

Instructions for EPROM Replacement in OmniScan® Simulator Controller Assembly Service Kit P/N 143 113

1. Introduction

This publication contains instructions for replacing EPROMs in the controller assembly of the OmniScan® Simulator.

This kit contains:

Seven EPROMs labeled:

MEDIA NUMBER 1
MEDIA NUMBER 2
MEDIA NUMBER 3
MEDIA NUMBER 4
MEDIA NUMBER 5
MEDIA NUMBER 6
MEDIA NUMBER 7

An Electrostatic Discharge (ESD) Wrist Strap,
An EPROM Insertion Tool, and
An EPROM Extraction Tool

Reference Drawings:
P/N 125 214 EPROM Placement
P/N 161 539 Board Switch Settings

Additional tools required to perform the EPROM replacement are:

- 1/4-in. open-end wrench
- small flathead screwdriver

2. Safety Precautions

Before beginning EPROM replacement, remove all power from the system and lock out external power to the electrical cabinet.



WARNING: Risk of electrical shock. Failure to disconnect external power may present a serious shock hazard that could result in personal injury or death.



WARNING: Static electricity can damage EPROMs and boards. Before handling or transporting any board or EPROM, put on the grounded electrostatic discharge (ESD) wrist strap supplied with this kit. For maximum protection, work on a grounded ESD surface.

3. Recording Your Controller User Settings

When you replace the existing simulator controller board EPROMs, the user settings will be lost and reset to the Nordson defaults. Unlike OmniScan Controller operation with a melter, this is generally not a problem with the simulator because new user settings are normally entered at the start of a practice session. Therefore, it is usually not necessary to maintain a record of user settings for the simulator as you should for your melter. However, if you did maintain some initial user settings, you should record these settings prior to installing new EPROMs. To do this you can make a copy of *Table 4.1 Default Settings for OmniScan Control System* from section 4 of your melter system manual (these are the pages where you entered data on your initial setup), and then go through the menus and record this information for use in re-entering the data after installing the new EPROMs.

4. EPROM Replacement

This procedure is for replacing the EPROMs on the boards of the simulator controller assembly, and involves:

- gaining access to the controller boards,
- removing the boards from the controller,
- replacing the board EPROMs, and
- reinstalling the boards

Gaining Access to Controller Boards

1. Disconnect the input power cord to the simulator.
2. Switch the circuit breaker to the OFF position.
3. Remove the clear cover by removing the four screws. See Figure 1.

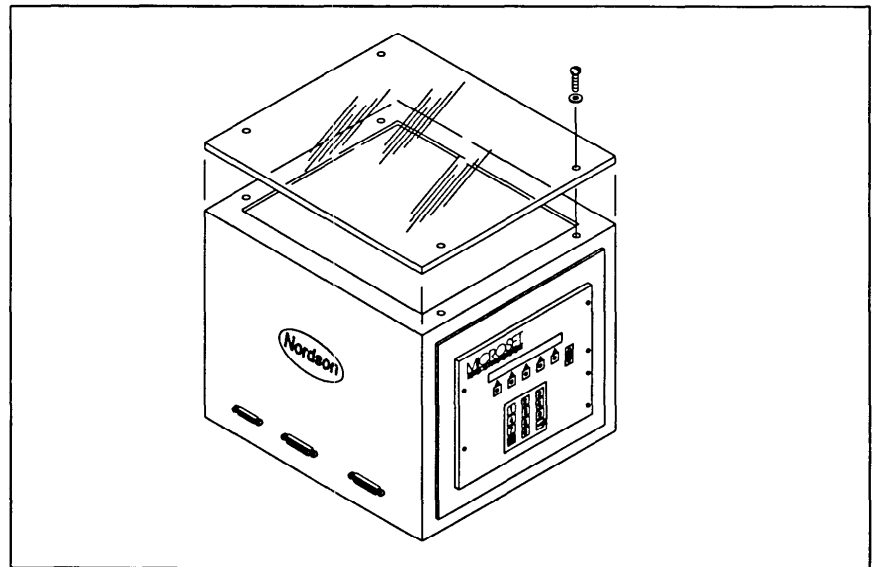


Figure 1. Removing the clear cover



CAUTION: Wear the grounded wrist strap during the following steps. Failure to wear the grounded wrist strap may result in electrostatic damage to the boards.

