512MB RAM Upgrade Procedure DOC-00710-0042

Parts Kit: K-00710-0042

Applicable Machines: V87/V87A Upright and Slant Top

VERSION **2.0**

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Bally GAMING + SYSTEMS

In Las Vegas	In the US and Canada	Outside the US
PH: 896-7772 FAX: +1-702-896-7710	PH: 1-877-GO BALLY (877-462-2559)	PH: 1-702-896-7772

Visit our website at http://www.ballygaming.com

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Introduction

About this Guide

The purpose of this document is to assist Bally Gaming field technicians with a 512 MB memory upgrade on the V8700A model. To learn more about setup and installation procedures, refer to the Alpha Platform Operator's Manual.

Upgrade Information

Due to advanced engineering design and system capability, the abovementioned models require additional memory capacity. The memory upgrade procedure involves replacing an existing 256 MB RAM module with a 512 MB RAM module.

The RAM module is attached to the ETX component (beneath the heat sink), which is secured to the motherboard. Therefore, to replace the RAM module, you must first get to the motherboard. To get to the motherboard, you will disassemble portions of the MPU. The 512 MB upgrade is an intricate process involving nine primary stages:

1. Disconnect the MPU
2. Remove the MPU tray from the machine
3. Remove motherboard
4. Locate and remove ETX Component
5. Remove the 256 MB RAM module
6. Install the 512 MB RAM module
7. Reassemble MPU and housing unit
8. Return MPU to machine
9. Load the RAM (reboot the system)

Each stage involves a variety of steps necessary to complete a successful upgrade. These steps are discussed in detail throughout this manual.

Parts Kit

The memory upgrade procedure requires the contents of K-00710-0442 as listed in Table 1:

Table 1: K-00710-0042 Contents

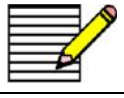
Item	Part #	Description	Quantity
SDRAM Module	44474	512 MB, 64Mx64, PC100/PC133, SDRAM, DIMM Module. Replaces 256 MB RAM (p/n 26422).	1
Part Number Label	LBL-00305-0001	For slant top models only. Revised p/n (103049) for housing tray	1
Part Number Label	LBL-00305-0002	Revised p/n (104093) for motherboard	1
Part Number Label	LBL-00305-0003	Revised part number (104094) for housing tray	1

Required Tools

You will need the following tools to complete the upgrade:

Table 2: Required Tools

Tool	Size or Type
Screw Driver	Phillips
Adjustable Wrench	6-8”
Pliers	Needle Nose



NOTE
Estimated time needed to complete upgrade procedure: 30 Minutes

Precautions

The Alpha platform conversion requires you to handle and work in close proximity to highly sensitive electronic components. To avoid static damage to the system memory and other components housed within the machine, always adhere to the standards and regulations set forth by the ESD (Electrostatic Discharge) Association. To learn more about the risks associated with static electricity, call 1-315-339-6937 or visit: www.esda.org. Be sure to properly ground all tools and equipment before working on any electronic device. See Figure 1 for a sample ESD kit.

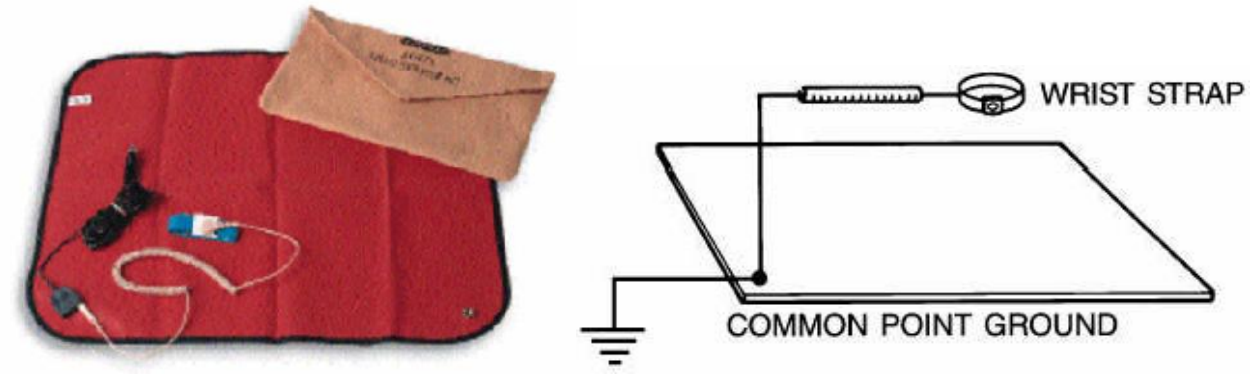


Figure 1: Standard ESD Kit

Getting Started

This section includes detailed instructions for preparing an EVO slant top machine for a 512MB RAM upgrade. Preparation includes the following:

