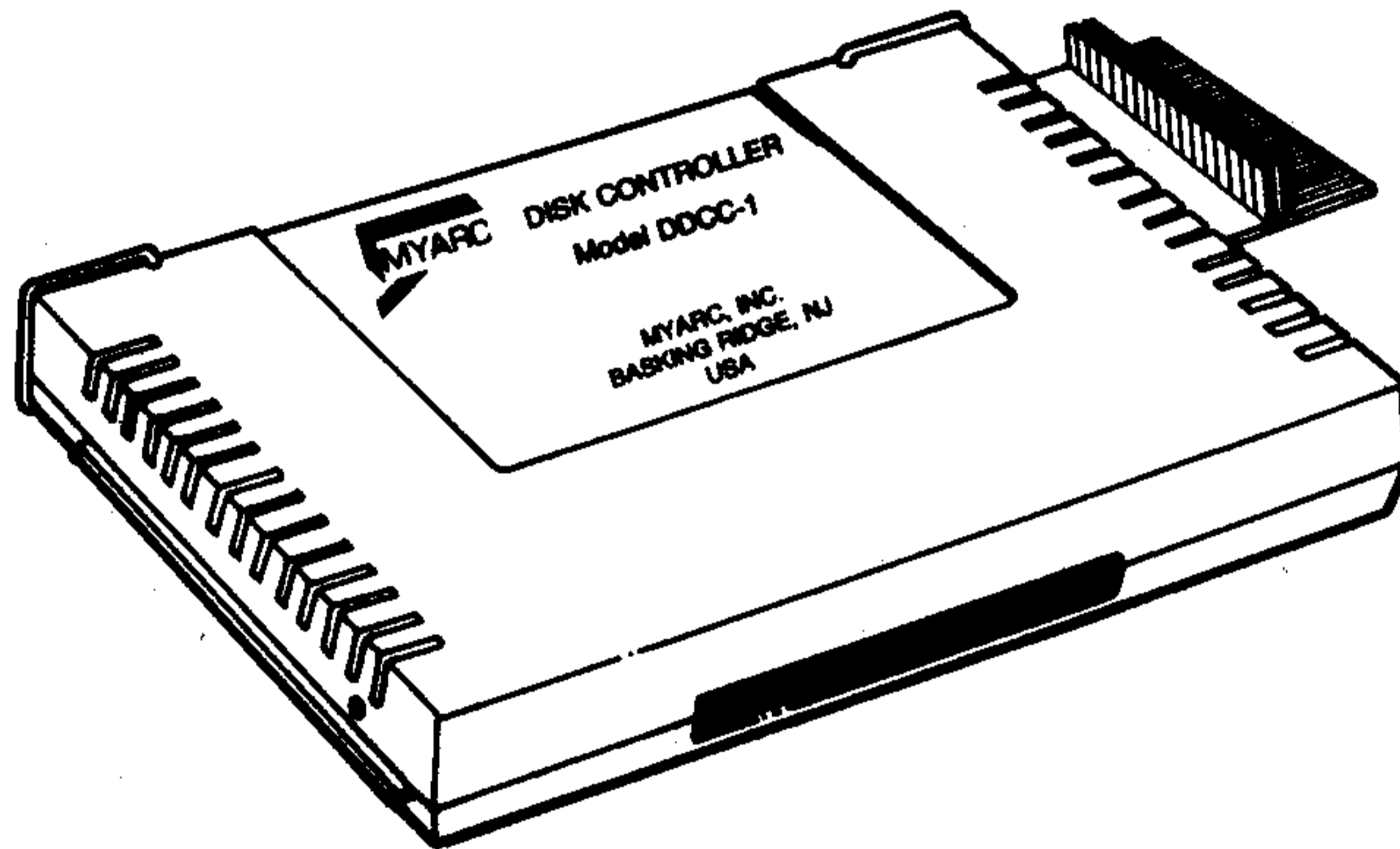# MYARC
T.M.

