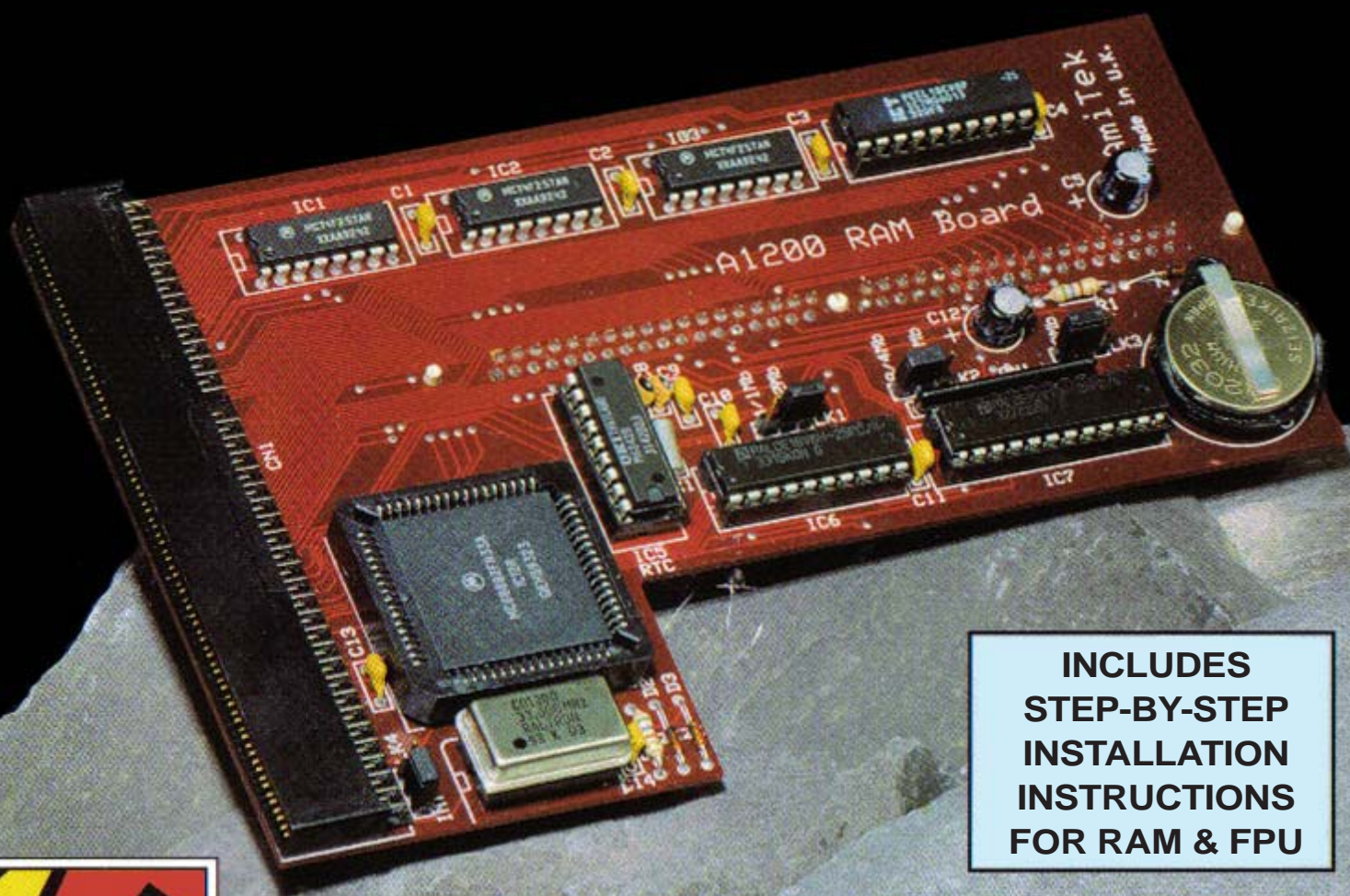


# AMIGA 1200

# HAWK RAM BOARD ACCELERATOR

## WITH BATTERY BACKED CLOCK & OPTIONAL FPU



INCLUDES  
STEP-BY-STEP  
INSTALLATION  
INSTRUCTIONS  
FOR RAM & FPU



# INSTALLATION & USERS' GUIDE



How to fit your new  
**AMITEK HAWK**

Memory + FPU + Clock Expansion  
to your  
**AMIGA 1200**

**PLEASE NOTE**

Due to continuous design improvements, the memory expansion board contained in this box may appear different to the one pictured on the box sleeve. The memory expansion does, however, have all the facilities as mentioned on the sleeve and in these instructions.

Amiga is a trade mark of Commodore-Amiga Inc.

