

# UniSite<sup>TM</sup>

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## Mass Storage Module

### Installation Guide

April 1994

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# Installation Guide

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**WARNING:** The procedures described in this document are designed to be performed by personnel qualified to service electronic equipment. Do not attempt to perform these procedures unless you are qualified to do so.

## Before You Begin

This guide explains how to install the Mass Storage Module in the UniSite Universal Programmer.

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*Note:* To ensure that your programmer is operating correctly we suggest you run a complete self test on your UniSite before you install the Mass Storage Module. The self test procedure is described in the UniSite User Manual.

## System Requirements

Your UniSite must meet the following minimum system requirements before you can install the MSM:

- System software version 4.51 or later
- Programmer firmware version 1.2 or later
- Programmer part number 901-0058-012 or later, or a new controller board (part number 701-2313-001 or later)

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*Note:* The programmer part number is found on a label above the serial ports on the UniSite back panel.

*UniSites with part number 901-0058-011 or earlier contain an "old style" controller board and cannot accommodate the Mass Storage Module.*

*If you wish to install the Mass Storage Module on a UniSite that has the old style controller board, you must first upgrade the controller board on your UniSite. For information about a controller board upgrade, contact Data I/O Customer Support as listed in the Preface of the UniSite User Manual.*

## Tools You Will Need

To complete the installation, you will need the following tools and equipment:

- 3/16" thin-walled nut driver or 3/64" allen wrench
- #1 or #2 Phillips screwdriver; minimum 5-inch blade
- grounded wrist strap and/or antistatic workstation

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*Note: A grounded wrist strap is provided with the installation kit.*

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## Electrostatic Discharge Precautions

The components on the Mass Storage Module, and other circuit boards inside UniSite, are susceptible to electrostatic discharge (ESD), which can damage them. This section describes methods you can use to lessen potential ESD damage.

The goal of ESD prevention is to reduce or eliminate any possible buildup of static potential between you, the electronic equipment you will be handling, and the work area. The most effective way to prevent any static charge is to ground yourself and your antistatic work area.

Use the following precautions to reduce ESD.

- Perform the MSM installation on a workstation that is equipped with an antistatic workmat.
- Wear an antistatic wrist strap and connect it to a grounding terminal on the antistatic workmat. If you do not have a wrist strap, use the disposable one provided with this kit.

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**WARNING:** To avoid electric shock, the antistatic wrist strap must contain a 1M $\Omega$  (minimum) to 10M $\Omega$  (maximum) isolating resistor. (The disposable strap is manufactured with 1M $\Omega$  internal resistance.)

- Ground the programmer to the same grounding terminal on the antistatic workmat. Make the connection to the grounding terminal (banana plug) on the left panel of the programmer.
- Maintain the relative humidity in your work area above 40%.
- If possible, avoid wearing clothing made of materials (such as wool or flannel) that are more likely to create a static charge.