Disk Memory System
Model No. DDCC-1

These are the pages that differ from those of the TI floppy card manual

This package includes the MYARC Disk Drive Controller Card and the Disk Manager *Solid State Software* ™ Command Module. With the Disk Drive Controller Card, up to four Disk Memory Drives (sold separately) can be attached to your computer.

SCOPE OF THIS MANUAL

This manual describes the installation and operation of MYARC's Model DDCC-1 Disk Controller Card for use with TI's PHP 1200 Peripheral Expansion System.

Major portions of this manual, i.e., those sections dealing with technical descriptions of the TI 99/4A Home Computer System functions, their operation, and detailed instructions for system operation by the user, have been reproduced directly from TI's PHP 1240 Disk Memory System Manual.

Only minor changes relating to the improvements and technical advancements of the MYARC Disk Controller System have been made in the reproduced text.

WE RECOMMEND THAT FIRST-TIME USERS READ THE ENTIRE MANUAL BEFORE PROCEEDING WITH INSTALLATION AND OPERATION.

INTRODUCTION

The MYARC Disk Drive Controller (Card) Model No. DDCC-1 is a further improvement and a technical advancement over the TEXAS INSTRUMENT Disk Controller (Card) Model No. PHP 1240.

MYARC's DDCC-1 disk controller can read and write *both* single-density (SD) *and* double-density (DD) formatting. The PHP1240 can only handle single-density formatting.

MYARC's disk controller system is totally compatible with TI's single-density formatting so that you can both read existing, and write new, floppies in TI single-density format as well as in double-density format.

MYARC's Disk Memory System consists of the following:

FLOPPY DISK DRIVE CONTROLLER — The disk drive controller, which can control up to four disk drives*, instructs the disk drive(s) where to position the magnetic heads in order to read or write information properly. The controller also puts an index on the diskette, making the data that has been written easy to locate. The DDCC-1 controller system has total flexibility to control double-density (DD) or single-density (SD) and double-sided (DS) or single-sided (SS) disk drives.

Notes: 1. The DDCC-1 disk controller will control any combination of 4 double-sided or 4 single-sided disk drives. This disk controller also reads and writes interchangeably — and equally well — to the standard TI 99/4A format, single-density diskette.

2. If a floppy diskette has been formatted for *DOUBLE-SIDED* operation (single- or double-density), it *CANNOT* be processed on a *SINGLE-SIDED* disk drive. However, formatted, single-sided diskettes can be processed on a double-sided disk drive.

3. A floppy diskette formatted in double-density cannot be read in a single-density drive. Any information "read" will be unreliable.

*Purchased Separately

DISK MANAGER COMMAND MODULE — The Disk Manager "Solid State Software" Command Module*, packed with your DDCC-1, helps you maintain the information on your diskettes. Initializing, naming and renaming files, deleting files, copying files and copying diskettes all can be easily performed with the Disk Manager module plugged into the 99/4A console.

Because all control software (firmware) needed for the disk system is in permanent ROM in both the Disk Manager Module and the disk drive controller, the disk memory system uses only a relatively small amount of working space in the computer's available memory (RAM). The Disk Manager Module provides many advanced functions. For instance, in copying a diskette, it rearranges the files on the diskette alphabetically. Also you have the choice of copying selected files instead of an entire diskette. These and many other unique features are described in this manual.

This new disk based management system is an incredible upgrade from the Texas Instruments original equipment disk manager. Some of the many features include single stroke file handling, screen control of colors, Editor Assembler load and run screen, complete control of formatting in three modes, including TI standard double density,(320K) TI standard single density, and NON STANDARD (360K), plus many more. We know you will agree that the MYARC disk controller and disk management system are the highest quality and most versatile disk control peripherals offered in the industry.

PLEASE READ THIS ENTIRE MANUAL BEFORE USING THE DISK MANAGER PACKAGE!!! With the powerful commands available, the user could lose valuable data if not familiar with the operation of this software package,

*The TI Disk Manager "Solid State Software" Command Module II is designed to provide these utilities for up to three (3) disk drives only. If you are using a fourth drive, the DDCC-1 provides disk control and operation of drive #4 when using most other compatible software.

