See Figure 2. If the type and version of the Engine Board is "Calvin C" or "Janis", locate JP7 between the four EPROM sockets and connector J1, the 64 pin connector labeled "PROCESSOR EXP.". A jumper header may be installed or there may just be 3 pads.
NOTE: If the unit you are working on has Engine Software V2.0 or later then the jumper JP7 will already be correct. If the K2000 has a Calvin A or B board, there will be no JP7.
17. If there is a jumper header, then install Item 8, Push-on Jumper, on pins 1 and 2, the middle and right pins.
18. If there are just 3 pads, then using Item 9, Jumper Wire, solder a connection between pads 1 and 2, the middle and right pads.

NOTE: If you had to remove a PRAM Option, you should re-install it now.

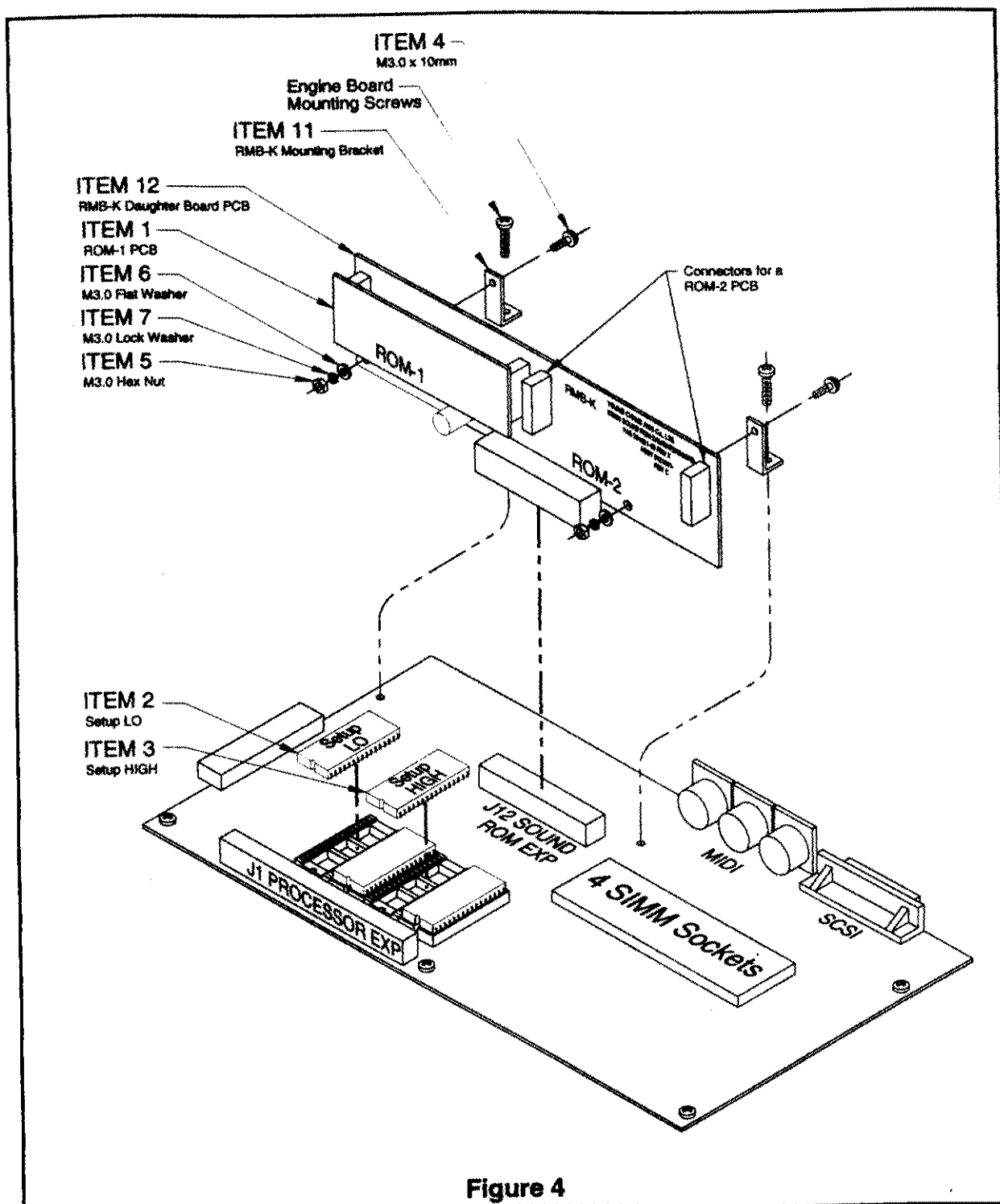


Figure 4

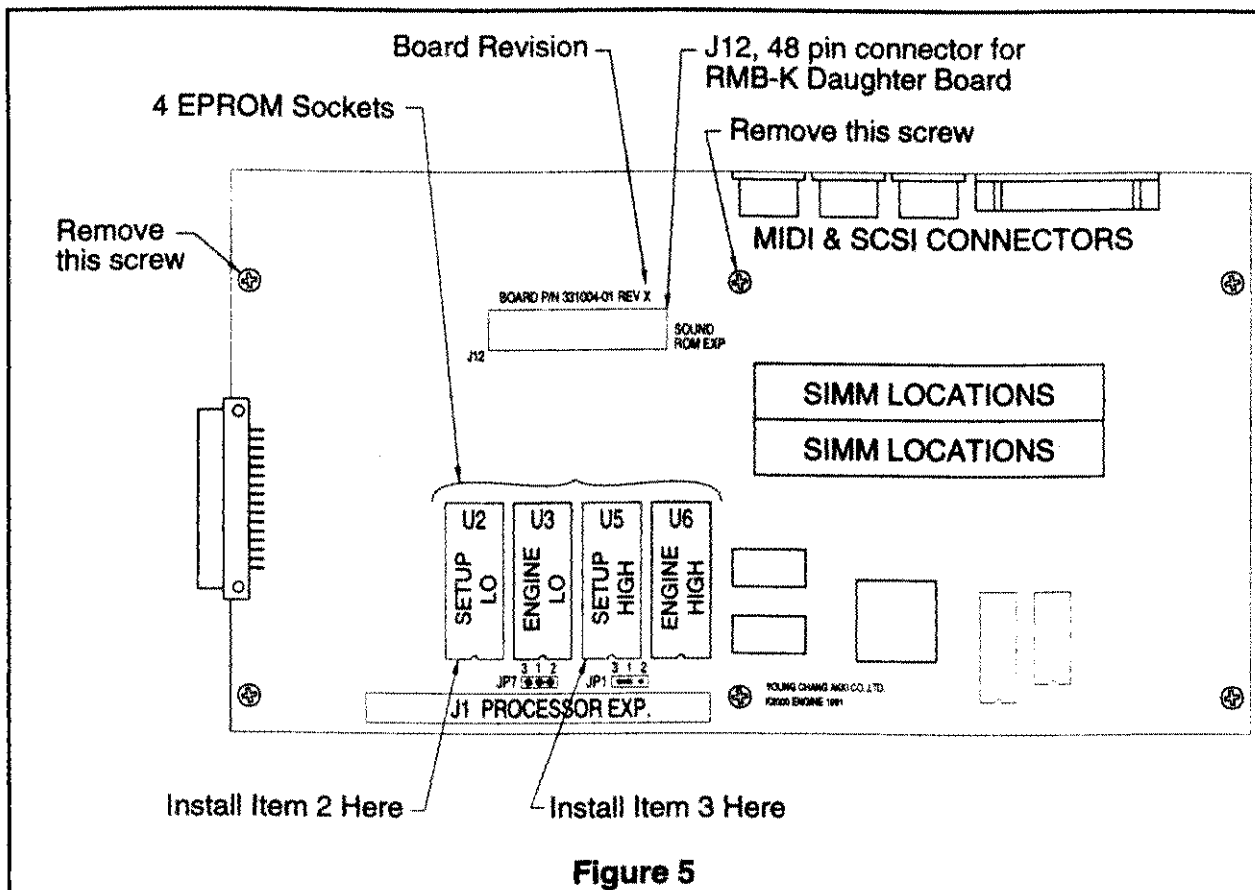
19. Reinsert the Connector PCB through the rear panel and place the ten large washers on the 1/4" phone jacks. Place the ten 1/2" hex nuts back onto each on the 1/4" phone jacks and tighten them with the 1/2" Nut driver.

20. Replace both Hex standoffs with washers into the two holes on either side of the SCSI Thru connector and tighten them with the 3/16" or 5mm Nut driver depending on what size standoff is used.