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## Disassembly

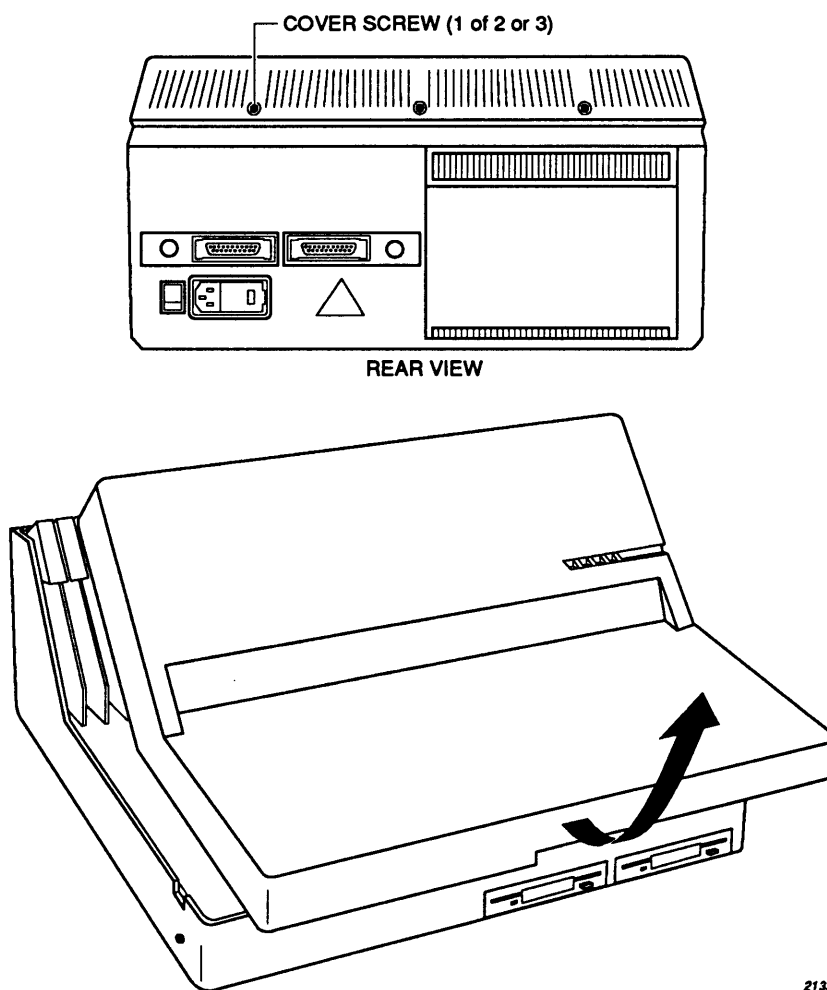
Before installing the Mass Storage Module (MSM), you must first remove the programmer's top cover.

### Removing the Top Cover

To remove the top cover of the programmer, follow the instructions below.

1. Place the programmer, the tools, and the kit's contents on an antistatic workstation.
2. If a device is inserted in the programmer, remove it.
3. Remove any modules that may be installed (such as Site48 or PinSite).
4. Position the programmer so you are looking at the rear panel, as shown on the top half of Figure 1. Turn off the programmer's power switch.

*Figure 1*  
*Removing the Top Cover*



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5. Disconnect the power cord and any cables connected to the programmer.

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**WARNING:** To avoid electrical shock, do not reconnect the power cord until you reinstall the top cover.

6. Using a screwdriver, remove the two (or three) screws shown in the top half of Figure 1. Position UniSite so the front panel is facing you.
7. As shown in the bottom half of Figure 1, remove the top cover by lifting the cover straight up (about 1/4") and sliding it toward the front. Set the top cover aside.

## Updating the Controller Board Firmware

Before installing the Mass Storage Module, you might need to update the firmware in UniSite. The following steps tell you how to determine if you need to update the firmware and, if necessary, how to update the firmware.

1. Make sure you are looking at the controller board with the front of the programmer facing you.
2. Locate UniSite's microprocessor. Depending on when you purchased your UniSite, you'll have one of the following:
  - 64-pin DIP (in a large, 900 mil package), or
  - 68-pin PLCC

Regardless of the package the processor is in, it will be located on the front left quadrant of the controller board.

3. If your UniSite has a 68-pin PLCC microprocessor, you have a "new style" controller board. Skip to step 4.

If your UniSite has a 64-pin DIP microprocessor, you have an "old style" controller board. Before installing the MSM, you will have to upgrade your controller board. For more information, contact your nearest Data I/O representative as listed in the Preface of the *UniSite User Manual*.

4. After locating the processor, locate the two 28-pin 600 mil DIPs to the left of the processor. The two DIPs are each labeled 324-1721-xxx, with one ending in an odd number and the other ending in an even number, such as 324-1721-007 and 324-1721-008.