**INDEX**

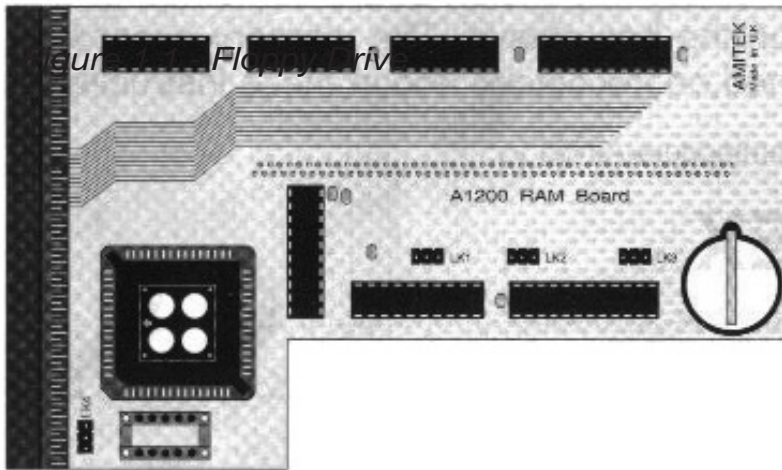
Introduction .....	4
Installing the AMITEK Hawk .....	5-6
Adding RAM to the Board .....	7
Installing SIMMS .....	8
Removing SIMMS .....	8
Adding an FPU to the Board .....	9
Installing an FPU .....	10
Removing/Upgrading an FPU .....	10
Real Time Battery Backed-up Clock .....	11
Installing a New Battery .....	11
Setting the Real-time Clock .....	12
Setting the Date .....	12
Setting the Time .....	12
Trouble Shooting .....	12-13
RAM/FPU Diagnostic Software .....	13
Running the RAM/FPU Test Programs .....	14

# INTRODUCTION

Congratulations on buying this advanced specification AMITEK Hawk, Amiga 1200 expansion board. While the Amiga 1200 is one of the most popular and technically impressive microcomputers on the market, it can be expanded via its wide range of peripheral, card and board connections. Once installed in the A1200's trapdoor, the AMITEK 1200 board provides:

## RAM EXPANSION

The AMITEK Hawk supports 1Mb, 2Mb, 4Mb or 8Mb of 32-bit FAST RAM which not only enables you to run larger and more complicated software packages, but also dramatically speeds up read and write operations to your machine's memory. The Hawk also runs with Zero Wait States enabling your A1200 to perform at its maximum speed.



## OPTIONAL FLOATING POINT UNIT (FPU)

In addition, the Hawk board allows the installation of a Floating Point Unit (FPU), also known as a maths co-processor, to dramatically increase the speed of mathematical calculations. This will be noticeable in most applications such as rendering of 24-bit, animated and vector graphics, plus number crunching in professional applications. If your board was not supplied with an FPU, don't worry, the AMITEK

Hawk includes a plug-in PLCC connector for easy installation. Most good dealers should hold FPU's in stock. Full fitting instructions are available on pages 9 and 10.

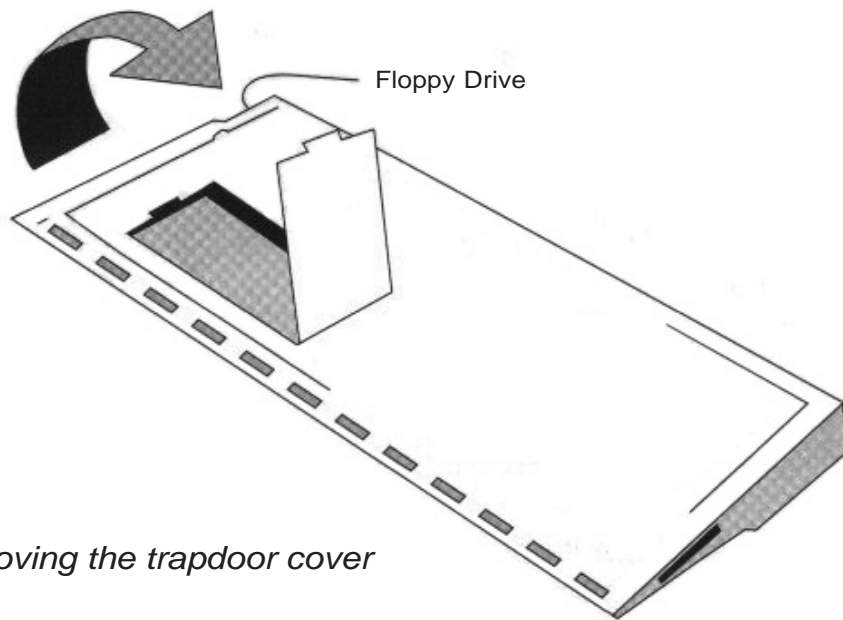
## BATTERY BACKED-UP CLOCK

The battery backed-up clock ensures that the date and time you have set up on your Amiga 1200 is constantly updated even when the main power supply is turned off. Such a facility is important, for example, when endeavouring to discover the most current version of a date stamped file.