The Installation is complete! Go to Section II, Step 3. (K2000R, K2000RS Reassembly)

Step 2
Part B - K2000R, K2000RS
Installation for an Upgrade Kit
Part Numbers - 140014, 140015, 140031, or 140032

1. See Figure 1. Locate the Connector PCB. It is the board with the ten 1/4" phone jacks on it.
2. Using a 1/2" Nut driver, remove the ten hex nuts and washers securing the ten 1/4" phone jacks to the rear panel.
3. Depending on the size of the standoffs, use a 3/16" or 5mm Nut driver, to remove the two hex standoffs and washers securing the SCSI Thru connector to the rear panel.



4. Remove the Connector PCB from the rear panel and place it aside. It is not necessary to remove the ribbon cables from the Connector PCB.
5. See Figure 1. Locate the Engine PCB. It is the PC board with the MIDI and SCSI connectors on it.

6. See Figure 5. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate the four EPROM sockets. They are on the lower left half of the board above J1, the 64 pin connector labeled "PROCESSOR EXP."
NOTE: If the unit you are working on has a "PRAM Option" installed, it must be temporarily removed to allow access to the EPROM sockets. Consult the PRAM Option Installation Manual for information about the removal of the PRAM board.
7. See Figure 5. Find the two Setup EPROMs. Carefully remove the EPROMs using an EPROM puller.
DO NOT use a screwdriver to remove the EPROMs. Doing so can cause serious, possibly unreparable, damage to the Engine board.
8. See Figure 6. Take Item 2, Setup LO EPROM, and place it into the left-most socket. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.
9. See Figure 6. Take Item 3, Setup HIGH EPROM, and place it into the second socket from the right. Be sure that the notch in the EPROM indicating pin one is facing J1. Gently push the EPROM into the socket, making sure that all pins are inserted correctly. Be careful not to bend any pins.

