CMT-110/CMT-10

HP-41 EPROM MEMORY DEVICES

Owner's Manual

CORVALLIS MICROTECHNOLOGY, INC.

WARNING: The CMT-10 PC Assembly is a CMOS part. Like any other CMOS part, it is staticsensitive, and should be handled only in a static- controlled work area.

General Handling Recommendations for CMOS Devices

	Should be	Should be grounded
	conductive	to common point
Handling Equipment	x	
Metal Parts of		
Fixtures and Tools	5	x
Handling Trays	x	
Soldering Irons		x
Table Tops	х	x
Transport Carts	x	
Operating Personnel		Use grounded, metal
and		or conductive plas-
General Handling of		tic wrist straps
Devices		with 1-Mohm series
		resistor.

Typical Programming Area Procedure

Upon receipt of the devices, do not remove them from their conductive or antistatic carriers. If devices are not received in conductive or antistatic packing material, they should be returned to the dealer.

Physical - Parts should be counted without removing them from their containers.

Storage - Devices should remain in carriers. Even a partial removal of IC's from a carrier should be done by a grounded operator. Devices removed should be placed in a conductive tray.

Electrical - All testing and programming should be performed by a grounded operator. Devices should be reinserted in conductive carriers after completion of a test or programming if they are not to be installed into CMT-10 modules immediately afterwards.

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INTRODUCTION

The CMT-110 Custom ROM Development Tool and the CMT-10 EPROM Plug-In (EPI) Modules are custom storage devices for use with software the HP-41C/CV/CX calculator. These devices allow the HPto run programs directly out of properly 41 preprogrammed EPROMs much like the way it runs prostored in an HP-41 application ROM grams module. Different versions of the CMT-110 and the CMT-10 are made available to meet the various requirements on memory capacity.

A properly programmed CMT-10 EPI module or a correctly configured CMT-110 with a properly programmed EPROM installed in it can be plugged into any of the HP-41 I/O ports. Before doing so for the first time, be sure to read and follow the instructions given in Section 1, Connecting the CMT-110/CMT-10 to the HP-41.

As EPROMs are reprogrammable, the CMT-110 and the CMT-10 are valuable tools in software development. In addition, 'data stored in EPROM may be upgraded much more economically than if it had been stored in ROM.

The CMT-110-16K accommodates one EPROM (4K, 8K or 16K words), while the CMT-110-32K houses two. 28-pin ZIF (Zero-Insertion-Force) sockets have been built in to allow the EPROM's to be changed easily. The CMT-110 works with most ordinary EPROMs.

While the CMT-110 is about the size of the HP-41 itself, the CMT-10 EPI modules are similar in dimensions to the HP-41 application ROM modules. inserted into an HP-41 I/O port, the CMT-10 When physical integrity of the HP-41. preserves the There are four versions of the CMT-10: CMT-10-4K, CMT-10-8K, CMT-10-16K and CMT-10-16KB. The first three differ in memory capacity, while the last two differ in the size of the HP-41 ROM address space each occupies.

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We offer EPROM programming service at a reasonable service charge. If you have your own programmer, follow the procedure given in Section 3 to prepare the CMT-10 for EPROM programming. Software considerations for programming the EPROMs for use with the CMT-110 or the CMT-10 are discussed in Section 4.

We have given in this manual some basic information required to use the CMT-10/CMT-110. If you need further assistance, contact our office at:

> Corvallis Microtechnology, Inc. Dept. 10-m 33815 Eastgate Circle Corvallis, OR 97333 Tel.: (503)752-5456

(Hours: 9 a.m.- 6 p.m.)

CONNECTING THE CMT-110/CMT-10 TO THE HP-41

CAUTION:

- * Turn the HP-41 calculator off before inserting or removing the CMT-110 connector, the CMT-10 module, or any other plug-in extensions or accessories. Failure to do so could damage both the calculator and the plug-in module.
- * The CMT-110/CMT-10 must not be connected to the HP-41 without a properly programmed EPROM installed in it. Otherwise, the HP-41 software may crash. This may require resetting the HP-41, and possibly cause a **MEMORY LOST** condition.

Connecting the CMT-110/CMT-10

- 1. Turn the HP-41 calculator off!
- 2. Remove the port cover of the port you intend to insert the CMT-110 connector or the CMT-10 module into. Note, however, that you should never insert the CMT-110, the CMT-10 or any other application module into a lowernumbered port than a memory module. (Turn your calculator over to see a map of the ports.) Save the port cap.
- 3. Insert the CMT-10 module or the connector of a properly configured CMT-110 into the selected port. Gently push it in all the way. (See Section 3 about configuring the CMT-110.)
- 4. Turn the calculator on.