Once installed, the AMITEK Hawk expansion board will ensure that your Amiga has a long and technologically advanced life and, the ability to run the latest, most complex software titles at a speed way in advance of the standard A1200. It's operation is also almost invisible. All you need to know is that you now own one of the most advanced combo expansion boards on the market.



# INSTALLING THE AMITEK HAWK IN YOUR AMIGA 1200



*Figure 1.1 - Removing the trapdoor cover*

The following easy to understand installation procedure will have your Amiga 1200 and Hawk board up and running within minutes:

1. Disconnect your Amiga from the power source and monitor/TV. Also, unplug any peripherals inc. joysticks, floppy drives, printers or modems.
2. Carefully turn your Amiga upside down, resting it gently on a firm surface so as not to damage the keyboard.
3. Remove the panel which covers the trapdoor expansion slot. It can be simply removed by inserting the edge of a flat bladed screwdriver, coin, or blunted knife into the indentation, and prying off the cover (see fig. 1.1). Beneath it you will find the open access to your Amiga's main circuit board and, most importantly, the expansion connector which can be fitted with a wide variety of external devices including your Hawk Expansion Board.
4. **WARNING:** Chips on the AMITEK board are very fragile and could fall prey to the small currents of static electricity generated by your body. Before you begin to install the board we suggest that you:
  - (a) **AVOID** standing on a carpeted area, rubber soled shoes can be used as an added precaution.
  - (b) **ALWAYS** touch a grounded metal surface before handling the board i.e. radiator panelling. This will ensure that any static charge is discharged when you start work.
  - (c) If available, **WEAR** a grounded wrist strap.

Figure 1.2 - Placement of the AMITEK Hawk

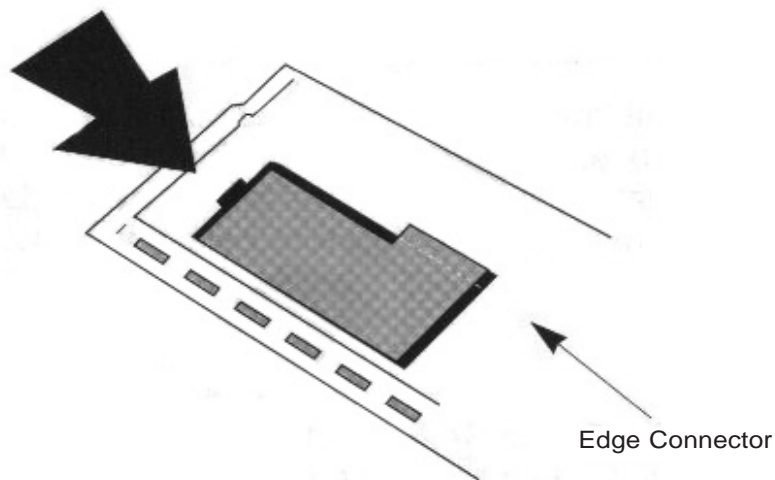
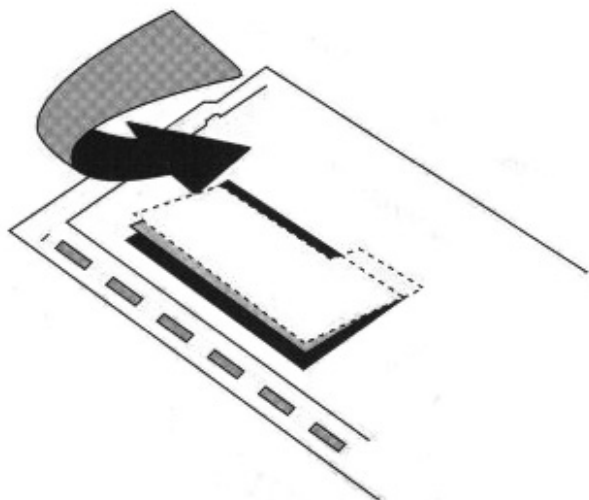


Figure 1.3 - Inserting the AMITEK Hawk

5. Remove the board from its protective anti-static packaging and, with SIMM socket (see fig. 2.1 on page 7) facing toward the back panel of the computer, gently ease it onto the gold edge connector in the expansion slot (see fig. 1.2). Take great care that the memory expansion board is flush with the connector and not at an angle. Press the board in firmly so as to create a good connection (see fig. 1.3) and replace the plastic trapdoor panel.
6. Turn your computer over and replace all cable connections and peripherals.
7. Connect your Amiga to the power source.
8. Insert the Workbench disk into the floppy disk drive.
9. Power up. If the power light does not come on, or the A1200 does not start up correctly, turn the power off immediately and re-check your connections.