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*Note: If the part numbers of the DIPs supplied with this kit are greater than those of the DIPs installed in UniSite, you **MUST** upgrade the firmware.*

5. Using a flat-blade screwdriver or an IC extraction tool, carefully remove the left-most DIP. Make sure you are removing the odd-numbered DIP, such as 324-1721-005 or 324-1721-007.
6. In the now-empty socket, insert the new DIP with an odd number, such as 324-1721-009. Also, make sure that the notch in the DIP is facing toward the pin drivers.

7. Repeat steps 5 and 6 with the even numbered DIP.
8. Check that the two new DIPs are both socketed properly, that no legs are bent, and that both notches are pointing toward the pin driver boards.

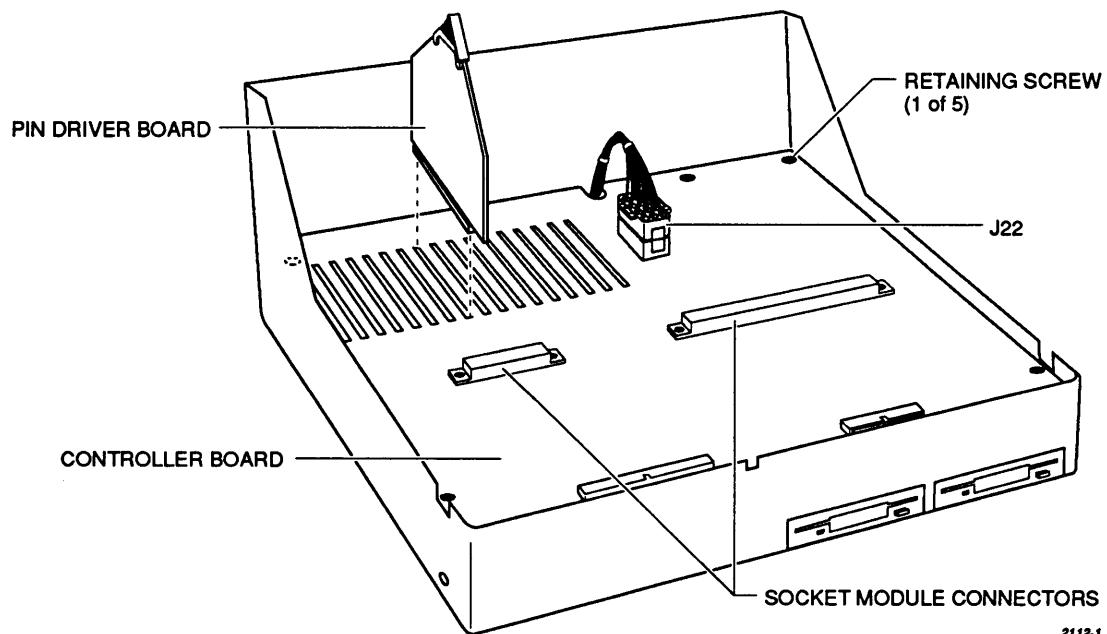
## Removing the Controller Board

The MSM is designed to plug into the connector located on the front left edge of the controller board. The MSM itself will be installed underneath the controller board. The following steps tell you how to remove the controller board from the programmer.

**CAUTION:** *Many of the programmer's components are static sensitive. Observe standard handling precautions AT ALL TIMES. Perform the procedures at an antistatic workstation and wear a grounded wrist strap; otherwise, damage to the unit may result.*

1. Attach your grounded wrist strap.
2. Remove all of the pin driver boards, laying them carefully to the side at the antistatic workstation. Do not bend the controller board's connector pins. A pin driver board is shown in Figure 2.