- Turning main power off
- Disconnecting and removing the MPU
- Disassembling the motherboard

Before you Begin

STEP 1: Open main door (bottom) of machine.

STEP 2: Switch main power to OFF.

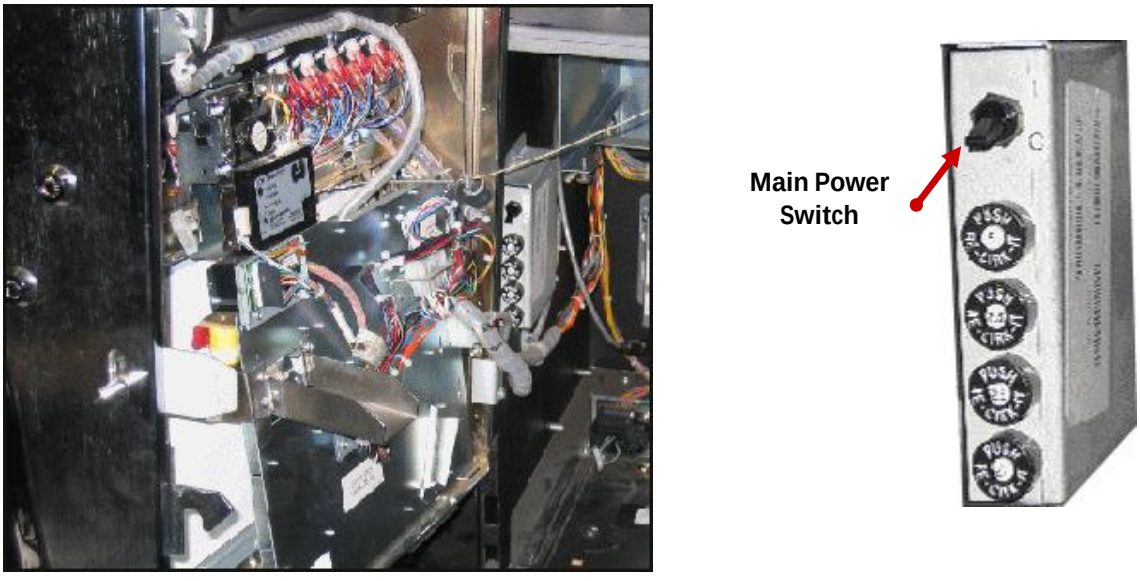


Figure 2: Main Power Switch

STEP 3: Disconnect the video cable from the MPU (below the monitor).

Figure 3: Disconnecting the MPU

STEP 4: Carefully pull the MPU tray out of the machine and set on a flat, dust free surface.

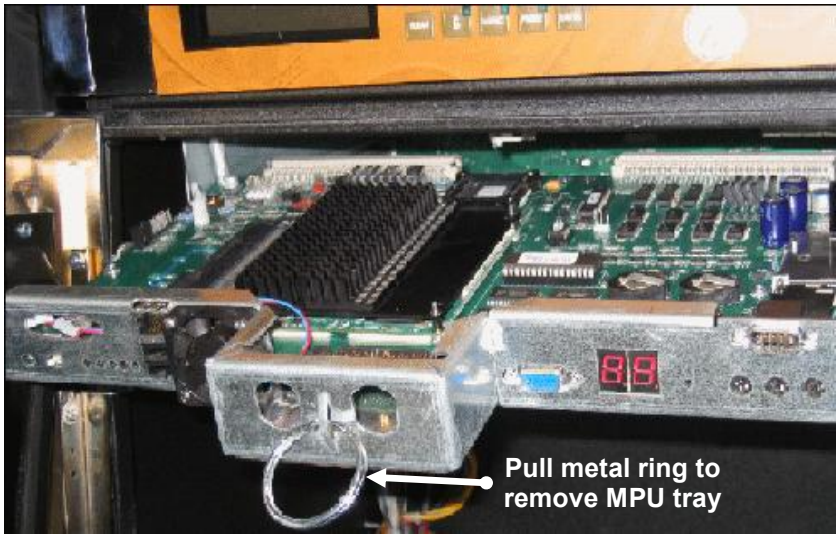


Figure 4: Removing MPU Tray

IMPORTANT

This is the most critical stage of the upgrade. The electronic components housed within the MPU are extremely fragile, and can be easily damaged. Therefore, it is crucial that you continue with the following steps precisely as they are presented here.