To check your memory, load Workbench. You should notice on the top line of the display that you now have some "OTHER MEMORY". This amount should show approximately as follows:

RAM on Board	"OTHER MEMORY" (approx)
1Mb Fitted	1,050,000
2Mb Fitted	3,100,000
4Mb Fitted	4,200,000
8Mb Fitted	8,400,000

### **IMPORTANT:**

Do not power-up the Amiga 1200 without replacing the trapdoor as it holds your expansion board in position.

# ADDING RAM TO THE BOARD

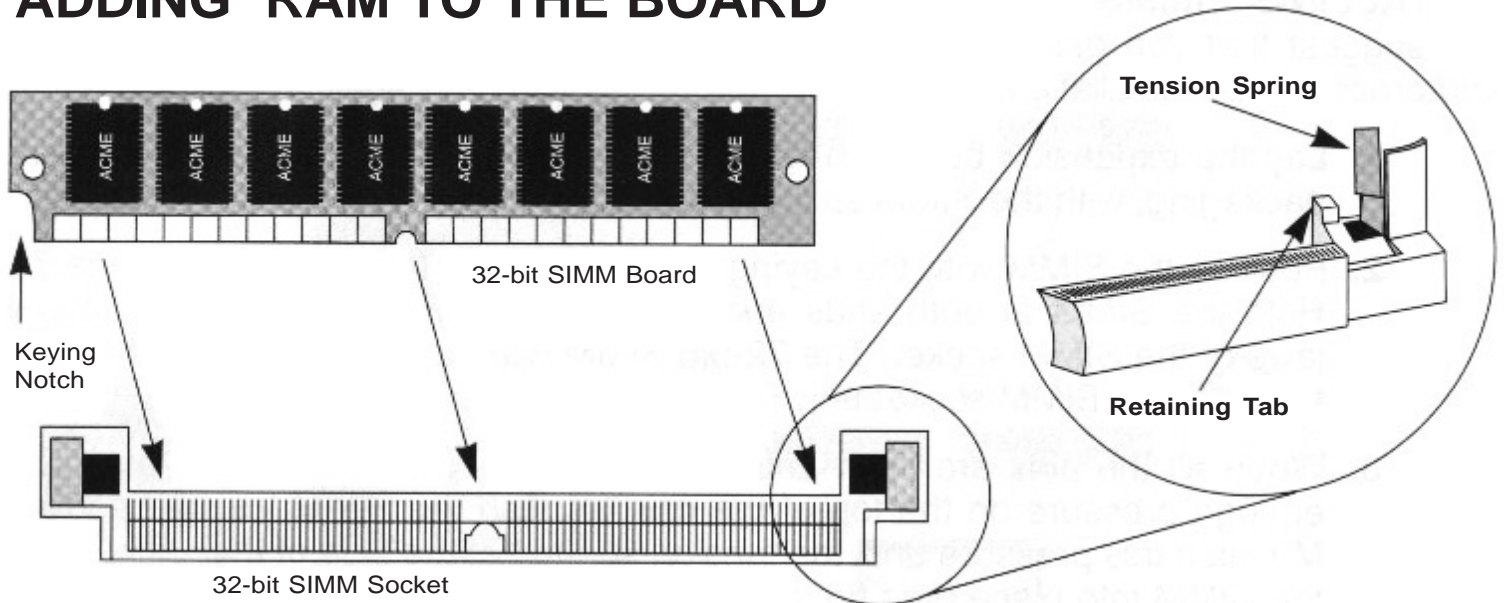


Figure 2.1 - How a SIMM Socket operates

SIMM memory chips are designed to be easily installed and allow the flexible configuration of an Amiga 1200's RAM capacity. Each chip has a fixed capacity measured in Megabytes (Mbs). The higher the number of Megabytes, the greater the amount of storage available to your Amiga.

The AMITEK expansion board has one SIMM socket (see fig. 2.1), that can be populated with 1Mb, 2Mb, 4Mb or 8Mb SIMMs. The FAST RAM used is of the 72-pin SIMM type and is the same as the RAM available in the high specification Amiga 4000. The AMITEK board will accept RAM that is 80ns (nanoseconds) in speed, or quicker (the lower the nanosecond rating, the faster the RAM performs). This SIMM is either supplied as part of the product that you have purchased or can be bought from your local Amiga dealer.

Fitting SIMM boards is an easy operation which should take only a few seconds. It can either be done before the board is installed in your Amiga or when you decide to upgrade your machine's memory and the board is already in place. In the latter case, you will need to remove the AMITEK board from the Amiga's trapdoor slot making sure power is switched off before removing.