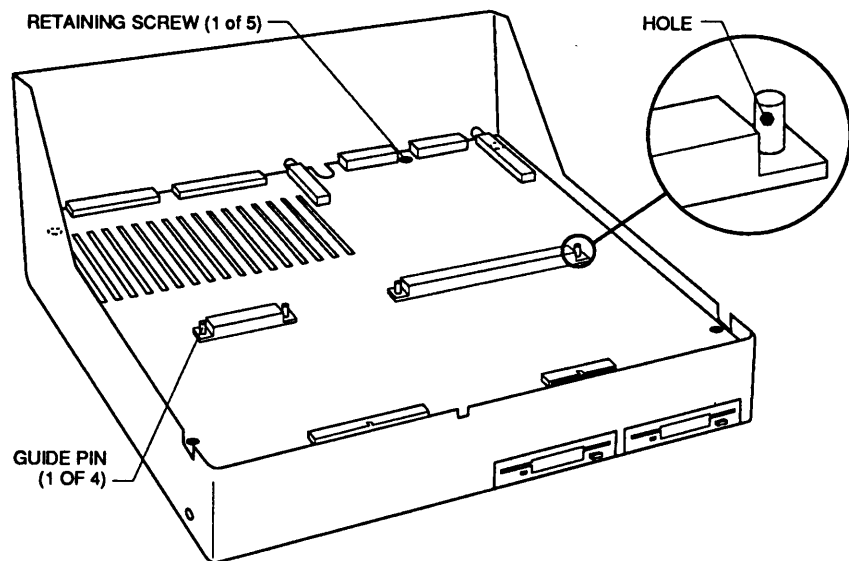
**Figure 2**  
Removing the Pin Driver Boards



3. Remove connector J22, shown in Figure 2. Squeeze the two locking tabs on either side of the connector and pull the cable away from the controller board.

**Figure 3**  
*Removing the Controller Board  
Retaining Screws*

4. Referring to Figure 3, locate and remove the five screws holding the controller board to the programmer chassis.



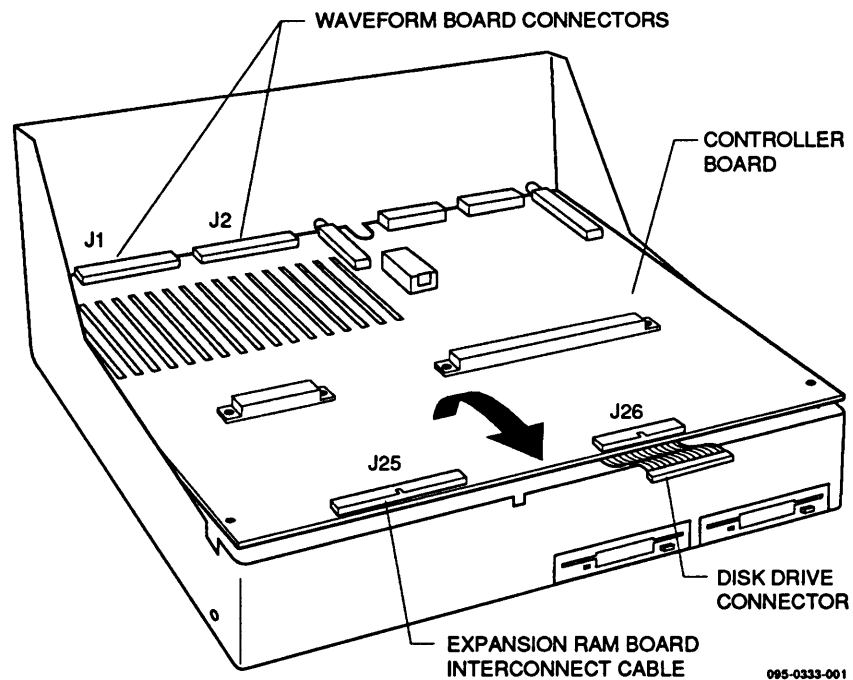
5. Locate the two socket module connectors shown in Figure 2. Using either an allen wrench or a nut driver, remove the two guide pins on each connector. The guide pins are shown in Figure 3. Set the guide pins aside.