4. Ground the wrist strap to the simulator frame and put it on your wrist.

Gaining Access to Controller Boards (contd.)

5. Disconnect all cable connectors from the top, bottom, and side edges of the individual boards of the controller assembly. See Figure 2, and note that for clarity not all connectors to be removed are shown.

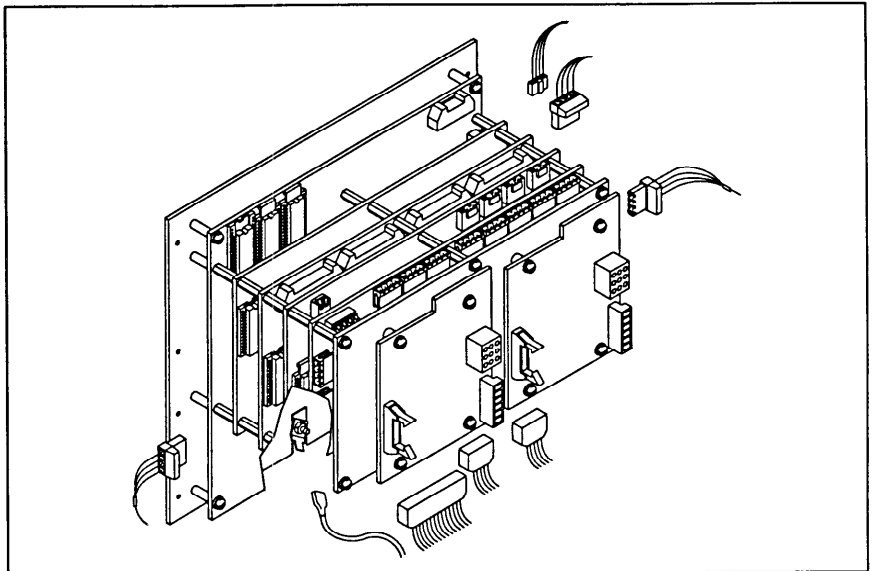


Figure 2. Disconnecting controller's external cables and connectors

6. Referring to Figure 3, remove the six screws (1) from the front of the control panel.

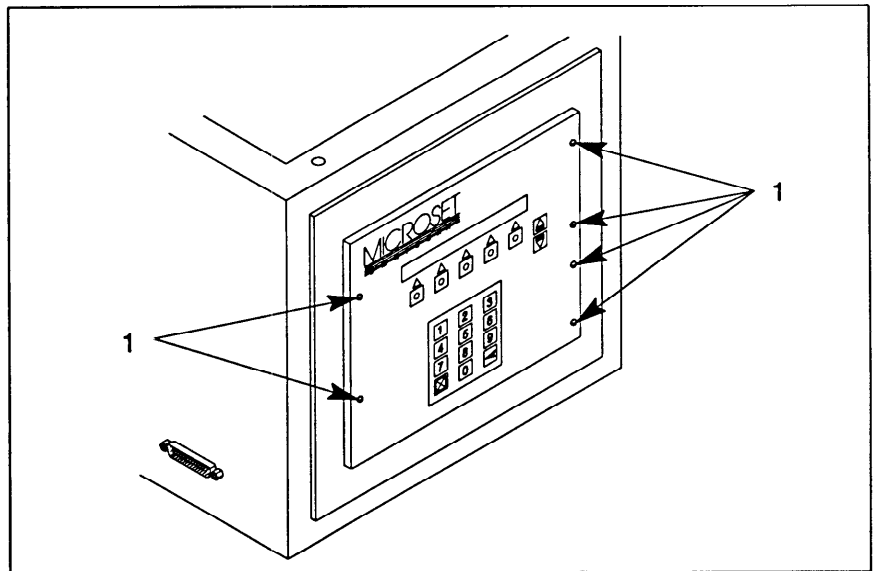


Figure 3. Removing the front panel screws

Gaining Access to Controller Boards (contd.)