If you are in any doubt about fitting the SIMM boards, contact your dealer who should be able to help.

**NOTE 1** - The 72-pin SIMM was designed to allow the user to fit it into a SIMM socket only ONE way. It is not possible to install a SIMM the wrong way round.

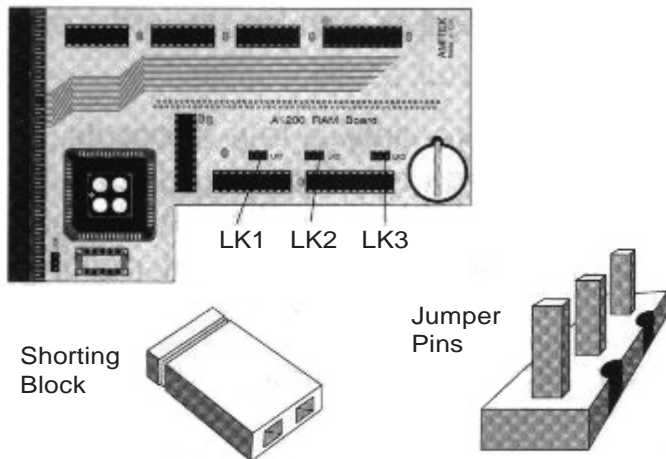
**NOTE 2** - The AMITEK Expansion will not allow the use of slower PCMCIA memory cards. If you have previously used a PCMCIA RAM card, you will notice a significant speed increase in your Amiga when you use this AMITEK product.

# INSTALLING SIMMS

We suggest that you gain a firm understanding of the following instructions before you proceed with installation.

1. Lay the expansion board on anti-static material, such as its original board packaging, with the SIMM socket exposed.
2. Position the SIMM with the keying notch to the left (see fig. 2.1 on page 7). Hold the SIMM at both ends and insert its metal contacts into the metal jaws of the SIMM socket. The 72-pin SIMM was designed to allow the user to fit it into a SIMM socket only ONE way.
3. When all the pins are flush and securely in the jaws of the socket, apply enough pressure on the top of the chip to push the SIMM into the socket. Maintain this pressure until the tension springs at the side of the socket lock the SIMM into place (see fig. 2.1). Equal pressure should be maintained to both side of the chip, as damage could be caused to the SIMM or SIMM socket.
4. You now need to change the jumper settings on the component side of the board to match that of the RAM now installed (see fig. 2.2). Failure to do so will result in board malfunction. Possible jumper combinations are shown in the table below (see fig. 2.3). The three jumpers are clearly labelled LK1, LK2 and LK3 on the board. If you have 1Mb on board follow the settings in the first row, 2Mb on board follow the second row, etc.