Disconnecting the CMT-110/CMT-10

- 1. Turn the HP-41 calculator off!
- 2. Grasp the CMT-10 module or the CMT-110 connector and pull it out.
- 3. Insert a port cap into the empty port.

OPERATING THE CMT-110

Both the EPROM(s) and the CMT-110WARNING: are sensitive IC to electro-Custom static discharge (ESD). Before making contact with any of these parts, make sure any charge on your body has been properly dissipated. Use a grounded work area and connect yourself to it via а conductive wrist strap. See first page (*) of this manual for general handling recommendations for CMOS parts.

The CMT-110 allows you to work with EPROMs of different memory sizes. Switches are provided for configuring the device for the memory capacity of the EPROM(s) used, as well as for selecting the ROM addresses of the EPROM(s). To get to these switches, open the CMT-110 housing by removing the screws at the four corners. (Refer to Section 4 for a discussion of ROM addressing.)

The CMT-110-16K has one EPI chip, one set of switches above it, and one ZIF socket, while the CMT-10-32K has two of each. Each ZIF socket can accomodate one 28-pin EPROM (4K, 8K,or 16K-words).

Configuring the CMT-110

The configuration switches are defined below:

- "16K" Switched to "down" position for 16K EPROM, (1) "up" for 8K or 4K EPROMs.
- "BS" Switched to "up" position for operation in (2) the bankswitching mode. (Refer to Section 4 for a discussion of bankswitching.)

- "B3" Used with "B4" to select the ROM addresses (3) of the EPROM when bankswitching mode is active. Ignored by normal (non-bankswitched) operation.
- "B4" Used with "B3" to select the ROM address (4) space of the EPROM when bankswitching mode is active. In normal operation with 16K EPROM, selects ports 1 and 2 as the ROM addresses of the EPROM when in "down" position; selects the ROM addresses of ports 3 and 4 when in "up" position.

Irregardless of the port you plug the CMT-110 into, the ROM addresses of its EPROM(s) are selected by means of the switches "B3" and "B4". Therefore, the switches have to be set correctly so as not to take up more port addresses than is necessary. Also, the switches should be set correctly so that there will be no conflict with other modules plugged in the HP-41.

Some hard-addressed modules that will not conflict with the CMT-110 are: the 82160A HP-IL module, the HP 82182A Time Module, and the HP 82143A Printer. Note that RAM memory (such as the main-memory RAM modules for the HP41C or the extended memory RAM devices) will not conflict with ROM memory.

In the following table, the "up" position of a switch is indicated by "1", while the "down" position is indicated by "0".

CMT-110-16K Configurations

EPROM	16K (1)	BS (2)	В4 (З)	B3 (4)	ROM Address Space
4K	1	1	0	0	Port 1 (Pg. 8;
(2764					remapped in Pg. 9)
27C64)	1	1	0	1	Port 2 (Pg. 10;
					remapped in Pg. 11)
	1	1	1	0	Port 3 (Pg. 12;
					remapped in Pg. 13)
	1	1	1	1	Port 4 (Pg. 14;
					remapped in Pg. 15)
8K	1	1	0	0	Port 1 (Pgs. 8,9)
(27128	1	1	0	1	Port 2 (Pgs. 10,11)
27C128)	1	1	1	0	Port 3 (Pgs. 12,13)
	1	1	1	1	Port 4 (Pgs. 14,15)
16K	0	0	0	0	Ports 1 and 2
Normal	0	0	0	1	Ports 1 and 2
(27256	0	0	1	0	Ports 3 and 4
27C256)	0	0	1	1	Ports 3 and 4
16K	0	1	0	0	Port 1
BS Mode	0	1	0	1	Port 2
(27256	0	1	1	0	Port 3
27C256)	0	1	1	1	Port 4

CMT-110-32K Configurations

The switches are set as for the CMT-110-16K except that care should be taken so that the ROM address spaces for the two EPROMs do not conflict with each other. Such conflicts will not occur if the switch setting for "B4" is different for each EPROM.

You may plug two properly configured CMT-110-32K into the HP-41 to obtain 64K of memory for bankswitched operation. Since the ROM addresses are selected by "B3" and "B4", you may plug them

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into ports 1 and 2, ports 3 and 4, ports 1 and 4, or ports 2 and 3. Owing to physical limitations, the connectors may not be plugged into ports 1 and 3 or ports 2 and 4.