7. Referring to Figure 4, pivot the assembly slightly forward so that you can grasp the front panel. Next, carefully continue pivoting the assembly on its bottom edge until all boards clear the cabinet opening. Then lay the assembly face down on the ESD surface and continue with *Removing Controller Option Boards*, described next.

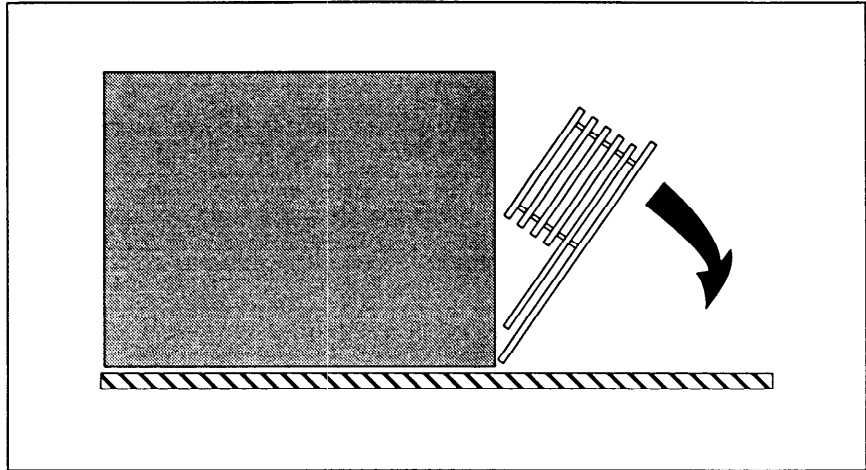


Figure 4. Pivoting control assembly for removal from cabinet

Removing Controller Option Boards

1. The outermost circuit boards (mounted side-by-side on a metal plate) are the motor control interface boards. One of these boards must first be removed from the mounting plate to expose two of the mounting plate corner screws. Refer to Figure 5 and remove the right motor control interface board that covers these screws.

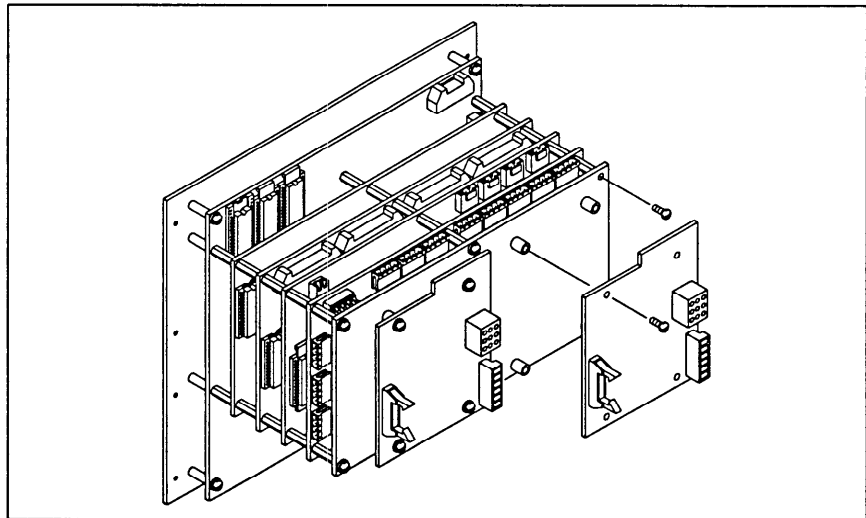


Figure 5. Removing the right motor control interface board

Removing Controller Option Boards (contd.)

2. Refer to Figure 6 and using a screwdriver and a 1/4-in wrench, remove the four mounting plate screws and set the mounting plate aside. One of the interface boards will still be mounted to the plate, and does not need to be removed.