Figure 2.2 - Jumper Positions



## POSSIBLE JUMPER SETTINGS

RAM INSTALLED	LINK REFERENCE		
	LK1	LK2	LK3
1Mb			
2Mb			
4Mb			
8Mb			

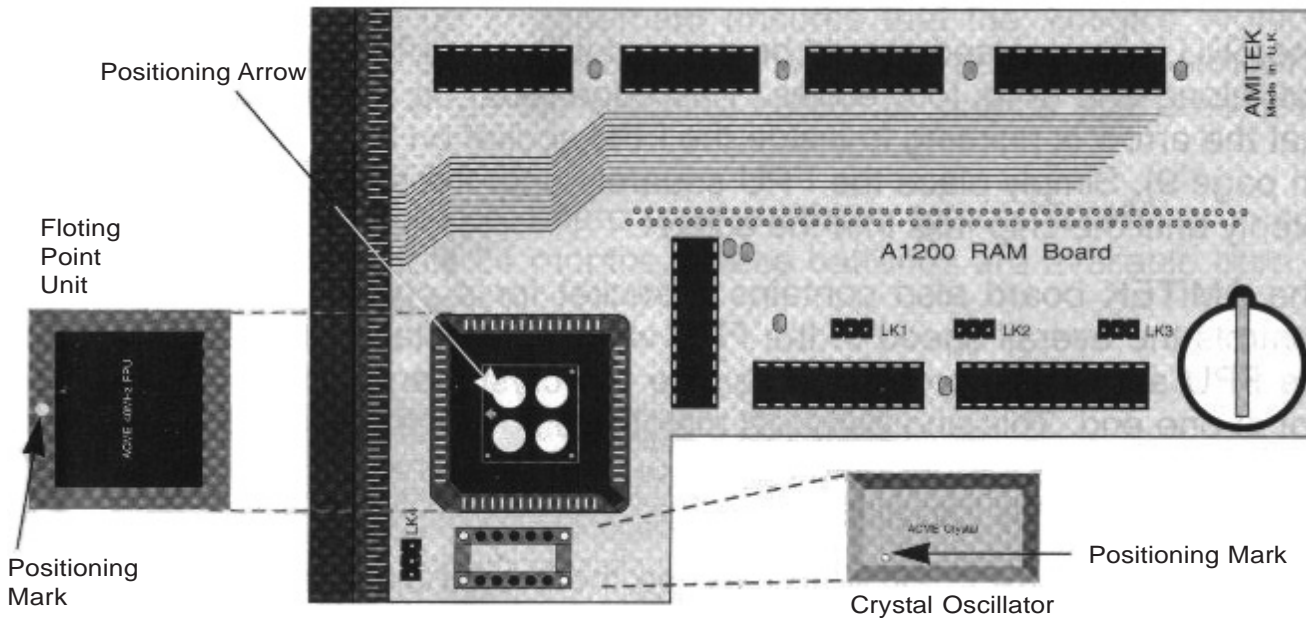
Figure 2.3- RAM Jumper Configurations

# REMOVING SIMMS

Push both tension springs (see fig. 2.1 on page 7) outwards at the same time and the SIMM should come forward ready to be lifted out.



# ADDING AN FPU TO THE BOARD



*Figure 3.1 - Positions of FPU and Crystal*

The AMITEK A1200 Expansion board can also accommodate an FPU (Floating Point Unit) to increase performance of maths calculations. This type of co-processor works in parallel with the main central processing unit, taking over much of its arithmetic work with real (i.e. floating point) numbers. It can be particularly important if you intend to do a great deal of number crunching work with spreadsheets, complex equations or calculus. As your Amiga handles all low level operations in terms of mathematics, an FPU can even speed up tasks such as simple animation and complex 3D image generation where the activity of the maths co-processor makes a critical difference in the calculation of graphics formulae.

Your new AMITEK RAM expansion board has a PLCC 68881/2 (rather than PGA) type of FPU socket.

The large range of FPU's run at different rates which are measured in MHz: the higher the number, the faster the speed. An FPU may also come with a crystal oscillator that can regulate the operation of the FPU. If, however, you do not have a crystal, you must run the FPU at the same time speed as the machine (14.3MHz).

There are various types of processor which you can install on the AMITEK board, all of which are distinguished by their individual processing speeds. The available chips run at 16MHz, 20MHz, 25MHz, 33MHz and 40MHz - the latter of which is the top of the range for most RAM combo boards. You may find one is supplied as part of the product that you have purchased, or you can buy one from your local Amiga dealer.

# INSTALLING AN FPU

To install an FPU on the AMITEK board, please follow the instructions below:

1. The FPU is square and should be marked with a positioning mark (usually a dot) along one of its four edges. This edge must be aligned with the edge that the arrow is pointing to inside the FPU socket on the board (see fig. 3.1 on page 9). Simply place the FPU squarely onto the socket and push down evenly until the chip falls into the socket.
2. The AMITEK board also contains a socket for a crystal which regulates/controls the overall speed of the FPU when it is installed. It is smaller than the FPU and silver in colour. Examine the crystal and locate the notch or dot at one end. This end needs to match the socket end, with the half circle cut-out facing the jumper (see fig. 3.1 on page 9). Line up the markings and push the chip firmly into place.
3. Set the jumper LK4 to either INT to use the machine's clock of 14.3MHz, or to CPU to use the speed of the crystal that you have fitted.

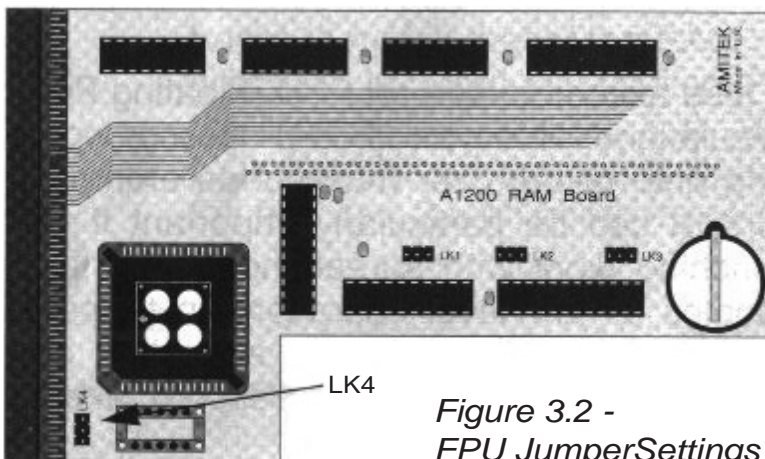


Figure 3.2 - FPU Jumper Settings

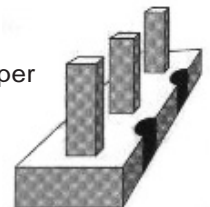
## Possible Jumper Settings

When Using the A1200's Internal 14.3MHz Crystal	
When Using a Crystal and FPU Faster Than 14.3MHz	

Shorting Block



Jumper Pins



## IMPORTANT:

Before installing the expansion board into your computer, it is important to ensure that the crystal is not faster than the FPU fitted. Any mistakes could result in the over-clocking of the FPU and damage to the chip which will void your warranty.