Disassembly

The RAM module is secured to the ETX component (beneath the heat sink), which is attached to the motherboard. To gain access to the RAM module, you must disconnect and remove components from the MPU.

STEP 1: Locate and disconnect the cooling fan from the motherboard.

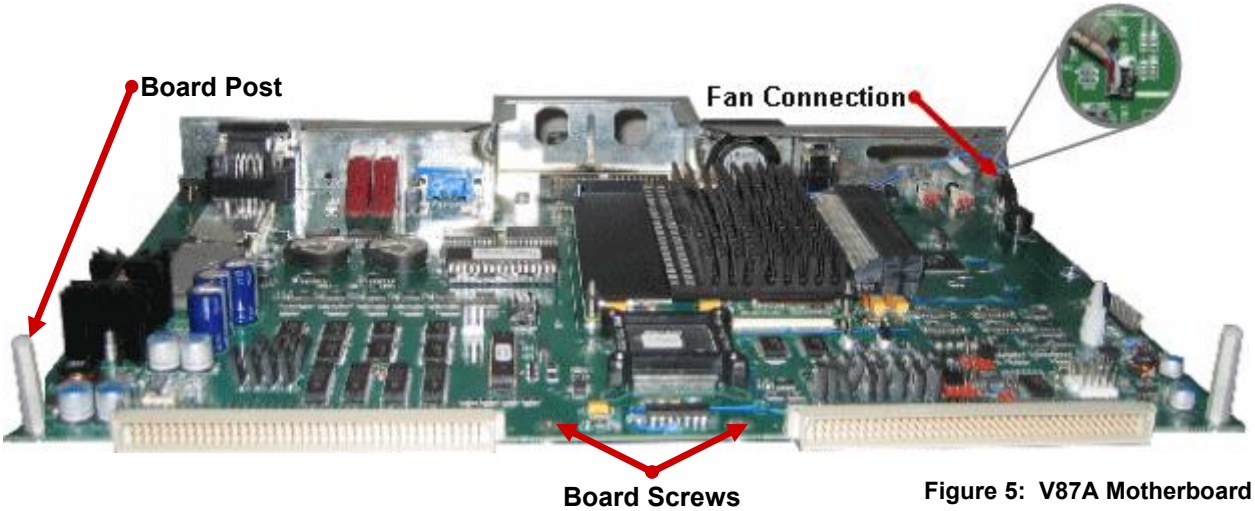


Figure 5: V87A Motherboard

STEP 2: Referring to Figure 5, use an adjustable wrench to unscrew and remove both board posts.

STEP 3: Remove all board screws (12 total).

STEP 4: Lift the motherboard from the housing and set aside.

IMPORTANT

Notice the spacers separating the ETX component from the motherboard (Figure 6). These spacers are a critical part of the overall assembly. To get to the RAM module, you will have to remove the screws that hold the spacers in place. The spacers will likely fall out of place once you remove the screws. It is critical that to not misplace these spacers.

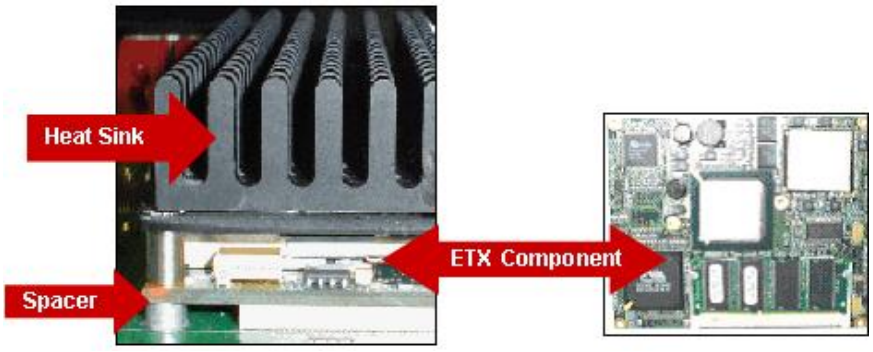


Figure 6: ETX Component and Spacers

STEP 5: Holding the heat sink in place, turn over the motherboard, and remove the four screws and washers from the backside.