Remarks

Always set "BS" to "up" position for a 4K or 8K EPROM so that the EPROM will not take up the ROM address space of two ports. Make sure that Bits 10 through 15 of the 2-byte word placed in the EPROM are all zeroed. (See Section 4.)

In the normal (non-bankswitched) mode, a 16K EPROM takes up the ROM address space of either ports 1 and 2 or ports 3 and 4. Therefore, do not plug a port-addressed module into the HP-41 adjacent to a CMT-110 configured to operate on a 16K EPROM in the normal mode. However, RAM modules and hardaddressed devices such as the 82160A HP-IL module, the HP 82182A Time Module, and the HP 82143A Printer may be plugged into the HP-41 next to it.

In the bankswitched mode, a 16K EPROM takes up the ROM address space of only the port selected by B3 and B4. The EPROM has to be properly programmed for the CMT-110 to operate in this mode. (See Section 4.)

If you execute CATALOG to view the contents of your 4K EPROM (with the "16K" switch in the "up" position), the entries will show double. This is normal, and should not be a cause for concern.

When using the CMT-110-32K, each of the ZIF sockets should have a properly programmed EPROM in it for proper operation.

Inserting the EPROM

- 1. Discharge yourself properly.
- 2. Swing the lever of the ZIF socket up.
- 3. Orient your pre-programmed EPROM so its pin 1 is positioned near the number "1" indicated on the printed circuit board.
- 4. Place a properly programmed EPROM into the ZIF socket, and swing the lever down to ensure proper contact.

Now follow the instructions in Section 1 to connect the CMT-110 to the HP-41. After verifying proper operation, replace the top cover of the CMT-110 and fasten with the screws.

PROGRAMMING THE CMT-10

WARNING: The CMT-10 PC Assembly is a CMOS part. Like any other CMOS part, it is staticsensitive, and should be handled only in a static-controlled work area. See first page (*) of this manual for general handling recommendations for CMOS parts.

Testing the CMT-10

If you order a pre-programmed CMT-10, the module will be shipped to you with your programs in it. Otherwise, it will contain a self-test program. To verify proper operation, follow the instructions in Section 1 to insert the module into an HP-41 port. If the module contains your programs, you should be able to run them. Otherwise, execute the self-test program "CMTTST". For the CMT-10-16K, the display will show "16K PT1 OK" if the module is in port 1 or port 2, and "16K PT3 OK" if it is in port 3 or port 4. For the 4K, 8K and 16KB versions, the port number displayed corresponds to port the module is plugged into.

You may want to make a copy of the self-test program for future verification of proper operation.

Erasing the EPROM

To program or reprogram the CMT-10, open the plastic covering. Remove the plastic tape if the case is held together with the tape. If the case has been glued shut, twist a small screw driver in the slots on the sides of the case to break it open. Remove the upper cover, and place the lower cover with the PC assembly in a UV light EPROM erasing unit. Recommended erasing time is 15 to 20 minutes at 12000 uW/cm² (2537 Angstroms).

The CMT-10-F01 Programming Fixture

CMT supplies a jig for adapting the CMT-10 to the EPROM programmer. The CMT-10-F01 has a clamp that holds the CMT-10 PC assembly against 30 pins that probe the board. A connector at the end of a ribbon cable allows you to connect the EPROM on the EPI board to the standard 28-pin ZIF socket used on most EPROM programmers. Make sure that your programmer can handle the EPROM used in the CMT-10^{*} (We use the DATA I/O 21A EPROM Programmer.)

Mounting the EPI Board:

Release the clamp on the programming fixture by lifting the plastic-covered lever until the foot is up. Inspect the fixture to ensure that no dirt or other contamination is present. Also make sure that your hands are free of oil and dirt.

Hold the plastic sides of the connector with the thumb and forefinger of one hand, and remove the lower cover with the other hand. Carefully place the EPI board on the gold-plated contact pins, aligning the edges away from the EPROM chip against the 3 steel dowels. Keep holding the plastic sides of the connector while slowly lowering the clamp over the EPROM chip until the clamp latches. The pins are spring-loaded, and the board will sink under the pressure of the clamp. If the board has been properly placed, the pins will align themselves with the holes on the underside of the board.

Now, remove your hand and plug the 28-pin connector into your EPROM burner (programmer). Note that pin "1" of the connector is the pin closest to the programming fixture at the red edge of the ribbon cable.