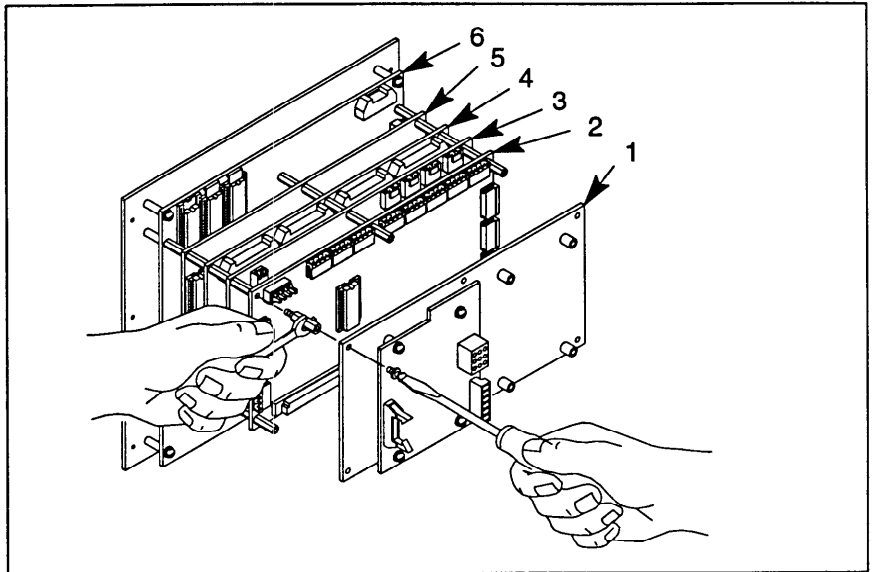


Figure 6. Removing boards and mounting plate

1. Motor Control Interface Boards
2. I/O Option Board
3. Motor/Pressure Option Board
4. Analog Input Option Board
5. RS-232 Option Board
6. ACU (main) Board

3. Refer to Figure 6 and (except the ACU board) continue to remove the remaining boards from the controller assembly as follows:
 - a. First remove the screws and standoffs between the outermost board using a screwdriver and a 1/4-in. wrench.
 - b. Carefully separate this board's connector from the next board, and lift off the board.
 - c. Set this board aside and repeat the above steps for all remaining boards until just the ACU board remains; it does not have to be removed from the front display panel.
4. Place the boards flat on the grounded ESD surface, and continue with *Replacing Board EPROMs* described next.

Replacing Board EPROMs



CAUTION: Wear the grounded wrist strap during this procedure. Failure to wear the grounded wrist strap may result in electrostatic damage to the boards. Also be sure to place the boards flat on the grounded ESD surface when removing and installing the EPROMs.

This kit contains seven EPROMs that are to be installed on the corresponding boards as follows:

ACU Board	MEDIA NUMBER 1
	MEDIA NUMBER 2
	MEDIA NUMBER 3
I/O Board	MEDIA NUMBER 4
RS-232 Board	MEDIA NUMBER 5
Motor Pressure Board	MEDIA NUMBER 6
Analog Input Board	MEDIA NUMBER 7

1. Refer to drawing 125 214, sheet 1 and locate the EPROMs labeled MEDIA NUMBER 1, 2, and 3 on the ACU board.
2. Refer to drawing 125 214, sheet 2 and locate the EPROM labeled MEDIA NUMBER 5 on the RS-232 board.
3. Refer to drawing 125 214, sheet 2 and locate the EPROM labeled MEDIA NUMBER 7 on the Analog board.
4. Refer to drawing 125 214 sheet 1 and locate the EPROM labeled MEDIA NUMBER 6 on the Motor/Pressure circuit board.
5. Refer to drawing 125 214 sheet 1 and locate the EPROM labeled MEDIA NUMBER 4 on the I/O board.
6. Except for MEDIA NUMBER 3 (on the ACU board), remove all the other EPROMs as follows:
 - a. Push the locking tab in the direction of the arrow labeled OPEN to release the EPROM from its socket. Refer to Figure 7.