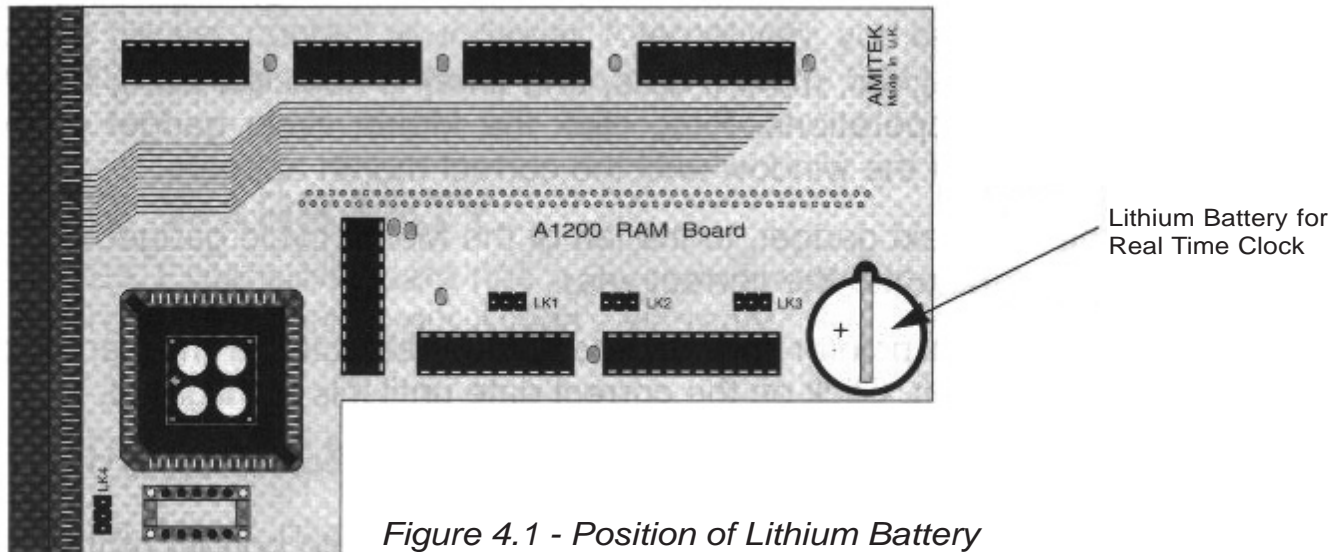
## REMOVING/UPGRADING AN FPU

You may upgrade the installed PLCC - e.g. from 25MHz to 40MHz - by taking the old chip out of its socket and installing the new chip using the above outlined procedure. To remove the old chip without damaging the socket or fragile legs on the FPU, it is recommended that you use a dedicated FPU puller, similar to tweezers, which can be obtained from your local dealer or electronics supply shop. Alternatively, good Amiga dealers can perform this upgrade.

# REAL TIME BATTERY BACKED-UP CLOCK

A lithium battery back-up arrangement ensures that the Amiga's Workbench clock and date are accurate and available, even when the power has been turned off and on. This ensures that when the machine date/time stamps your files, it does it with the correct date/time.

The battery on the AMITEK board is of a lithium type, CR2032 or compatible and should last approximately 24 months. These batteries are available from most major computer/electrical retailers.



*Figure 4.1 - Position of Lithium Battery*

## INSTALLING A NEW BATTERY

To install a new lithium battery:

1. Remove the AMITEK Hawk board from your Amiga's trap door.
2. Use a screwdriver or blunt knife to carefully slide the coin-style battery forward, out of the socket in the lower right hand corner on the circuit mounted side of the board (see fig. 4.1).
3. Slide the old battery out of its mounting and dispose of it safely in a waste bin. Do not expose to intense heat or a naked flame.
4. Slip the new battery in place, ensuring that the side marked with a "+" is face up.
5. Finally, check to make sure that the metal holding strap above the battery has sufficient tension to keep the battery in place.
6. The board can then be replaced in the Amiga where the battery should function for a further two years.

## SETTING THE REAL-TIME CLOCK

The clock and time can be set up from the Time program in the Prefs drawer of the Amiga's Workbench. The instructions used to set up the battery backed-up clock facility are those available from Workbench. It is a simple procedure but, if you have difficulties, refer to Chapter 5 of Commodore's Workbench 3.0 User's Guide.