**CAUTION:** *In the next step, do not lift the controller board more than one inch. Lifting the controller board higher could damage the programmer.*

6. Lift up the front edge of the controller board and disconnect the disk drive interconnect cable located at J26, which is shown in Figure 4. To avoid damaging the pins on the waveform board connectors, do not lift the controller board more than about one inch.

**Figure 4**  
*Removing the Controller Board*



7. Remove the controller board from the chassis, carefully pulling it away from the two waveform board connectors, J1 and J2.
8. Place the controller board on the antistatic workmat.

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## Installing the Mass Storage Module

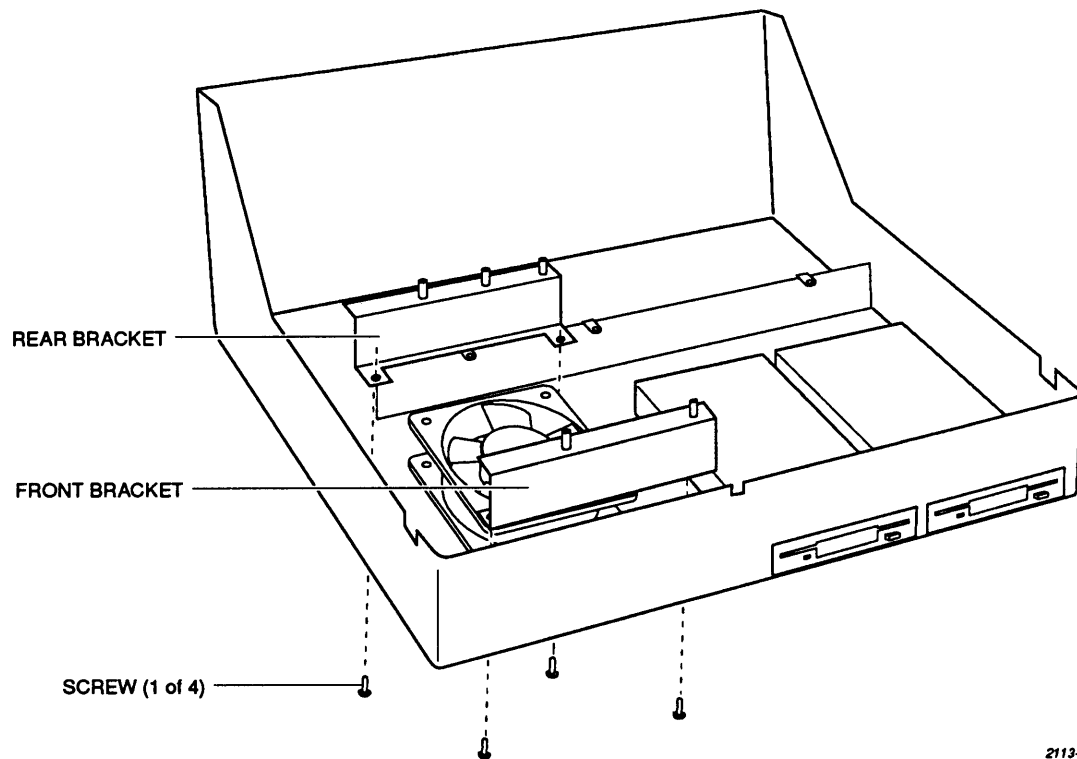
1. Locate the cooling fan in the programmer chassis. The Mass Storage Module will be installed over the fan.

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*Note: In the next two steps, the screws must be inserted up through the programmer's bottom panel.*