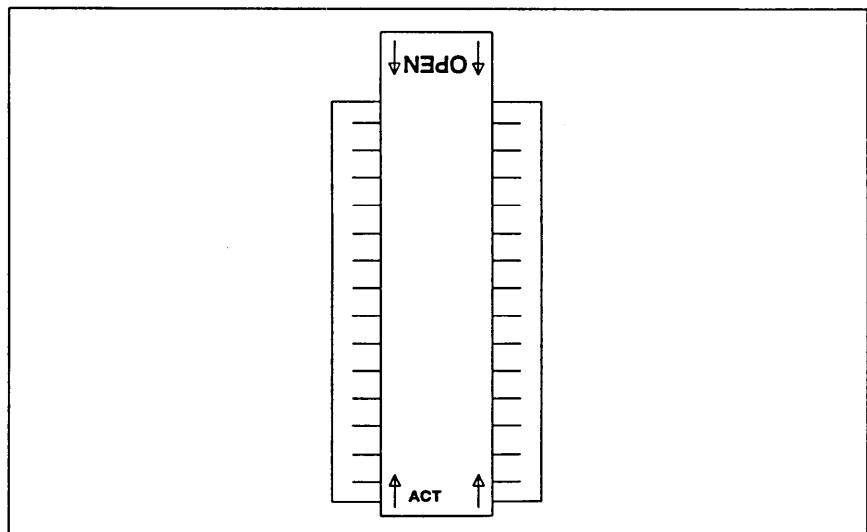


Figure 7. EPROM locking tab (pictured in locked (ACT) position)

Replacing Board EPROMs

(contd.)

- b. As shown in Figure 8, remove the EPROM by grasping it with the extraction tool. Pull gently from the board at a 90° angle.

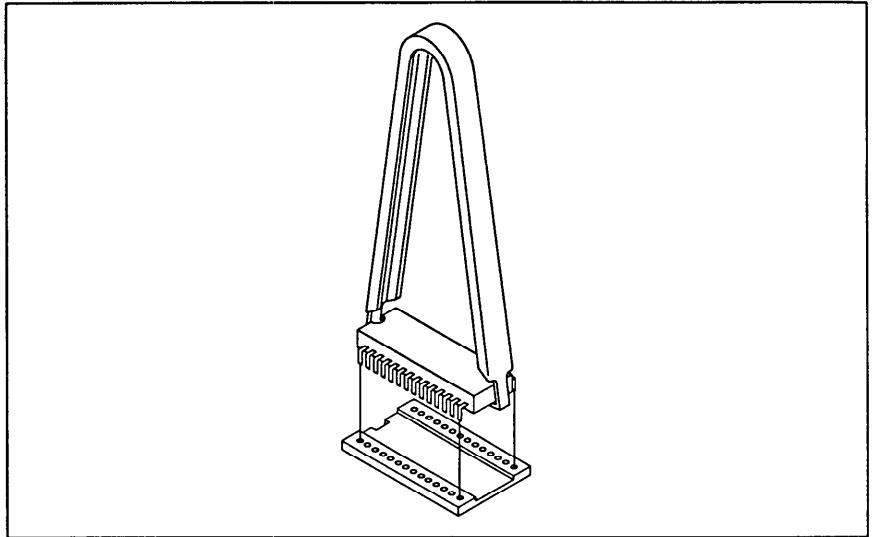


Figure 8. Grasping EPROM chip using extracting tool

- 7. MEDIA NUMBER 3 does not have a locking tab. Just use the chip extraction tool as follows to remove it:
 - a. As shown in Figure 8, align the extraction tool above the EPROM and firmly grasp the ends of the chip.
 - b. Gently pull the EPROM from the board at a 90° angle.
- 8. Remove the new EPROMs from their protective bags.

Note: Observe the MEDIA NUMBER of each chip. The EPROMs must be inserted in the correct location on the boards for proper equipment operation. Refer to 125 214, sheets 1 and 2.