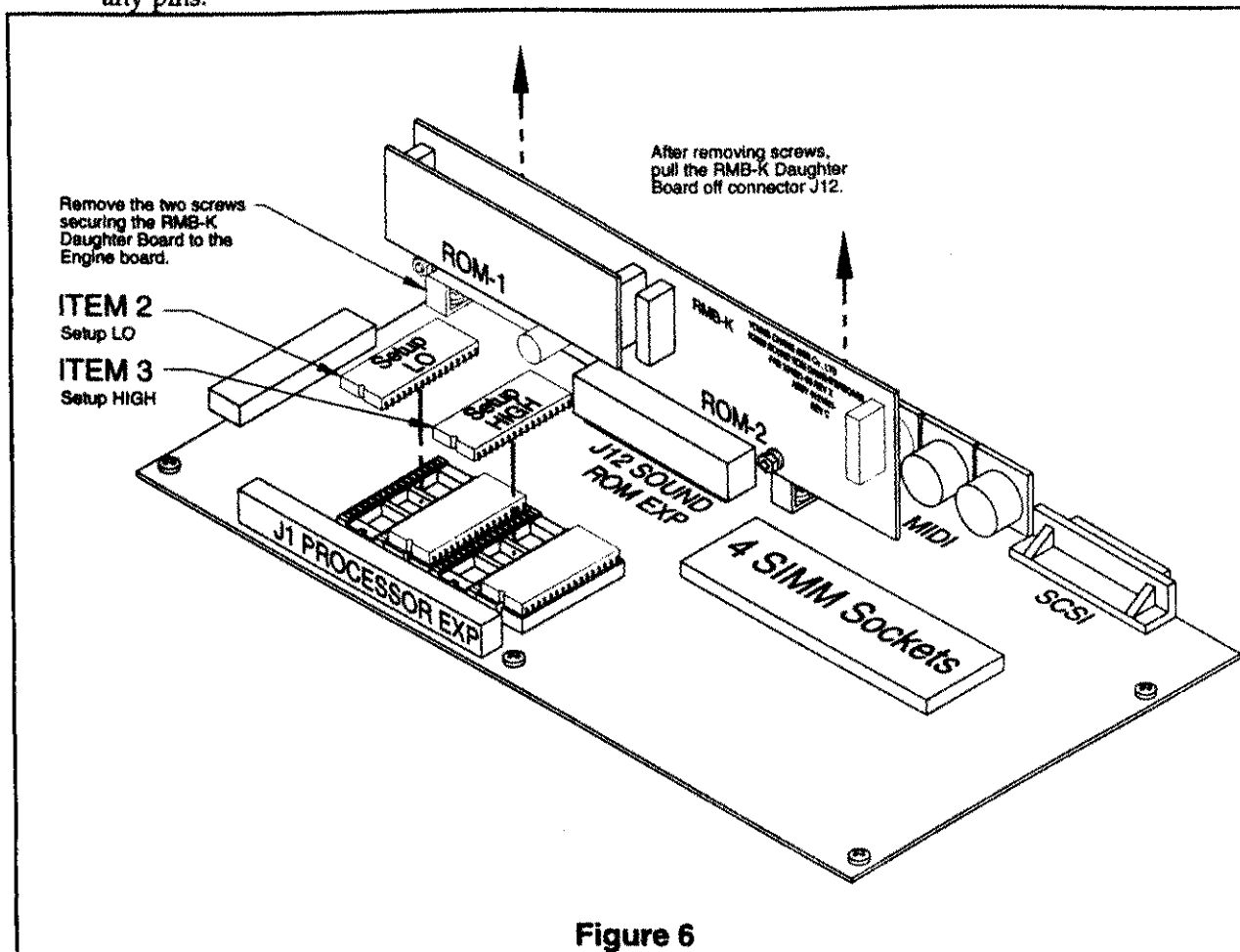


Figure 6

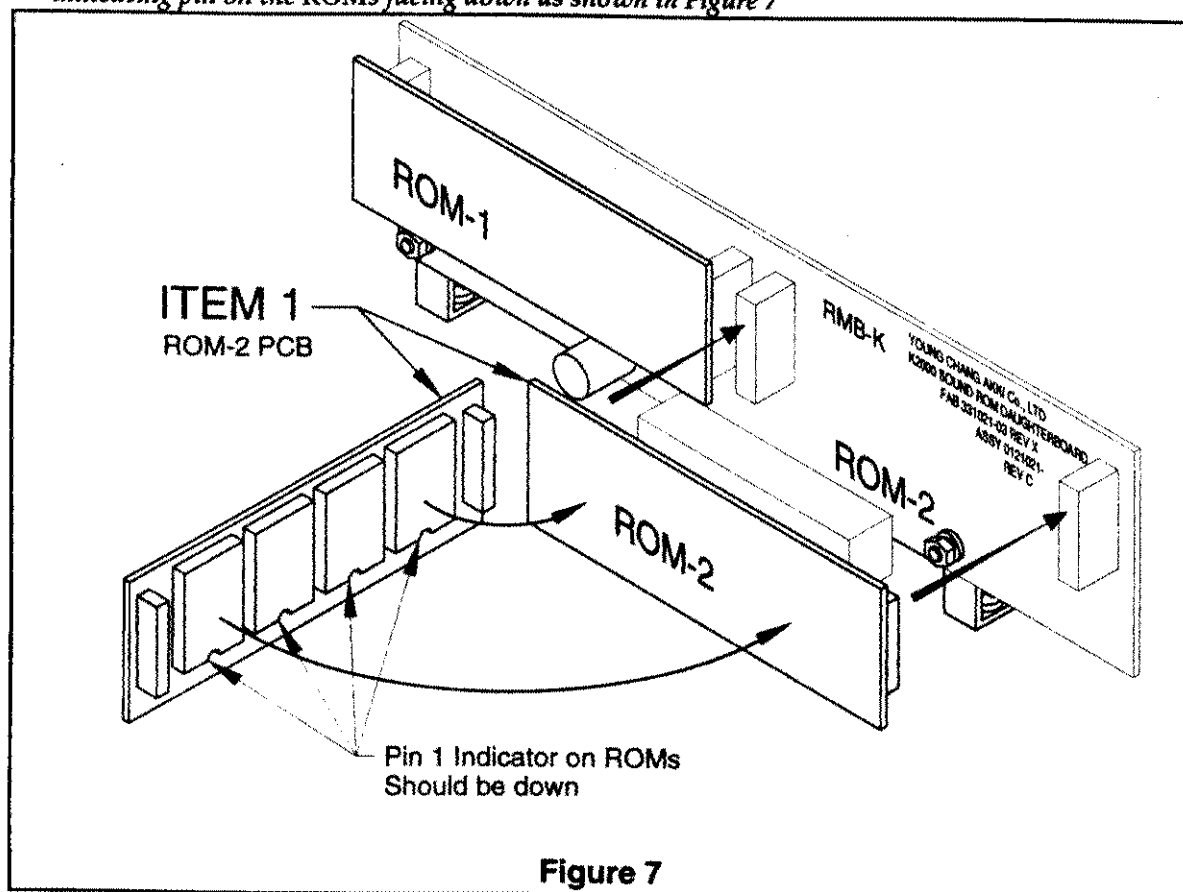
10. See Figure 6. Looking at the Engine PCB with the MIDI & SCSI connectors facing away from you, locate J12, the 48 pin connector labeled "SOUND ROM EXP". It is to the left of the SIMM sockets

and above the software and setup EPROMS. Currently installed in this connector is the RMB-K Daughter Board with one of the ROM Boards.