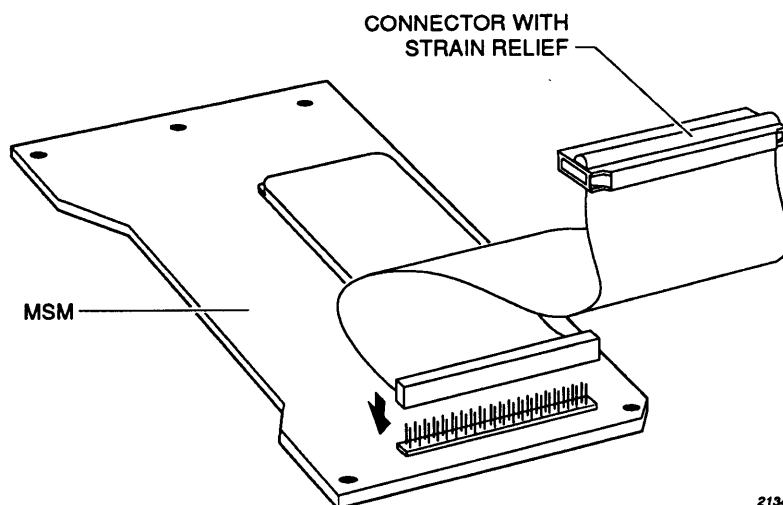
2. Locate the Z-shaped (rear) bracket and position it behind the fan, as shown in Figure 5. Fasten the bracket to the chassis with two Phillips-head screws.

**Figure 5**  
*Installing the Support Brackets*



3. Locate the C-shaped (front) bracket and position it in front of the fan, as shown in Figure 5. Make sure the standoffs are facing up and that they are on the right half of the bracket. Fasten the bracket to the chassis with two Phillips-head screws.
4. Remove the MSM from the antistatic bag. Attach the interconnect cable, which was supplied with the kit, to the MSM. See Figure 6. Make sure you attach the end of the cable with the thin connector (the connector without the strain relief attached) to the MSM.

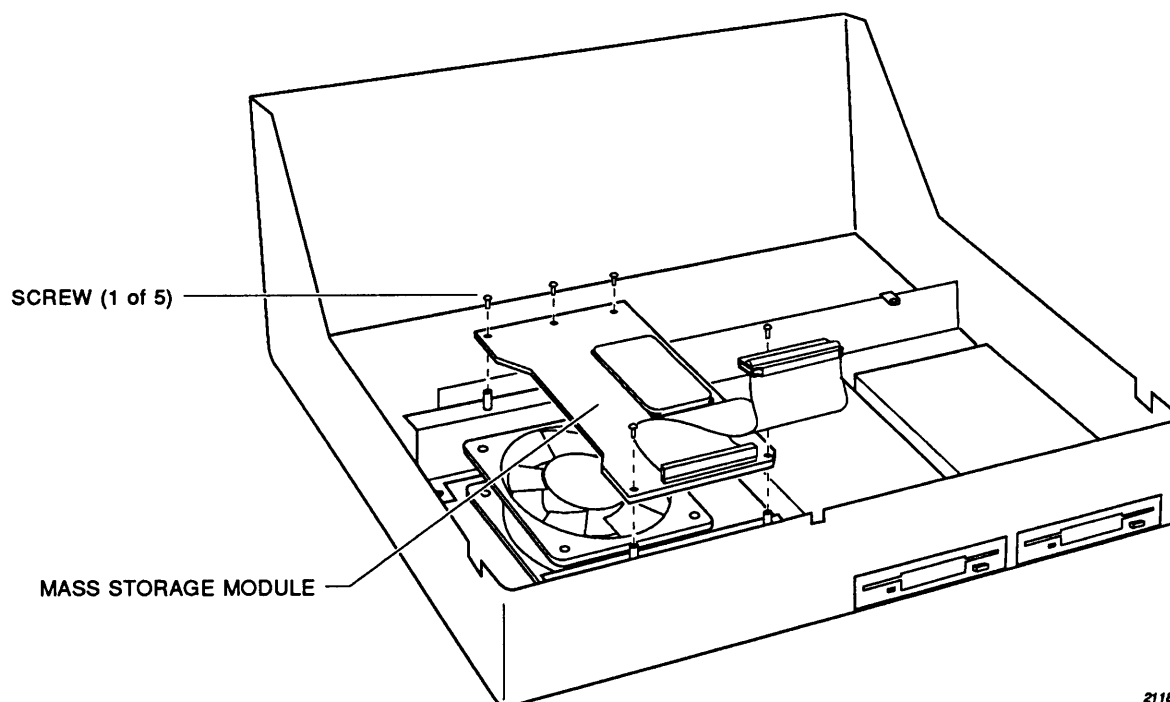
**Figure 6**  
*Attaching the Interconnect Cable to the MSM*