- 9. Insert each EPROM (except MEDIA NUMBER 3) in its correct socket on the appropriate board as follows:

Replacing Board EPROMs

(contd.)



CAUTION: Be sure that you insert the EPROMs correctly in their respective socket, see Figure 9. If they are installed wrong they will be damaged when power is applied to the controller.

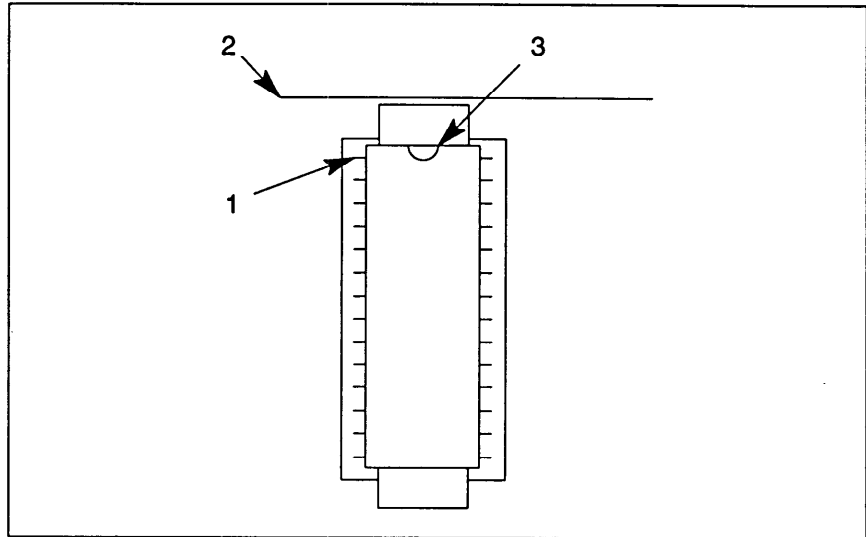


Figure 9. Correct orientation of EPROM chip placement in socket (Notch is closest to top of board.)

1. Pin 1
2. Top of board
3. Notch location

- a. Holding the EPROM in the insertion tool, position the chip above the socket, making sure that each pin lines up correctly with the socket hole.
- b. Align the notch of the socket with the notch in the EPROM. Misalignment could cause one of the pins to bend. Refer to Figure 10. Insert the EPROM into the socket with the insertion tool.

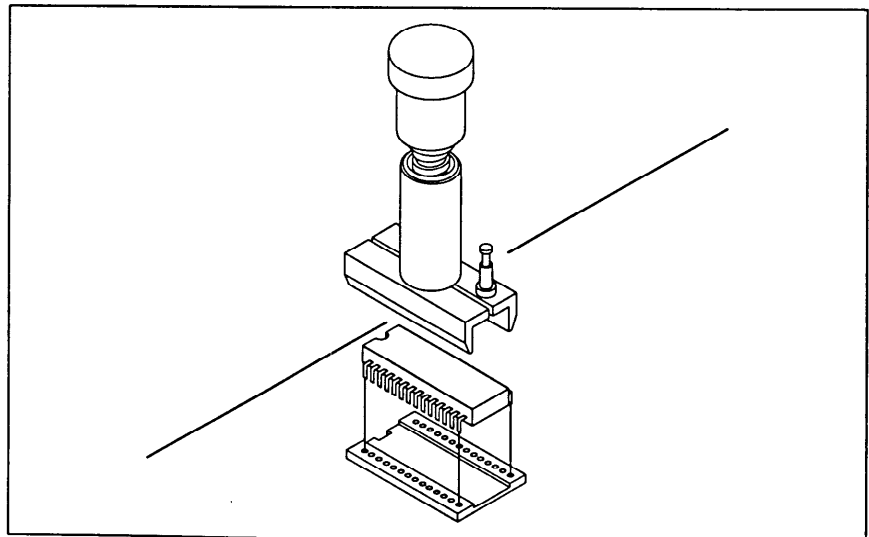


Figure 10. Aligning MEDIA NUMBER 3 with socket using insertion tool

Replacing Board EPROMs

(contd.)