## SETTING THE DATE

1. To set the clock and calendar, open the Prefs drawer, which will either be found on your hard drive or the Extras floppy disk, and select the Time program.
2. Each parameter (year, month, date, and time) is selected using the mouse point and click operations. First, click the Month cycle gadget at the top right hand side of the window until the correct month appears.
3. Select the Year text gadget, to the left of the Month cycle gadget, delete the default year and enter the correct year.
4. Move the mouse pointer to the Date gadget selector in the centre of the Time Prefs screen. Click on the correct date until it is highlighted.

## SETTING THE TIME

1. Move the mouse pointer to the Hour slider bar at the bottom of the screen. Drag the indicator bar to the left or right until the hours shown in the panel below are correct. Release the button on the mouse.
2. Move the mouse pointer to the Minutes slider bar at the bottom of the screen. Drag the indicator bar to the left or right until the minutes shown in the panel below are correct. Release the button on the mouse.
3. Click on the same button to save the correct date/time to your Hawk battery-backed clock.

## TROUBLE SHOOTING

This AMITEK RAM combo expansion board should operate smoothly and is under a 2 year manufacturer's warranty. Before returning it, there are several easy to follow steps which may determine whether your board is faulty, what is wrong and, in some cases, how it can be remedied. If you have a problem:

1. Make sure that the power supply is properly connected to your Amiga and the wall socket. Ensure that the power switches at both ends are set to the ON positions?



2. Are your peripherals and expansion devices correctly connected to your Amiga 1200?
3. Is the expansion board fitted firmly in the Amiga's trapdoor socket?
4. Have you installed the SIMM correctly? Is it locked in place?
5. Are the jumpers set for the correct RAM size and FPU speed?
6. Devices such as PCMCIA cards or memory altering devices may cause incompatibility problems. Remove them and again test your Amiga's operations.

If problems persist, contact your dealer. Alternatively, you can call the Amiga Helpline: 081-302 8383 during normal working hours (9.00am - 6.00pm).

## **2 YEAR WARRANTY**

Your AMITEK Expansion Board has a 2 year warranty from date of purchase. Fitting the board in no way affects your Amiga's warranty.

## **RAM/FPU DIAGNOSTIC SOFTWARE**

The AMITEK Hawk package includes a floppy disk on which is stored a set of diagnostic routines which will test the RAM set-up and FPU type once your board is configured and installed.

The AMITEK Hawk RAM Test software is a program designed to provide three important pieces of information:

1. Its main purpose is to check any RAM installed on the AMITEK Hawk RAM board. It runs a series of tests on the memory to check its integrity. If it finds any errors in the memory the test will end and a suitable error message will be displayed. If errors are encountered you should first check that the jumper settings on the board match the amount of RAM you have installed (see 2, below). If this is correct then make sure that the board is properly inserted into the socket on the AMITEK Hawk RAM/FPU board.
2. It displays the amount of RAM that the board thinks it has installed. This value is an indication of how the jumpers on the AMITEK Hawk RAM/FPU combo board are configured.
3. It recognises and displays any type of Floating Point Unit (FPU) that you have installed on your AMITEK Hawk RAM/FPU board.

# **RUNNING THE RAM/FPU DIAGNOSTIC SOFTWARE**

The AMITEK Hawk RAM Test program should be run by first booting Workbench, inserting the AMITEK disk into any drive and clicking on the AMITEK floppy disk icon. Finally, double-click on the AMITEK\_Hawk\_RAM\_Test program icon.

Program operation is very straightforward:

A small window will appear in the middle of the screen. This main information panel will display the amount of RAM to which the jumpers are set. If this value varies from the amount of RAM you have installed, then review the jumper settings on the board.

The information window will also give details of any FPU that you may have installed. If you do not have an FPU installed then the message 'FPU: Not Installed' is displayed in the status window.

A couple of radio-style buttons labelled SLOW and FAST are used to select the depth of RAM testing. FAST will do an efficient and quick test of your RAM . The SLOW mode adds an extra test which does a more thorough examination of the memory. The button labelled RAM TEST starts the process which, once begun, cannot be aborted, and the EXIT button quits the program.

Should you require more information about the Hawk diagnostic program and more in-depth details about the theory behind the software, you will find it by double-clicking on the text document called AMITEK\_Hawk\_RAM\_Test.doc. If you have an additional floppy disk drive or hard disk drive, you may prefer to run the AMITEK\_Hawk\_RAM\_Test.guide.doc. This has been written in Amiga Guide format which should be set up through your directory pathway. Should you not know how to do this, please refer to your Amiga manual.

## **COPYRIGHT**

©AMITEK, 1993. All rights reserved. This manual and the information contained on the floppy disk are copyright. The owner of this product is entitled to use it for his or her own personal use. No one may transfer, give or sell any part of the manual, or the information on the disk without the prior permission of AMITEK.