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5. As shown in Figure 7, set the MSM down onto the standoffs on the Z- and C-shaped brackets. Make sure the cable connector on the MSM is facing to the front and the component side of the MSM is facing up.

**Figure 7**  
*Installing the Mass Storage Module*



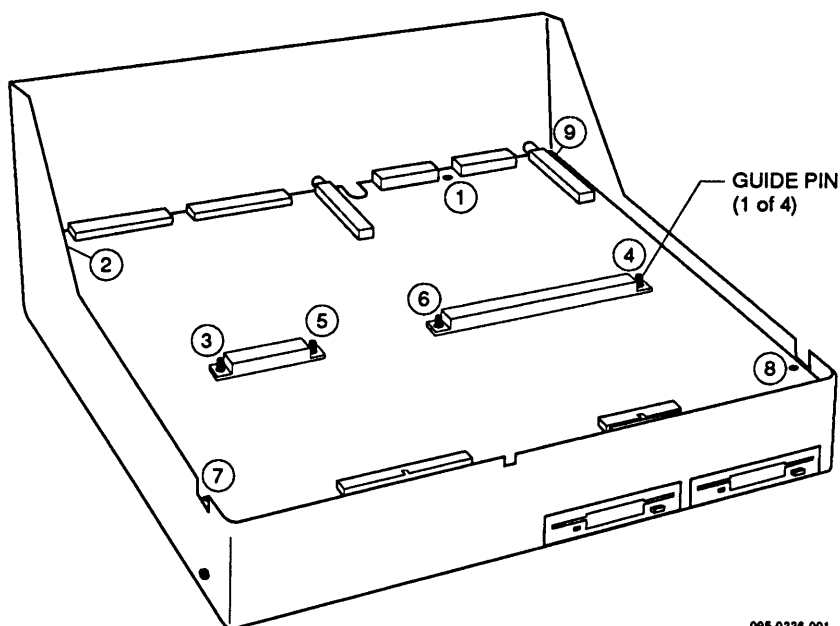
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6. Using five Phillips-head screws, fasten the MSM to the standoffs on the brackets installed in steps 2 and 3.

## Reassembly

1. Thread the MSM cable and the disk drive cable up and rest them on the front panel of the programmer.
2. Carefully align and insert the controller board into the waveform board connectors, J1 and J2, which are shown in Figure 4.
3. Connect the MSM cable and disk drive cable to the controller board.
4. Gently lower the controller board down into the chassis. Push any slack in the MSM cable and the disk drive cable underneath the controller board.
5. Install the five screws and four guide pins in the order shown in Figure 8.