DISKETTE INFORMATION

Your DDCC-1 disk system requires 5¼ inch, single-sided (double-sided if you have the DS option), double-density, soft-sectored diskettes. These diskettes are constructed of a highly flexible plastic film, coated with a thin layer of iron oxide which can be magnetized in very small areas without affecting surrounding areas. The computer interprets these areas of magnetization as coded information.

Note: A diskette comes in a protective jacket inside a storage envelope. For best results, keep the diskette in the storage envelope except while using. Never remove the diskette from its protective jacket.

A single-sided, double-density diskette is divided into tracks which are 40 concentric circles. The tracks are numbered from 0 to 39, starting at the outside track. Each track, in turn, is divided into 16 sectors. Thus, there are 640 sectors, each of which can contain up to 256 bytes of information, or 2048 bits. The sectors are numbered 0 through 639, starting with sector 0 of the first track and going to sector 639 on the last track. Each sector has additional space used only by the controller to verify sector identification and data accuracy.

A double-sided, double-density diskette has 80 tracks. The tracks are numbered 0 to 39 on one side, starting with the outer track, and 40 to 79 on the other side, starting with the inner track. Each track is divided into 16 sectors giving a double-sided diskette 1280 sectors. Each sector can contain up to 256 bytes of information, or 2048 bits. The sectors are numbered 0 to 1279, starting with sector 0 on the first track of the lower side, and sector 639 on the last track of the lower side. Sector 640 is on the last track of the upper side and sector 1279 is on the first track of the upper side. Each sector has additional space used only by the controller to verify sector identification and data accuracy.

The disk controller uses sectors 0 and 1 of the first track to form an index of file locations. If those sectors become damaged and unreadable, the computer cannot locate any files on the diskette, and the contents of the entire diskette will be unusable.

To use your disk drive system, insert the proper diskette, and use TI BASIC or a Command Module designed to operate with the disk system. The work of keeping track of your files and reading from, or writing on, the proper place on the disk is taken care of by the system.

Diskettes can be named for reference purposes. The name of a diskette can be up to 10 characters long and may use any characters except the period and the space character. Valid names for diskettes include:

DISK21	MYDISK	MY_DISK	PRK_DATA
TIRK_DATA	GEORGE	BACK_UP	BU03/24/80

The following are not valid diskette names.

3.1416	MY DISK	THISNAMEISTOOLONG

APPENDIX D: Adjusting Disk Drive Track-to-Track Access Time

TI's PDP 1250 Disk Drive, as with many other available drives, has a standard track-to-track access time equal to 20 milliseconds(ms). Drives are now becoming available with much shorter access time equal to 6 ms.

Your DDCC-1 is designed with an added feature which permits the disk controller to process information at the new, higher 6 ms speed for any, or all drives that can operate at 6 ms. Check your disk drive manual. If you have one or more drives with an access speed equal to or less than 6 ms, you can adjust disk controller processing to obtain the faster access time for each such drive.

The access speed adjustment is made by setting the correct dip switch for each of your up-to-4 drives. All 4 switches were preset at the factory in CLOSED position for 20 ms.

To make the adjustment proceed as follows:

1. Shut off all power and remove the DDCC-1 Controller Card after detaching all cables from the Card. Place the Card on a flat surface, screw side up.
2. Remove the 4 screws. CAREFULLY turn the Card completely over and place back on table. Now lift off the top cover to expose the PC board.
3. Locate the dip-switch assembly. Note that the switches are numbered 1 to 4. These numbers correspond to drives #1-4. At this point all switches should be in the CLOSED position corresponding to 20 ms access time operation.
4. For each drive with specified access time of *6 ms or less, press* or slide the corresponding switch to the OPEN position.
5. Replace the top cover and then, holding both top and bottom covers, CAREFULLY turn over the Card and replace the 4 screws.
6. Follow Set-Up instructions to reinstall the Card and place the system back into operation.

CAUTION

1. We recommend that you *not* make this access time adjustment until *after* your system has been up and running.

2. Do *not* attempt to set a 6 ms access time unless your drive is designed to operate at 6 ms or less *and* the manufacturer has so specified.