^{*} The EPROM used in the CMT-10-4K is a Fujitsu MBM27C64 CMOS EPROM (V_{pp} = 21V). The EPROM used in the CMT-10-8K, 16K and 16KB is a Fujitsu MBM27C256 CMOS EPROM (V_{pp} = 21V). See note on p. 19 regarding CMT-10-8K.

Removing the EPI Board

To remove the EPI board from the programming fixture, gently grip the plastic sides of the connector with the thumb and forefinger. Slowly release the clamp pressure by lifting the plasticcovered lever. Lift the connector-EPI board assembly vertically upward to prevent damage to the pins.

Care of the Fixture

The programming fixture should be inspected periodically to verify that the contact pins are in good working order. The pins may not function properly if too much dirt has accumulated. Use a clean soft brush to brush off dirt from time to time.

The 30 contact pins are not permanently attached to the fixture. Take care not to lose any by mishandling. Replacement pins are available from CMT as accessories.

The clamp should exert a proper amount of pressure on the EPI board such that good contact between the board and the pins is achieved without overstressing the board or the fixture.

The programming fixture is shipped from the factory properly pre-adjusted. Do not turn the nuts on the clamp. With age and use the clamp pressure may require readjustment. In that event, follow the instructions given in Section 5 to ship the fixture back to CMT for re-work at a small service fee.

Care should be taken so as not to break the pins on the 28-pin ribbon-cable connector.

Reassembling

After programming, reassemble the package using new plastic covering and a small amount of super glue. The device is now ready to use.

EPROM PROGRAMMING CONSIDERATIONS

Whether or not you do your own ERPOM programming, it is helpful to obtain some understanding of the concepts underlying the operation of your CMT-110 or CMT-10.

Organization of Code in the EPROM

The normal EPROM data format is 8-bit-parallel. The HP-41 ROM format is 10-bit-serial. The CMT-110 and the CMT-10 circuits are designed to convert one format into the other. When programming the EPROM, place the 10 bits of a given HP-41 word into two 8-bit bytes of the EPROM as follows.

Place the lower 8 bits of the HP-41 word in an even-numbered address of the EPROM, with the least significant bit (LSB) of the HP-41 word matching that (Bit 0) of the EPROM byte.

The upper 2 bits of the HP-41 word are to be placed in the lower 2 bits of the next higher odd-numbered address of the EPROM, with the most significant bit (MSB) of the HP-41 word placed in the second bit (Bit 1) of the EPROM byte.

EPROM HP-41 Word Address • • 0 0 0 BS-BS-BS-MSB - 8 -003 } Word 1 7 - 6 - 5 - 4 - 3 - 2 - 1 - LSB 002 0 BS- BS- BS- MSB - 8 -001 0 0 } Word 0 7 - 6 - 5 - 4 - 3 - 2 - 1 - LSB 000 3 2 7 6 5 4 1 0 EPROM Bits BS= Bankswitching bits; should be zeroed where bankswitching is not intended. (Bankswitching will be explained later in this section.)

ROM Addressing

The HP-41 ROM has 16 pages (sections) of memory, each 4096 (4K) words long. ROM pages 8 - 15 are assigned to the four HP-41 I/O ports.

A port-addressed 8K-word application or custom module is seen by the operating system as residing in the two ROM pages assigned to the port this module is plugged into.

Thus while a CMT-10-8K is inserted in port 1, the HP-41 sees the information in the 8K EPROM as residing in ROM pages 8 and 9. Similarly, an 8K EPROM in a CMT-110-16K configured for port 2 will be seen by the HP-41 as residing in ROM pages 10 and 11.

The EPROM of the CMT-10-16K EPI takes up the ROM address space of two ports. If the module is into either port 1 or port 2, ROM plugged the address space of both of these ports is taken up. The same is true of the other two ports. Therefore, only two of the CMT-10 16K EPI modules may be installed in a HP-41 at the same time (one in port 1 or port 2 and the other in port 3 or port 4.

Similarly, the 16K EPROM in a CMT-110-16K configured to work in the normal mode will take up the ROM address space of either ports 1 and 2 or ports 3 and 4.

If you are also using other application modules, make sure that there is no conflict with ROM addressing. Otherwise, the HP-41 will not respond properly. With most plug-in ROMs, there will be a conflict if they are plugged into an adjacent port with the CMT-10-16K EPI module. Some hard-addressed modules that will not conflict with the CMT-10 or the CMT-110 are: the 82160A HP-IL module, the HP 82182A Time Module, and the HP 82143A Printer. Note that RAM memory (such as the main-memory RAM modules for the HP41C or the extended memory RAM devices) will not conflict with ROM memory.