- c. Press the EPROM firmly and evenly into the socket.
 - d. Ensure that the pins are fully bottomed in the socket.
 - e. Lock the EPROM in its socket by pushing the tab in the direction of the arrow marked ACT.
10. Insert MEDIA NUMBER 3 as follows:
- a. Holding the EPROM in the insertion tool, align the chip above the socket, making sure that each of the pins line up correctly with the socket holes. Misalignment could cause one of the pins to bend. Refer to Figure 10.
 - b. Insert the EPROM into the socket with insertion tool.
 - c. Press the EPROM firmly and evenly into the socket.
11. This completes EPROM installation. Continue with *Checking the Option Board Switch Settings* described next.

Checking the Option Board Switch Settings

Note: During the disassembly/assembly of the controller assembly, the switch settings on the option boards can be disturbed, causing system malfunction. As a precaution, be sure to verify the switch settings before restarting unit.

Check the switch settings (and applicable jumper positions) on the I/O, Motor/Pressure, Analog, and RS-232 boards before installing them. The switches should be set as shown in drawing 161 539 sheets 1 and 2. After verifying for correct switch settings, go to *Reinstalling Controller Option Boards* described next.

Reinstalling Controller Option Boards

1. Reinstall the I/O, Motor/Pressure, Analog, and RS-232 boards by referring back to figure 6 and performing its associated procedural steps in reverse order.



CAUTION: Sometimes the standoffs used for mounting the boards have been shipped with washers for use between the standoff and the board; however, it has been found that this slight spacing distance that the washer adds can cause problems with proper mating of the board's 64-pin connector J1. Therefore, be sure not to use any washers between the board and standoff when reinstalling boards.

Inspect the 64-pin connector J1 to ensure that all pins mate correctly with the corresponding socket. View the mated connector from several angles to ensure correct mating.

2. Reinstall the mounting plate containing the Motor Control Interface board.
3. Reinstall the second Motor Control Interface board to the mounting plate.

Reinstalling Controller Option Boards (contd.)

4. Reinsert the controller assembly into the cabinet and secure, figures 3 and 4.
5. Reconnect all cables and connectors, Figure 2.
6. Perform a visual inspection of cabinet for loose cables, parts or tools left in enclosure.
7. Replace the clear enclosure cover and secure with screws.
8. Restore external power.
9. This completes installation of the boards. Proceed with *Checking Installation and Configuring Software* described next.

5. Checking Installation and Configuring Software

This procedure serves as a final operational check for the controller and should be performed after either installing a new option board and/or new EPROMs, or a new complete controller assembly.

1. Restore external power. The unit will now automatically perform power up self-test. When the self test is finished and if no problems were encountered, the controller display begins monitoring the configured parameters, or displays the default present configuration code menu.
2. Depending on the software version and the service activity performed, Table 1 describes what action you should take next:

Table 1. Action Required for Service Activity Performed

Service Activity Performed and Software Version	Service Activity Needed
Option board replaced and its software version is same as that on old controller.	Unit will resume normal operation. No further action required.
Option board replaced and its software version is newer than that on old controller. Thus, controller software (EPROM) was replaced to match new board. All EPROMs were replaced on all applicable controller boards.	Memory will be cleared and you must re-enter configuration code and, is desired, all user settings recorded prior to performing the replacement operation described in these instructions. Continue with <i>Re-entering Configuration Code Method 1</i> described below.
Entire controller was replaced.	Memory will contain factory default codes. You must re-enter configuration code and all user settings recorded prior to performing the replacement operation described in these instructions. Continue with <i>Re-entering Configuration Code Method 2</i> described below.

Re-entering Configuration Code Method 1

After restoring power to the controller the default present configuration code menu shown below is displayed. This code is just a representation of the content of this menu and is not your actual configuration code.

