MAGROM User's Manual

Manual Version 1.0

Hardware Version 1.1

MAGROM was designed by Martin Allcorn, Engineering by Dave Stevenson

Introduction

MAGROM is an add-on ROM board for the Memotech MTX range of computers, it incorporates a 512kb flash chip which stores 38 of the most popular Memotech games and allows them to be selected from a menu by hitting a single key. Since the games are stored in flash memory, they load almost instantaneously.

The development of MAGROM and an in depth description of how it works can be found on-line at:

http://primrosebank.net/computers/mtx/projects/magrom/magrom.htm

This document describes the installation and operation of MAGROM Version 1.1.

Installation

The original MAGROM had the facility to install edge connectors on both sides of the PCB which allowed it to be swapped between internal and external installation at will. Due to an error in the layout of the Version 1.1 PCB, this is no longer possible and the user must specify whether MAGROM is to be installed internally or externally when the order is placed as the fit of the edge connector is different between the two options.

The MAGROM card that you have received can ONLY be installed in the configuration that you specified when you placed the order, i.e., EITHER internally OR externally.

Jumper Settings

Before you install MAGROM, the option jumpers on the PCB need to be set appropriately for your system. The function of the two jumpers is shown in the table below

Jumper	PCB Location	Position	Setting
System	Top Left	North	MTX500
		East	MTX512
		South	RS128
		West	REMEMOrizer
ROM ID	Top Right	North	GROM
		South	ROM 6

System Jumper

This jumper identifies the system that MAGROM is installed in and configures MAGROM to work with the available RAM in the target system. If the target computer is a MTX500, MTX512 or RS128 that does not have a REMEMOrizer fitted, then the jumper is set for the relevant machine type. If a REMEMOrizer is fitted, which must be external, then the MAGROM system jumper must be set for REMEMOrizer and MAGROM must be fitted internally.

ROM ID Jumper

The MTX computer was designed to support plug-in Games ROMs that used the interface GROM signal to enable Games ROMs with an ID of 7. The original MAGROM was designed to use the same ROM ID to provide multi-game support. However, some MTX owners with foreign language MTXs were unable to use MAGROM due to the way that Memotech implemented foreign language support on some, but not all, regionalised MTXs.

The MAGROM design has been modified to allow the user to select either ROM 7 or ROM 6 as required. In most cases, either ROM ID can be used, but normally the jumper is set to the GROM (ROM 7) position. Some, but not all, MTX computers with foreign language keyboards will have an option ROM fitted internally which generates some of the foreign language character set. It is necessary to open up the MTX to determine whether a language ROM has been fitted, this can be checked when fitting MAGROM internally. Alternatively, if MAGROM is being fitted externally and the user does not want to open the MTX case, it should be enough to set the ROM ID jumper just based on the keyboard layout.

External Fitting

*** Turn OFF the MTX ***   *The MTX and/or the MAGROM card may be damaged if the PCB is installed or removed with power applied*

This is obviously the easiest installation option.

Power off the MTX computer

Attach the MAGROM PCB to J10 – the external MTX edge connector/cartridge port

The edge connector plug fits exactly over the edges of the computer board edge connector, although the computer board and edge connector are keyed, it should not be possible to misalign the connector.

Note: The edge connectors on MTX computers were not designed for frequent connection/disconnection cycles, if possible, MAGROM should be left permanently connected, even when not being used.

Internal Fitting

*** Turn OFF the MTX ***

The MTX and/or the MAGROM card may be damaged if the PCB is installed or removed with power applied

The two halves of the MTX case are secured by six, 3mm socket head machine screws, three through each end plate.
The front edges of the two halves of the case have interlocking profiles that allow the keyboard to be swung upwards like a hinge.

Using a 2mm Allen key, remove the three screws from the right and left hand sides of the MTX.

Allen key (2mm)

Screws 3mm x 8mm
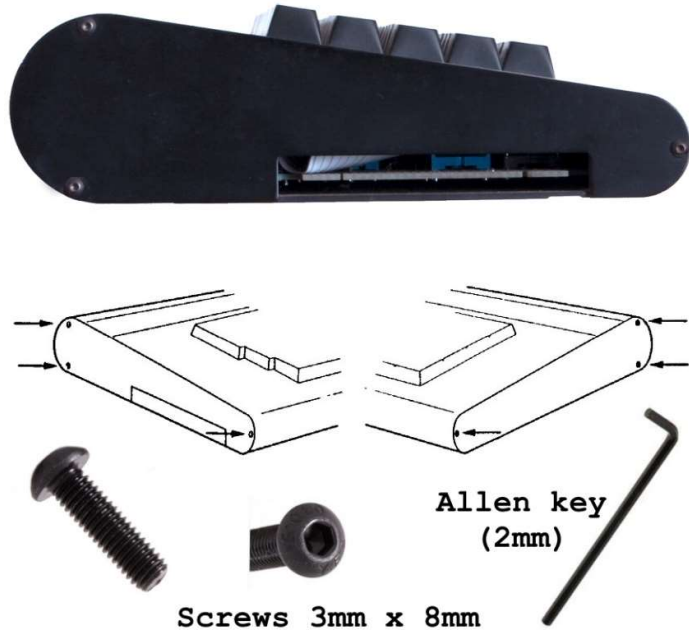
Lift the MTX keyboard at the rear, just above the plastic panel, taking care not to put strain on the keyboard interconnecting cable


This photo shows a ribbon cable attached to the MTX computer board and to the left hand side of the keyboard.