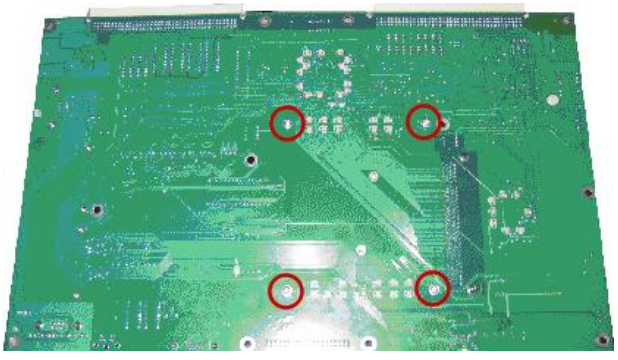


Figure 7: Removing the Heat Sink

REMINDER

The spacers will not be secured in any way once you remove the screws. Be prepared for them to fall out of place. It is critical that you do not misplace these spacers.

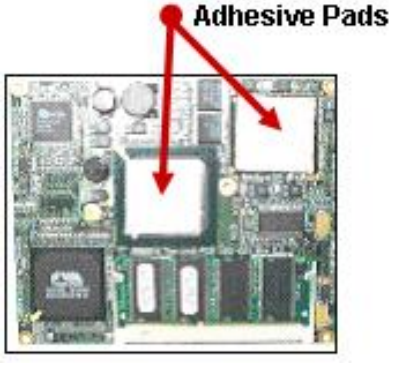


Figure 8: ETX Component

STEP 6: Remove the heat sink and ETX component from the front side of the motherboard (the ETX component is secured to the heat sink with adhesive pads).

STEP 7: If necessary, carefully pry the ETX component from the heat sink and lay it on a flat surface.

Upgrading the RAM

Once you separate the ETX component from heat sink from the motherboard, replace the 256 MB RAM module with the 512 MB RAM module. The 256 MB and 512 MB RAM modules are identical in appearance. However, each module is distinguishable by a label(s) as seen in Figure 9.

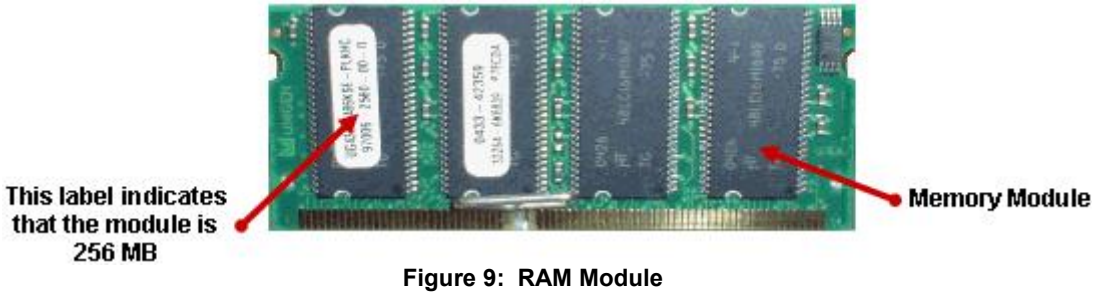


Figure 9: RAM Module

How to Handle the RAM

When removing or installing the RAM module, use firm but not excessive pressure. RAM modules are sensitive components and highly susceptible to ESD damage. Handle the component by the edges only; avoid touching the memory modules or traces (the metal pins along the connector edge of the module).