Bankswitching

In order to make the most out of the limited ROM addresses available for plug-in devices, a technique has been employed to allow different sections (banks) of EPROM memory to share the same ROM address page much like people sharing vacation homes - each would occupy the address page at a different time. This is called "bankswitching".

The 27C256 EPROM may be considered as consisting of four banks of 4K-word memory - Bank 0, Bank 1, Bank 2 and Bank 3. Bankswitching permits the CMT-10 16KB EPI to take up only the address space of the one port that it is plugged into. Thus it is possible to obtain 64K words of memory when four CMT-10 16KB EPI modules are plugged into the four ports of the HP-41.

Similarly, when a CMT-110 is configured to operate in the bankswitched mode, the 16K EPROM in it takes up the address space of one port only.

The bank number of the 27C256 EPROM corresponds to the top two address lines of the EPROM - Al3 and Al4.

Note that the bit patterns given at the beginning of this section contain bankswitching bits (BS). We shall refer to these as Bit 10, Bit 11 and Bit 12. These bits are used to achieve bankswitching, and are interpreted by the CMT-110 and the CMT-10 as follows: Bankswitching mode is selected if Bit 12 is set. Bits 10 and 11 select the bank desired to be switched into a certain ROM address page.

The following techniques have been employed to permit the four banks of memory of the 16K EPROM to exist in the two-page ROM address space of a HP-41 port:

- 1. Bank 0 is always present in the lower 4K ROM address space of the HP-41 port.
- 2. Bank 1 is always available in the upper 4K ROM address space of the HP-41 port after power-on (PWO) is applied. (This happens whenever the HP-41 goes from a non-program mode to an active mode, such as running a program or cataloging.)
- 3. Any bank can be switched into the upper ROM address space using the bankswitching bits. This switching must be done in a program, and is valid until a second bank is selected or until the program stops.
- 4. Where bankswitching is not intended, the bankswitching bits are zeroed. Where bankswitching is intended, Bit 12 is set and Bit and Bit 10 are used to select 11 the bank For example, Bit 12=1, Bit 11 = 1desired. and Bit 10=0 sets Bank 2 into the upper ROM address space. The following table gives all possible combinations of these three bits.

Bit 12	Bit 11	Bit 10	Bank in Upper ROM
0	0	0	x
0	0	1	х
0	1	0	x
0	1	1	x
1	0	0	Bank O
1	0	1	Bank 1
1	1	0	Bank 2
1	1	1	Bank 3

x = Bank 1 if PWO after last bank enabled; else last bank enabled.

Rules for Bankswitched 16K EPROM

The following schemes have been designed to handle user code programs in 16K bankswitched EPROM smoothly.

Case A

Maximum number of ALPHA labels in the EPROM: 64

- 1. Place the entire Function Address Table (FAT) in Bank 0.
- 2. Note the location of the user code functions. For each function in Banks 1, 2, and 3, set the bank-select bits in the first instruction word of its FAT pointer so that when that function is called, it will be switched into the upper ROM address page of the active port.
- 3. The size of the FAT is specified in Bank 0. The size of the FAT is specified as 0 in Banks 1, 2 and 3.
- Specify the same XROM number in all four banks.
- 5. Subroutine Usage:
 - a) Local subroutines should be in the bank of the calling routine.
 - b) Global subroutines should be in Bank O.
- 6. Subroutine Calls: All subroutine calls should be in the form of XROM calls. The subroutines (including those residing in another CMT-10 or plug-in ROM) may not be executed as ALPHA labels.

Case B

Maximum number of ALPHA labels in the EPROM: 128

The rules are the same as above except:

1. Place the ALPHA labels into two Function Address Tables. Place one FAT in Bank 0 and replicate the second FAT in Banks 1, 2, and 3. Use two XROM numbers. Specify one XROM number for Bank 0 and use the other for each of Banks 1, 2 and 3.

Compatibility with HP's 12K ROM

The following information is useful if you are using the CMT-110 to develop software for the HP-41 12K ROM, or if you wish to convert programs developed for the HP-41 12K ROM into a format compatible with the CMT-110 or the CMT-10.