**Figure 8**  
*Reinstalling the Controller Board*



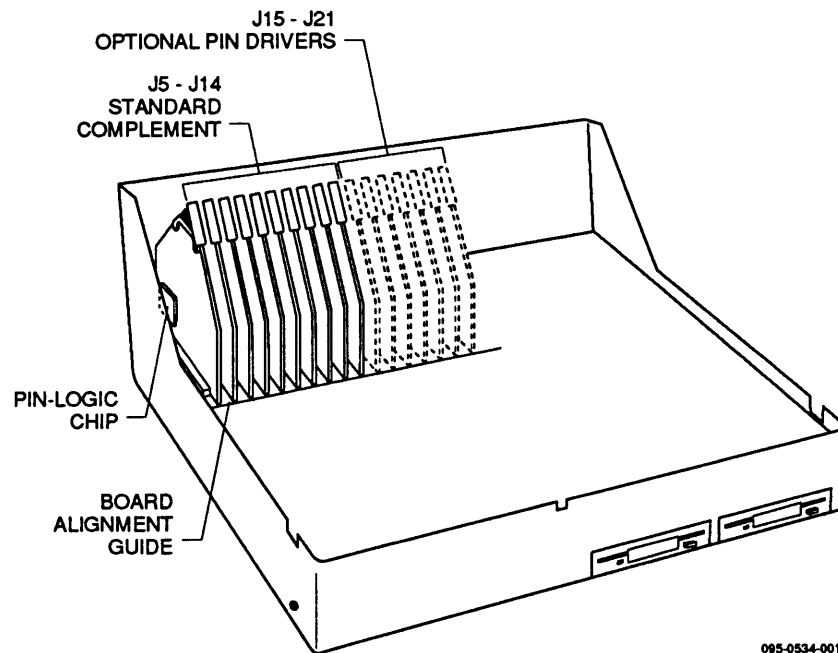
**CAUTION:** *In the next step, use extreme caution when reinstalling the pin driver boards: they are easily damaged if inserted incorrectly. Powering up a UniSite with pin driver boards installed incorrectly will damage the pin driver boards.*

6. Starting with the J5 connector (shown in Figure 9) and working to the right, reinstall the pin driver boards you removed earlier. As you reinstall each pin driver board, check the following:

- The 68-pin pin-logic chip on the pin driver board should be facing to the left (see Figure 9)
- The connector on the pin driver board should be perfectly aligned with the connector pins on the controller board

*Note: The pin driver boards can be installed in any order, just as long as you start from the left and fill to the right.*

**Figure 9**  
Reinstalling the Pin Driver Boards



7. After inserting all pin driver boards, check the following:
- No pins should be visible at the base of each pin driver board
  - The boards should appear evenly aligned with each other
  - The front edge of each pin driver board should barely touch the board alignment guide, which is shown in Figure 9
8. Reconnect the power supply connector at J22 of the controller board. J22 is shown in Figure 2.
9. Reinstall UniSite's top cover.

The Mass Storage Module is now installed in your programmer. Before you can use the MSM, you will need to check the installation and perform a self test on the programmer. Continue with the "Initializing the Mass Storage Module" section.

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## Initializing the Mass Storage Module

Before initializing the MSM, perform the following procedure to test the MSM:

1. Plug in the programmer's power cord.
2. Reconnect any terminal/platform cables to the programmer. Set up the controlling terminal/platform as you would normally.
3. Insert a module into the programmer.
4. Insert the Boot disk into drive A. If you have a two-drive system, insert an Algorithm disk into drive B.
5. Turn on the programmer. Wait for the programmer to finish booting.
6. When the programmer has finished booting, you should be looking at the Main Menu. (If you booted up in computer remote control, type Z at the > prompt to enter terminal mode.)
7. From the Main Menu, press **[M][C][M]** to display the Mass Storage Update screen.
8. Move the cursor to the following fields and press **[Y]**.
  - Update Mass Storage logic alg
  - Update Mass Storage memory alg
  - Update Mass Storage system

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*Note: Setting the Algorithm and System fields to Y will install the current device support algorithms on the Mass Storage Module and install the current System software on the MSM.*

9. Press **[J]** to install the current algorithms and system software on the Mass Storage Module.

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*Note: Depending on your system configuration, UniSite may prompt you to insert one or more of the system disks during the installation.*

10. When finished, UniSite displays **Operation Complete** in the message bar.

The Mass Storage Module is now fully installed in your UniSite. Your programmer will function as it previously did, with the following exceptions:

- UniSite will boot from the Mass Storage Module if no disk is in drive A:.
- UniSite will use the Mass Storage Module as the source for algorithm and system data if UniSite booted off the MSM and if the logic and memory algorithms have been installed on the MSM.
- MSM drives C: and D: can be used for user data storage. 32MB is available on each drive.