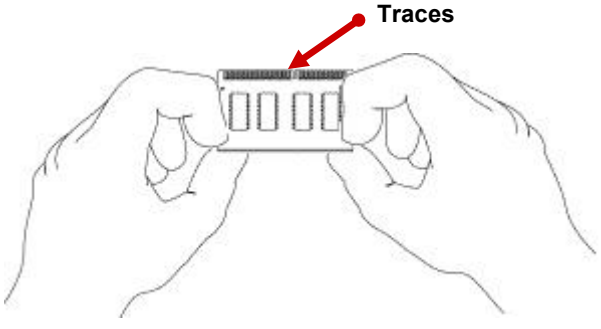


Figure 10: Proper Handling of RAM

Remove the 256 MB RAM

Lay the ETX component on a flat surface and complete the following steps to remove the 256 MB RAM module:

STEP 1: Use both thumbs to release the spring latches on the RAM socket. See Figure 11 for details.

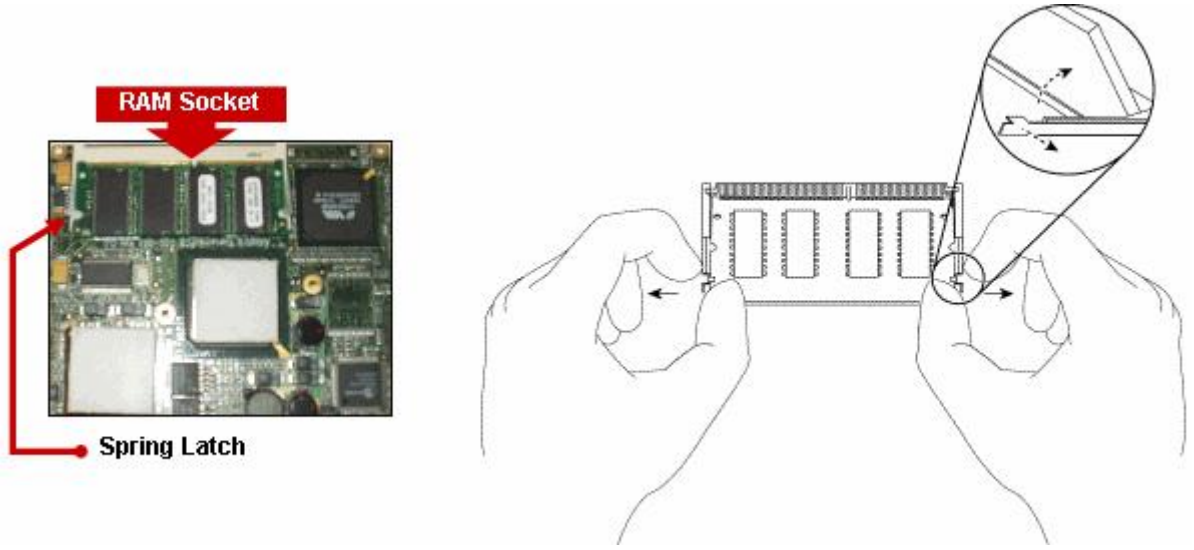


Figure 11: Releasing the RAM Module

STEP 2: Once you release the spring latches, the RAM socket springs open as in Figure 13. Hold the ETX component against a flat surface (so it does not move), grasp each end of the RAM module with your other hand and carefully pull it out of the socket.

Figure 12: Open RAM Socket

REMINDER
Refer to Figure 10 for the proper way to handle a RAM module.

Install the 512 MB RAM

Complete the following steps precisely as they are presented here to install the RAM.

STEP 1: Remove the 512 MB RAM module from its antistatic bag (use the bag to return the 256 MB RAM module to Bally Gaming).

STEP 2: Hold the RAM module right side up, with the metal pins facing away from you.

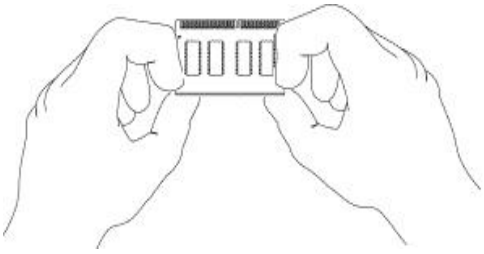


Figure 13: Inserting the RAM

STEP 3: Align the metal pins with the "connector edge" inside the socket and insert the RAM module (you may need to gently snap it into place).