With a port-addressed HP-41 12K ROM, Bank 0 is always present and Bank 1 is present at power-up. Bank 2 is swapped with Bank 1 by means of ENBNK1 and ENBNK2 instructions. Stopping a program will not switch Bank 1 back into the upper port ROM address.

Bank-select bits may be added to the instructions ENBNK1 (010000000) and ENBNK2 (0110000000) to achieve bankswitching in the CMT-110 or the CMT-10-16KB. These instructions now become:

ENBNK1 101010000000 (left-most bit is most significant bit) ENBNK2 1100110000000

HP imposes the following software requirements on the HP-41 12K ROM:

- 1. Precede ENBNK1 and ENBNK2 with GTO \$+1.
- The data at FFD (HEX) within any bank must contain a "1" in at least one of the upper two bits if and only if that bank is bankselecting.
- 3. If a bank is bank-selecting, it must contain the following instructions at the corresponding addresses:

FC7 ENBNK1 FC8 RTN FC9 ENBNK2 FCA RTN

MAINTENANCE INFORMATION

Initial Inspection

When you first receive the device, examine the package for signs of damage. Check to see that the device is in good mechanical condition.

If there is any mechanical damage, notify the dealer. If the shipping container is damaged, notify the carrier as well as the dealer.

Care of the Unit

- * Always turn off the calculator before connecting or disconnecting the CMT-110 or CMT-10.
- * Keep the electrical contacts of the module clean. When necessary, carefully brush or blow the dirt out of the contact area. Do not use any liquid for cleaning the contacts.
- * Observe the recommendations given on the first page (*) of this manual for handling CMOS parts.
- * Store the module in a clean, dry place.
- * Observe the temperature specifications:

Operating: 0 to 45 deg. C (32 to 113 deg. F) Storage: -20 to 55 deg. C (-4 to 131 deg. F)

Resetting the HP-41

In case of a disruption of calculator operation, you can usually recover from it by resetting the HP-41. To do so, follow the instructions given on p. 242 of the HP-41C/41CV Owner's Handbook and Programming Guide, or p. 385 of the HP-41CX Owner's Manual. Sometimes a MEMORY LOST condition results from the disruption or from an attempt to reset the HP-41. Therefore, all causes of disruption should be avoided. Specifically, do not connect the CMT-110 or the CMT-10 to the HP-41 unless the EPROM has been properly programmed. Also, remember to turn off the HP-41 before inserting or removing plug-in modules.

Warranty Information

WARRANTY

This CMT product is warranted against defects in material and workmanship for a period of 90 days from the date of shipment. During this period, Corvallis Microtechnology, Inc. will, at its option, either repair or replace products which prove to be defective.

Buyer shall prepay shipping charges to return the product to CMT for warranty service, repair or replacement. Buyer shall pay all shipping charges, duties, and taxes for products returned to CMT from any country outside the U.S.A.

CMT does not warrant that the operation of this device and any firmware or software installed on it will be error-free.

LIMITATION OF WARRANTY

The foregoing warranty shall not apply to defects or malfunctioning resulting from improper or inadequate handling or maintenance by buyer, buyersupplied interfacing, unauthorized modification or misuse, or operation outside the environmental specifications for the product.

No other warranty is expressed or implied. Corvallis Microtechnology specifically disclaims the implied warranties of fitness for a particular purpose.

Service and Shipping Information

Should your unit require service, notify the Service Department of CMT.

Do not ship any product back to CMT without first contacting us about your problem. We do not accept any unauthorized returns.

After obtaining a return authorization number, ship your CMT-110 or CMT-10 in a protective package to avoid damage. (Use the original shipping container and cushioning material.) Intransit damage is not covered by the warranty.

When returning the unit for service, repair or replacement, be sure to include your name and address as well as a description of the problem.

For warranty service or repair, return the sales receipt with the unit.

Note on Programming the CMT-10-8K:

The PC board of the CMT-10-8K has been designed so that the signal PGRM is Al4 on the 27C256. During normal operation, PGRM is held at a logic high level, ie. Al4 will always be at a logic high level. This requires that the programs to be burned into the 27C256 EPROM be loaded with Al4 high, or into address space [4000-7FFF HEX]. Make sure that the EPROM programmer is set to program the Fujitsu MBM27C256 EPROM.

NOTICE

Corvallis Microtechnology, Inc. assumes no liability resulting from any errors or omissions in these instructions, from the use of the informaton obtained herein, or from the use of the CMT-10 EPROM Plug-In Modules or the CMT-110 Custom ROM Development Tool.

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