11. See Figure 6. Remove the two Engine Board mounting screws which go through the RMB-K Daughter Board mounting brackets. Then carefully disconnect the RMB-K Daughter board from connector J12.

12. See Figure 7. Install Item 1, the ROM-x PCB, into the unused pair of connectors on the RMB-K Daughter Board by pushing the two connectors on both sides of the ROM board simultaneously into the matching two connectors on the RMB-K Daughter board. **The notch indicating pin one on all four of the masked ROMs should be facing down.**

NOTE: The connectors on both the RMB-K Daughter Board and the ROM board are keyed so that they can only be installed into their proper connectors. However, it is possible to install them upside down which may destroy the ROMs. *Be sure to install the ROM board with the notches indicating pin on the ROMs facing down as shown in Figure 7*



13. See Figure 8. Push the RMB-K Daughter Board, with the both ROM boards installed, back onto J12, the "SOUND ROM EXP" connector. The side of the RMB-K Daughter Board with the ROM board on it should be facing connector J1, the 64 pin connector labeled "PROCESSOR EXP.". Replace the two Engine PCB mounting screws through the RMB-K Daughter Board mounting brackets.

NOTE: The connector on the RMB-K Daughter Board is keyed and cannot be installed backwards.

NOTE: If you had to remove a PRAM Option, you should re-install it now.