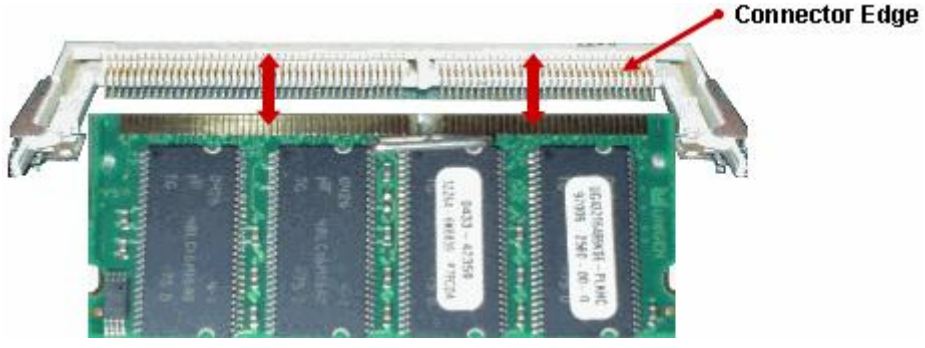


Figure 14: Proper Pin Alignment

STEP 4: Gently press down on the RAM module to close the socket.

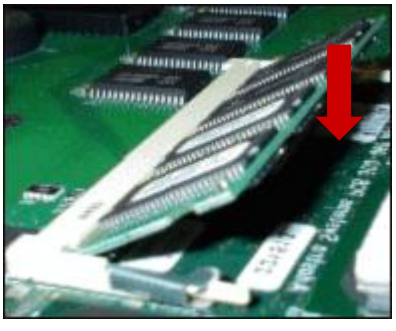


Figure 15: Closing the RAM Socket

Completing the Upgrade

Completing the upgrade involves the reassembly and installation of the MPU board and tray, which includes:

- Updating part numbers
- Setting and securing the ETX component and heat sink
- Setting and securing the motherboard inside the MPU tray
- Installing the MPU (board and tray)
- Rebooting the system

Refer to Figure 16 throughout the next several steps to complete the reassembly.

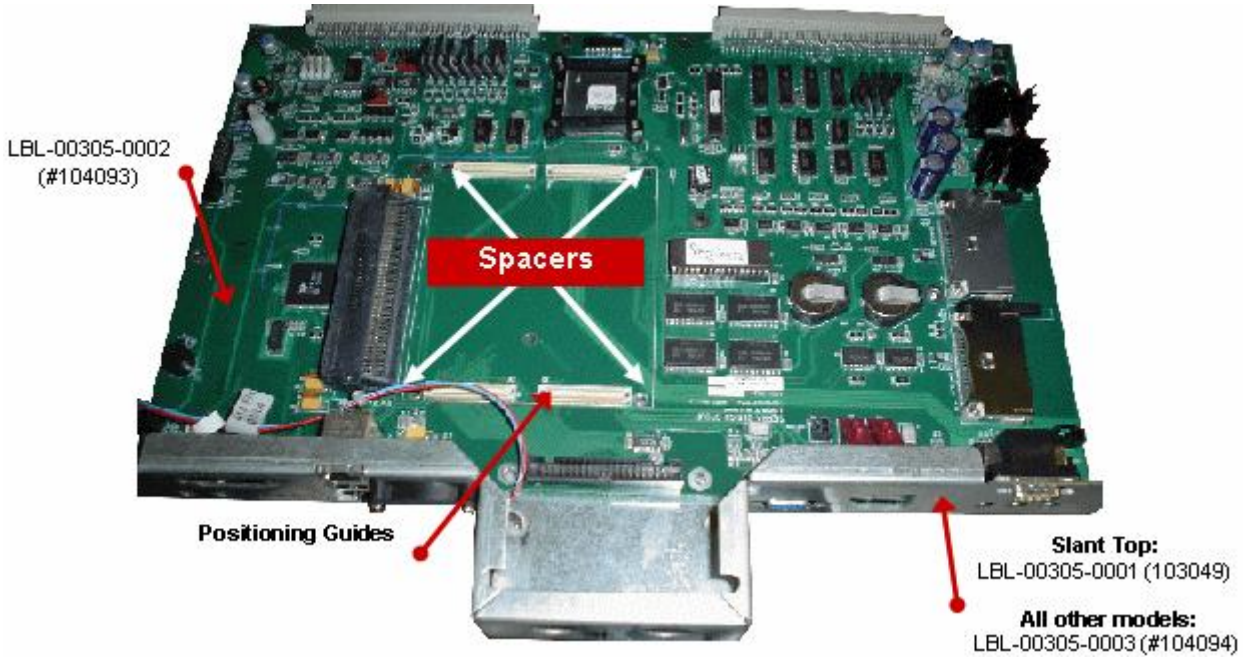


Figure 16: MPU Reassembly

Updating Part Numbers

As the result of the upgrade, the motherboard and housing unit essentially become revised parts. As such, they must be assigned different part numbers. In this step, you will update the motherboard and housing part numbers using the labels included in the upgrade kit (K-00710-0042):

