

PRODUCT DATA SHEET

INTRODUCTION

The Model 2270A IBM 3740 Compatible Diskette Drive, in conjunction with the Wang 3740 Diskette Compatibility Software, allows any Wang system with a 2200VP, 2200MVP, or 2200LVP Central Processing Unit (CPU) to access IBM 3740-type diskettes for data retrieval and storage. Moreover, the drive supports all the disk operations in Wang BASIC and BASIC-2 instruction sets.

THE DISKETTES

A diskette is a thin, flexible platter, 7.5 inches (19 centimeters) in diameter, about the size of a 45 rpm phonograph record, enclosed in an 8- by 8-inch (20- by 20-centimeter) semi-rigid protective plastic jacket. The diskette turns freely within the jacket, and is coated on one side with magnetic material arranged in concentric circular tracks. When formatted (initialized), the tracks are divided into sectors with unique, randomly accessible addresses, thereby providing a rapid, direct access method for data storage and retrieval.

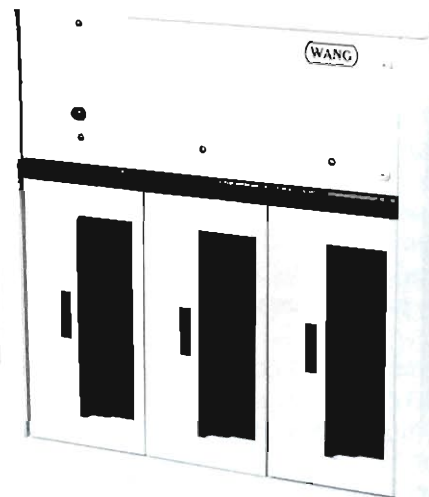
The standard diskette for the 2270A Diskette Drive is the Wang Single-Sided, Single Density (SSSD) hard-sectored diskette (white label, Part Number 170-0063-1). The 2270A drive also supports the IBM 3740 Compatible Single-Sided, Single Density (SSSD) soft-sectored diskette (green label, Part Number 177-0074-1).

Although the 3740-type diskettes (used in the key-to-diskette IBM 3741 Data Stations or 3742 Dual Data Stations) resemble the standard diskettes used in 2270A systems, significant differences in the 3740 and Wang 2270A

2200

MODEL 2270A IBM 3740 COMPATIBLE DISKETTE DRIVE

- Compatible with IBM 3740 Diskettes
- Over 300,000 Bytes per Diskette
- Supports Wang 3740 Diskette Compatibility Software
- Available as a Single, Dual, or Triple Drive Unit



WANG

Wang Laboratories, Inc.

One Industrial Avenue, Lowell, MA 01851, Tel. (617) 459-5000, TWX 710-343-6769, Telex 94-7421

diskette formats preclude exchange of diskette files between Wang and IBM systems. The number of sectors per track and the number of bytes per sector differ; also, the catalog index layouts, the timing mark conventions, and the sector addressing notations differ.

Wang hard-sector diskettes have 33 index holes around the central mounting hole, while 3740 soft-sector diskettes have only 1 hole. Nevertheless, with a 2270A Diskette Drive and Wang 3740 Diskette Compatibility Software, 3740 diskette files can be read into a Wang system for subsequent processing.

Additionally, data processed in a Wang system can be stored on 3740 diskettes and used as input to any system equipped to read 3740 diskettes. (Wang hard-sector diskettes can be formatted, when necessary, by the Model 2270A Diskette Drive; 3740 soft-sector diskettes must be formatted when purchased for use in a Wang system.)

3740 COMPATIBILITY SOFTWARE

The 3740 Compatibility Software, available as an option from Wang, provides utility programs for such operations as the following.

- Displaying a 3740 diskette catalog to provide the names of stored files and the addresses of each file's reserved and used sectors
- Displaying 3740 sector dumps for the sectors in a specified address range
- Performing media conversion of Wang TC formatted disk/diskette files (maximum record length 128 bytes) to 3740 diskette files, or vice versa
- Producing hard copy output of specified 3740 diskette files or Wang diskette files previously converted from 3740 diskettes

The software also provides utility subroutines that can be integrated with user-written BASIC language application programs where 3740

diskettes are to be accessed directly for file creation or maintenance. The subroutines handle such operations as opening a new or existing file; reading, rereading, or writing a sector; skipping or backspacing a specified number of sectors; writing or updating an end-of-data pointer position; and closing a file.

STORAGE CAPACITY

The 77 tracks on 3740 diskettes are divided into 26 sectors each, with 128 bytes per sector, thereby providing a storage area for 256,256 bytes of information. However, since one track is reserved for catalog index information, and two tracks are usually reserved as replacements for defective tracks, the maximum space used for 3740 data file storage is 246,272 bytes.

The 77 tracks on Wang hard-sector diskettes are divided into 16 sectors each, with 256 bytes per sector, thereby providing a storage area for 315,392 bytes of information. The reserved catalog index space, user-selectable during diskette initialization, can be any number of sectors from 1 to 255. For media conversion from a 3740 to a Wang diskette, only two sectors need be reserved for the catalog index, leaving 314,880 available bytes for storage.

Since the 2270A IBM 3740 Compatible Diskette Drive is available as a single, dual, or triple drive unit, the on-line storage capacity, *using Wang SSSD hard-sectored diskettes*, is as follows.

Model	Description	On-Line Storage
2270A-1	Single Drive	315,392 bytes
2270A-2	Dual Drive	630,784 bytes
2270A-3	Triple Drive	946,176 bytes

The off-line storage capacity is limited only by the number of diskettes acquired for the system.