PRESENT CONFIG CODE: 3400-1AA52/
3400-1AA52/

The configuration code for the simulator is always SIML-1AA52/QAJ.

Option Codes: The portion of the configuration code following the slash (/) is reserved for melter options. These option code letters can be arranged in any order.

Re-entering Configuration Code Method 1 (contd.)

1. Enter configuration code SIML-1AA52/QAJ for your simulator. Then press ENTER repeatedly until the controller resumes normal operation. Note that the dash (-) and forward slash (/) must be included in the configuration code.
2. The start-up software will run and the unit will resume normal operation using factory default parameters. If you desire to maintain some initial user settings, you now need to re-enter these settings, so go to *Re-entering User Settings* described at the end of this document.

Re-entering Configuration Code Method 2

Note: This method is only to be performed when you replaced the entire controller and the configuration is incorrect.

Begin at the Run Mode with Operator Menu and access the Factory Menu as follows:

1. Press number 1, then 2, then 7. The display will show the following:

ACCESS CODE: XXXX
CALL NORDSON FOR PASSWORD: ****

2. "XXXX" will be a four digit number. This number corresponds to the first of a pair of four-digit numbers shown in the password list in Table 2.

Table 2. Access Code, Password Pairs

8974 - 2843	8972 - 6567	8924 - 4381	4238 - 5874
3564 - 1255	7762 - 8376	3544 - 8981	3847 - 8931
8353 - 0543	8659 - 9931	7654 - 3480	8372 - 0903
4538 - 6443	0365 - 7542	5629 - 8483	8939 - 9837
0283 - 4456	5071 - 3859	3054 - 5485	9023 - 2371
3342 - 2963	9203 - 8445	5924 - 8264	8723 - 3842
1171 - 0893	1546 - 7632	8031 - 4464	9188 - 6847
8008 - 4572	8907 - 0347	3018 - 9340	7593 - 8732

3. Match the four-digit number on the LCD (access code) with the first four-digit number in the table. Use the touchpad to key in the second four-digit number (password) from the pair. Then press the ENTER touchpad twice. The display will show the factory or "secret" menu shown below:

SELECT A PRIVILEGED OPERATION.
DFLT_PWD DFLT_TMP CLR_RAM

4. Select the CLR_RAM function using the touchpad. A warning message will appear and a YES/NO confirmation will be requested as shown below:

Note: If you mistakenly choose the wrong function and do NOT want to change it, press the CANCEL touchpad. The factory menu will again be displayed. Either choose the function that you intend to change, or press CANCEL again if no changes are desired.

The CLR_RAM function re-initializes the battery-backed RAM. When the battery-backed RAM is re-initialized, the configuration code and all user-defined values are reset to factory defaults. In addition, any stored information that may be useful for determining the cause of the problem will also be cleared.

CLEAR ALL RAM VALUES: NO
ARE YOU SURE? NO

5. Use the arrow keys to select YES and press ENTER. The CLEAR RAM function then displays the melter's default present configuration code. This code is just a representation of the content of this menu and not your actual configuration code.

PRESENT CONFIG CODE: 3400-1AA52/
3400-1AA52/

Option Codes: The portion of the configuration code following the slash (/) is reserved for melter options. These option code letters can be arranged in any order.

6. Enter configuration code SIML-1AA52/QAJ for your simulator. Then press ENTER repeatedly until the controller resumes normal operation. Note that the dash (-) and forward slash (/) must be included in the configuration code.
7. The start-up software will run and the unit will resume normal operation using factory default parameters. If you desire to maintain some initial user settings, you now need to re-enter these settings as described next.

Re-entering User Settings

As mentioned previously, it is usually not necessary to maintain a record of user settings for the simulator because new user settings are normally entered at the start of each practice session. However, if you did maintain some initial user settings prior to changing the EPROMs, you should now re-enter these settings from the data you recorded at the beginning of these instructions by selecting the appropriate menu item and changing the settings to those on your list. Once these data are entered the unit will start running from these new settings, otherwise the unit will start running from the factory default settings.