STEP 1: Place revised housing part number label on front of MPU tray as in Figure 17.

a. For models with a slant top, use LBL-00305-0001 (p/n 103049)

b. For all other models, use LBL-00305-0003 (p/n 104094)

STEP 2: Place the part number label (LBL-00305-0002) directly on the motherboard as indicated in Figure 15.

Setting the ETX Component

STEP 1: Position spacers (4 total) on the motherboard as directed in Figure 16.

STEP 2: Use the positioning guides on the backside of the ETX component and on the motherboard (see Figure 17 and Error! Reference source not found.), to align and carefully set the ETX on top of the spacers.

STEP 3: Set the heat sink on top of the ETX component.

STEP 4: Holding the components in place, carefully turn the motherboard over and replace the four heat sink screws and washers. Refer to Figure 7 if necessary.

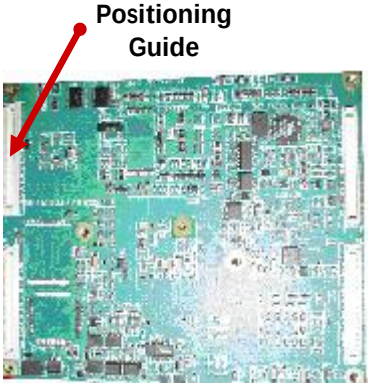


Figure 17: Setting the ETX

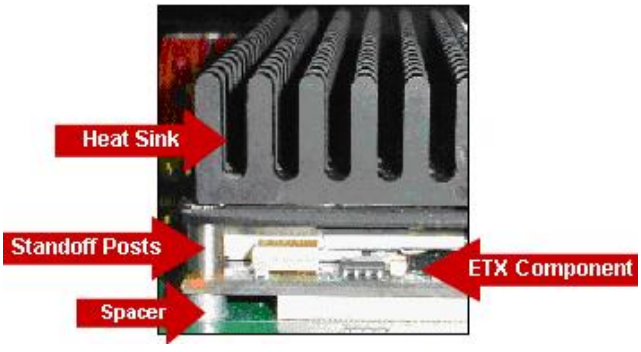


Figure 18: ETX Reassembly

Setting the Motherboard

STEP 1: Gently set the motherboard inside the MPU tray.

STEP 2: Secure the board in place using all screws and board posts.

STEP 3: Reconnect the cooling fan. Refer to Figure 5 if necessary.

IMPORTANT
Be sure to move the fan wires out of the way before you set the motherboard in place.

TIP
To verify that the motherboard is positioned correctly, check the front of the MPU to see if the serial ports and other sockets are properly aligned with their respective openings.

Installing the MPU

STEP 1: Slide the MPU tray back into the machine and reconnect the video cable (refer to Figure 3 if necessary).

STEP 2: Turn main power switch to ON to reboot the system.

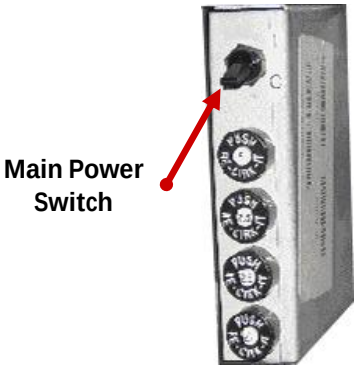


Figure 19: Turning Power On

Rebooting the System

As the system begins to initialize, a RAM test will appear on the LCD monitor to confirm the amount of memory available. Once the system passes the test, the game will load automatically.

TIP
If the system fails to reboot, turn the Attendant key, record the fault information, and turn the Attendant key again to restart. If the system fails to initialize after the restart, this may indicate that the RAM module is damaged or installed incorrectly.

This concludes the V87 512 MB RAM upgrade.