Storage capacity, however, is not the only criterion to consider when choosing a Model 2270A-1, -2, or -3 Diskette Drive. Unless other disk/diskette drives are available in a Wang system, the Model 2270A must contain a dual or triple drive unit for applications involving 3740 diskettes. A single drive unit is needed for

mounting a 3740 diskette to be used for data storage or retrieval. A second drive unit within the Model 2270A is needed for mounting a platter containing Wang 3740 Diskette Compatibility Software, or a user-written application program.

SPEED AND RELIABILITY

Information can be read from or written to diskettes at high speed. Access times for Wang and 3740 diskettes are approximately the same and consist of two components: the track access time and the disk latency time.

The track access time is the time required to position the read/write head to a specific track on a platter. The disk latency time is the time required for the desired sector on a track to rotate to the read/write head. The staggered (interlaced) arrangement of sequentially numbered sectors on Wang diskettes is transparent to user software and during multi-sector read/write operations. (Average times are included in the specifications.)

Although the diskette unit is an extremely reliable device, both Cyclic Redundancy Checks (CRC) and Longitudinal Redundancy Checks (LRC) are performed to check the communication interface and the media. Any error which is not corrected by retry is signalled to the program. An additional read-after-write verification test can be specified optionally by a programmer through a parameter in the appropriate BASIC statement.

FILE MAINTENANCE

Files can be maintained on Wang hard-sector diskettes in one or both of two modes: Automatic File Cataloging mode and Absolute Sector Addressing mode.

With the Automatic File Cataloging mode statements, a user can save or retrieve program and data files by name, without concern for where or how the files are actually stored on a disk or diskette. The system automatically keeps track of the size and location of each file.

With the Absolute Sector Addressing mode statements, a programmer can address sectors on a disk or diskette directly and design a customized file access method, if desired.

To maintain files on 3740 diskettes, Wang Laboratories, Inc., recommends using the utility subroutines in the 3740 Diskette Compatibility Software provided with each Model 2270A Diskette Drive. A user-written application program can be stored on a platter containing the Wang software, or the subroutines alone can be loaded into memory and saved on a platter containing the user's program. User programming of routines to directly access 3740 diskettes is not supported.

OTHER FEATURES

To mount a Wang or 3740 diskette in a drive, one merely slips the diskette into the drive slot and closes the door. When the diskette must be removed, pressing the release button activates the spring-loaded mechanism that automatically opens the door and partially ejects the diskette to facilitate removal.

The easy mounting and storage features of diskettes, plus their low cost, make diskettes an ideal medium for storing multiple files, or large multi-volume files, if there is no requirement to have an entire data base on-line at all times.

Valuable data stored on a Wang diskette can be protected against accidental overwriting with the write-protect feature. A hole, indicated by an arrow on the diskette label, prevents writing when uncovered, and allows writing when covered by a tab.

The 2270A Diskette Drive has built-in mixed media detection procedures. Since 3740 sector addresses (when converted to Wang notation) are larger than Wang addresses and the number of index holes on the diskettes differ, an error is signalled if the address for a read or write operation is not appropriate for a currently mounted diskette. Corrective action can then be taken.

DISK UTILITIES

Wang Laboratories, Inc., supports its complete line of disk drives with a variety of disk utility programs. Information regarding available programs is provided upon request.

MODEL 2270A SPECIFICATIONS

Size

Height	19.0 in. (48.3 cm)
Width	17.5 in. (44.5 cm)
Depth	16.3 in. (41.4 cm)

Weight

68 lb (30.6 kg)

CPU Requirements

2200VP, 2200MVP, or 2200LVP

Power Requirements

115 or 230 VAC \pm 10%
50 or 60 Hz \pm 1 Hz
225 watts

Fuse

4 amps @ 115 V/60 Hz
4 amps @ 230 V/50 Hz

Operating Environment

Temperature
60° F to 90° F (16° C to 32° C)
Relative Humidity
35% to 65% noncondensing (recommended)
20% to 80% noncondensing (allowed)

Cabling

12-ft (3.7-m) cable to the CPU
8-ft (2.4-m) cord to power source

On-Line Storage Capacity (Wang Diskettes)

Model 2270-1	315,392 bytes
Model 2270-2	630,784 bytes
Model 2270-3	946,176 bytes

Access Time (Position Head to Track)

Minimum (one track)	14 msec
Average (across one-half available tracks)	363 msec
Maximum (across all available tracks)	726 msec

Latency Time (Platter Rotation to Sector on Track)

Average (one sector read/write, one-half revolution) 84 msec

Speed

360 rpm

Data Transfer Rate

31,000 bytes/sec

Read/Write Time

One 256-byte sector (including CPU/Controller overhead) 21.8 msec

MOVE/COPY Time (Entire Platter)

2 min (approximately)

ORDERING SPECIFICATIONS

A diskette drive compatible with 2200 systems having a 2200VP, 2200MVP, or 2200LVP Central Processing Unit (CPU), and capable, via 3740 Diskette Compatibility Software, of accessing 3740-type diskettes for data retrieval and storage. The drive must support all BASIC or BASIC-2 disk operations and be available as a single, dual, or triple diskette drive, providing an on-line storage capacity of 315,392 bytes, 630,784 bytes, or 946,176 bytes using hard-sector diskettes. If used in a system having no other disk drives, a dual or triple drive unit is required for applications involving 3740 diskettes.

Standard Warranty Applies

Wang Laboratories reserves the right to change specifications without prior notice.

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Wang Laboratories, Inc.

One Industrial Avenue, Lowell, MA 01851, Tel. (617) 459-5000, TWX 710-343-6769, Telex 94-7421

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