This cable is not the original MTX one, the Memotech cable is shorter and you will not be able to raise the keyboard to the same extent as in this photo without disconnecting the cable first.

Gently ease the keyboard interconnecting cable from the mother board connector, always using the connector - do not pull on the ribbon cable.

The photo shows the type of cable damage that can result if care is not taken in opening the case or disconnecting the keyboard cable.
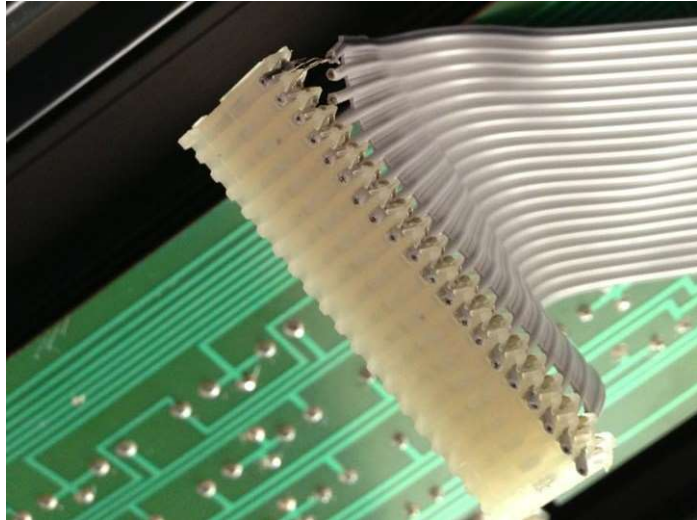
After the cable has been disconnected from the computer board, the keyboard is released from the base by sliding it completely to the left or right, leaving the MTX in two halves as shown here.

The right hand side of the computer board is very close to the AV connectors and has an overhanging capacitor as shown.

When fitted internally, the MAGROM PCB is mounted with the components facing downwards.

In order to fit over the computer board edge connector, the edge connector plug ends have been removed. Although the computer board and edge connector are keyed, take care to ensure that the connector plug is centralised over the computer board connector.

Usage

MAGROM has been designed to be invisible when the MTX is operating in its normal ROM BASIC mode or in CP/M mode (ROM 4). When the MTX is powered up or reset, it will boot as normal – either into the MTX BASIC "Ready" prompt, or into the CP/M boot ROM.

Systems Without REMEMOrizer

When MAGROM is fitted in a system that does not have a REMEMOrizer connected, MAGROM is invoked by holding down the space bar when the MTX is powered on or reset.

When MAGROM starts, it will play a chime and display the menu as shown.

The games are started by selecting the key adjacent to the game's name, e.g., **Phaid** is started by pressing the "O" key.

Systems with REMEMORizer

With REMEMOrizer connected, the default boot sequence for the MTX computer means that the CP/M ROM (ROM 4) will be detected before MAGROM (ROM 6 or 7) and control will be passed to the CP/M ROM, so pressing the space bar on its own will not start MAGROM with REMEMOrizer (or Memotech FDX or SDX boot ROMs) fitted.

There are a number of different ways to invoke MAGROM with REMEMOrizer fitted

Keyboard shortcut

When the MTX is powered on or reset, hold down the two unmarked reset keys, the two shift keys and the space bar at the same time. Release one or both of the unmarked reset keys first and the system will boot to the MAGROM menu.

From the MTX "Ready" Prompt

If the system has booted CP/M from REMEMOrizer and a standard Memotech FDX/SDX system disk image, or Andy's CP/M boot floppy image has been loaded to the emulated disk drive, then the MTX.COM program can be loaded from CP/M to put the system into MTX BASIC mode.

From the "Ready" prompt, depending on the ROM ID selected on the MAGROM PCB, enter "ROM 6" or "ROM 7" to start MAGROM.

"Hiding" CP/M at Boot Time

Pressing SW1 on REMEMOrizer at power on or reset time makes the CP/M boot ROM vanish from the memory map. So if you do this whilst resetting, the MTX will boot directly to MTX BASIC, if the space bar is pressed at this time, the system will boot to the MAGROM menu.