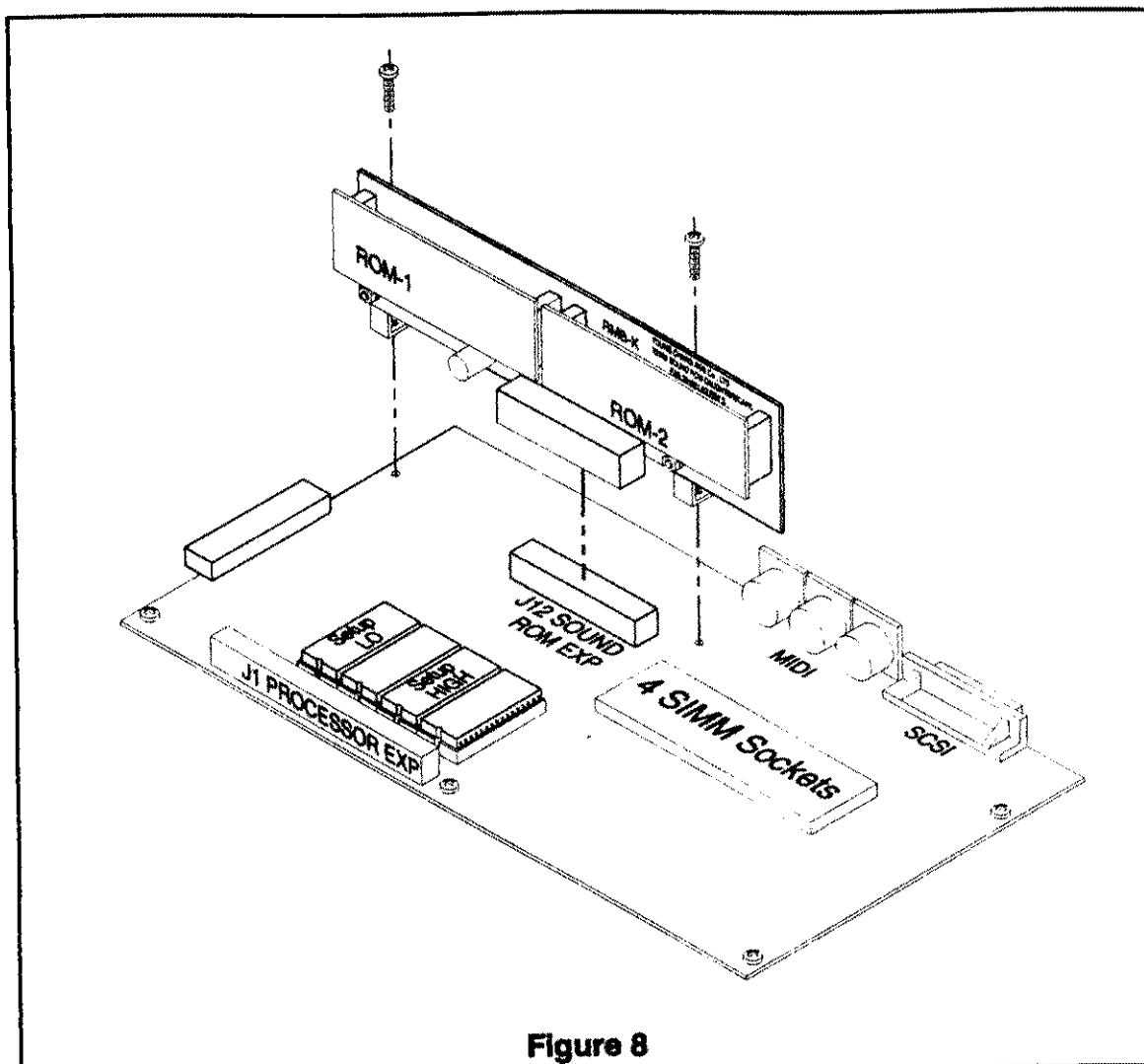


Figure 8

14. Reinsert the Connector PCB through the rear panel and place the ten large washers on the 1/4" phone jacks. Place the ten 1/2" hex nuts back onto each on the 1/4" phone jacks and tighten them with the 1/2" Nut driver.
15. Replace both Hex standoffs with washers into the two holes on either side of the SCSI Thru connector and tighten them with the 3/16" or 5mm Nut driver depending on which standoff is used.

The Installation is complete! Go to Section II, Step 3. (K2000R, K2000RS Reassembly)

Step 3 K2000R, K2000RS Reassembly

1. Reassemble the unit by sliding the top cover back on, being sure that the front top edge of the cover goes into the groove on the top of the front panel.
2. Replace the four large truss head screws on both the left and right sides of the unit and the two small truss head screws along the top edge of the rear panel.

3. Before operating the unit, you **MUST** do a hard reset to initialize the software. This is done by simply pressing and holding buttons 1, 2, and 3 on the alphanumeric buttonpad, and turning the unit on. Use the Alpha Wheel to select the "HARD RESET" option, and press ENTER.

Rerun Diagnostics and Check New Programs

To be sure that the unit is functioning properly you must run the diagnostic tests again. To enter diagnostic mode, press and hold buttons 1, 2, and 3 on the alphanumeric buttonpad, and turn the unit on. Use the Alpha Wheel to select the "DIAGNOSTICS" option, and press ENTER. Run the "BurnIn" test by pressing 1 on the alphanumeric keypad. Mark the results of each test in the second column of the checklist. The results for each test of the second diagnostic test should match those of the first. If any test fails the second diagnostic test after passing the first, check the installation thoroughly, repair or replace the any failing component, and run the "BurnIn" test again. Repeat this process until all tests have passed.

After running the diagnostics, scroll through the K2000's program list to confirm that the new ROM programs are displayed. The Contemporary (ROM-2) programs will be in the 800s bank; the Orchestral (ROM-1) programs will be in the 900s bank. Finally, connect a pair of headphones to the K2000, turn up the volume on the unit, and confirm that the new programs play.

Please give the option labels and the provided user documentation to the owner of the unit.

Diagnostic Test Checklist

Technician's Name: _____

Date: ____/____/____

Serial No. _____

Customer's Name: _____

Before Installation

Test Name:	Pass	Fail
LCD	----	----
Boot EPROM	----	----
Setup EPROM	----	----
PSRAM	----	----
I/O Port	----	----
Interrupt	----	----
Audio Board	----	----
Floppy	----	----
SCSI	----	----
Sound ROM	----	----
Sound RAM	----	----
SamplingOpt	----	----

After Installation

Test Name:	Pass	Fail
LCD	----	----
Boot EPROM	----	----
Setup EPROM	----	----
PSRAM	----	----
I/O Port	----	----
Interrupt	----	----
Audio Board	----	----
Floppy	----	----
SCSI	----	----
Sound ROM	----	----
Sound RAM	----	----
SamplingOpt	----	----

Exceptions:

1. When using diagnostics under V2.07, Calvin/Hobbes failure #8 is normal
2. When using diagnostics under V1.30J, Setup Test failure is normal. After Sound ROM Installation this test will pass

Notes:

Please detach this sheet and give to owner of the unit (K2000/K2000S only).

Front Panel Label Installation

We have provided you with a front panel label for the K2000 & K2000S to identify your unit's new feature(s). See the label location figure below for recommended placement.

K2000, K2000S Label Location

