Finder: Part of the IIGS System Software. Allows the manipulation of disks and files using a visual user interface based on windows, icons, menus, and a moving pointer.

Folder: A subdirectory. The GS/OS Finder displays subdirectory files as folder icons, which is a good conceptual representation of what they do and how they work.

Format: As a verb, to prepare a new disk or drive to receive files, or to erase an old disk or drive to allow it to receive new files. As a noun, refers to the type of operating system which will access the disk; for example, you might say that a disk is formatted "in ProDOS format". See also *Low-Level Format* and *High-Level Format*.

Fragmentation: A condition which gradually becomes worse as you use your hard drive. As you add and delete files, your files will end up spread all over the hard drive, significantly degrading performance. Fortunately, *Optimizer* utilities are available.

GS/OS: The Apple IIGS Operating System, specifically designed to take advantage of, and provide user access to, the advanced features of the Apple IIGS. GS/OS manages access to disks and other devices, and is closely knit with the IIGS Toolbox.

Hard Format: See *Low-Level Format*.

Hardware: The physical aspects of your computer system; the stuff that sits on your desk and costs a lot of money.

Head: See *Read/Write Head*. Also, the object atop your neck.

Hexadecimal: A number system in which there are sixteen digits (0-9 and A-F) instead of the normal ten. Because of certain aspects of the way computers work, it makes sense to think of many computer-related numbers in hex instead of decimal, but it's such a strange concept that usually only programmers think in hex. (For example, a kilobyte (a very un-round 1024 in decimal) is a nice, even 400 in hex. Hex numbers are often preceded by a dollar sign , and they can contain letters as digits. $F00D and $BEEF are both valid hex numbers.

High-Level Format: A format procedure which rewrites only the directory blocks on a disk or drive. This will allow the operating system to re-use the blocks which were previously used. However, because only a few blocks are rewritten, a high-level format (also known as a *Soft Format*) is much faster than a low-level format. Use a high-level format when you want to quickly erase all the files on a disk. The IIGS Finder's Erase Disk and *Copy II Plus*'s Delete Disk are high-level formats.

I/O: Input/Output. E.g., an I/O Error refers to an error in reading (input) or writing (output) a block on a hard drive. For some reason most computers say "I/O Error" instead of "I can't access the disk."

Interleave: A term describing how the blocks are arranged on a track. If a hard drive's interleave is 1:1, it means that blocks are numbered

consecutively on each track. Right after block 1 you'll find block 2; after that, block 3, and so on. But every time a block is read, the computer needs a little time to process the data it has just read. In the time it takes to do this, the next block may have already passed by the read/write head. When this happens, the computer has to wait nearly an entire revolution of the platter for the desired block to come around again. This situation is known as "blowing a rev", and indicates that a larger interleave is needed. Larger interleaves give the computer more time to process the data by staggering the block order. For example, with a 2:1 interleave, the blocks might be arranged in the order 1, 15, 2, 16, 3, 17, and so on. While block 1 is being processed, block 15 will pass by, and when the computer is ready to read block 2, it will be able to do so without delay. Another way to think of a 2:1 interleave is to say that the computer reads half the blocks on a track in one revolution, then the rest on the next revolution, taking two revolutions of the platter to read an entire track of data. An interleave that's too small can result in poor performance due to "blowing revs"; an interleave that's too large can result in computer time being wasted by extra delay between blocks. The optimum interleave for a drive varies, depending on the type of drive, interface, and computer. The Q Drive, thanks to its Track Cache, always uses a 1:1 interleave, for the best performance possible on all systems.

Kilobyte: 1024 bytes, equivalent to two ProDOS blocks. One kilobyte of text is approximately equal to half a page. Computer memory, file sizes, and disk drive capacity are often expressed in kilobytes, abbreviated *K*.

Jerry Kindall: The original party animal.

Low-Level Format: A format procedure which completely rewrites every block on a disk or drive, in order to lay down the "markers" which allow the drive to find each block. A low-level format, also called a hard format, will completely erase a hard drive, and may take several minutes. Contrast with *High-Level Format*.

Mechanism: The part of a hard drive that actually stores the data, consisting of a circuit board, the platters and read/write heads, various motors, and other parts. The mechanism is hermetically sealed in a metal case to protect it from dirt and dust.

Megabyte: Roughly one million bytes, or a thousand kilobytes. Abbreviated "meg" or M. (The actual numbers are 1024 kilobytes—a K of K—or 1,048,576 bytes.) Hard drive sizes are usually measured in megabytes. Some manufacturers use the "one million" definition of megabyte, leading to "42 megabyte" drives which are actually only 40 megabytes (41,943,040 bytes) in size. The Q Drive 40 is 40 megabytes using the true 1,048,576 bytes per megabyte definition.

Operating System: A program which controls the operation of the computer system. On a IIGS, the primary operating system is GS/OS, with help from the IIGS Toolbox. On a IIe, the main operating system is ProDOS 8, with help from a set of built-in routines called the Monitor. Other operating systems for the Apple II include DOS 3.3, Pascal, and CP/M, though these are rarely used today. (Other operating systems include MS-DOS for IBMs and System 7 for the Mac.)

Optimizer: A program which rearranges the files on a hard drive for most efficient access. Most hard drive managers include an optimizer.

Partial Pathname: A pathname which does not begin with a volume name. ProDOS adds the prefix to the partial pathname to get the full pathname of the file. See also *Complete Pathname*.

Partition: Since ProDOS and GS/OS only support drives 32 megabytes in size, larger hard drives must be divided into smaller partitions. The operating system sees each partition as a separate volume, even though there's only one box sitting on the desk. "Partition" can also be used as a verb meaning to divide a large drive into smaller volumes, often called "logical drives".

Pathname: The series of directories ProDOS must look in to find a specified file. For example, if a file named MYFILE was inside a subdirectory called AWFILES on the hard drive called /Q1, the pathname of MYFILE would be /Q1/AWFILES/MYFILE.

Platter: The magnetic disc-like surface inside the hard drive where data are stored.

Prefix: The "default directory" which is added to a partial pathname. For example, if the prefix was /Q1/AWFILES, then any pathnames which didn't start with a slash are assumed to start with /Q1/AWFILES (e.g., MYFILE is assumed to be /Q1/AWFILES/MYFILE).

ProDOS 8: The standard operating system for 8-bit Apple IIs (Apple IIe, IIc, and IIGS when running 8-bit software). ProDOS 8 manages disk access and interrupts (and, to a limited extent, memory) for 8-bit programs.

ProDOS 16: The predecessor of GS/OS, ProDOS 16 was essentially ProDOS 8 with a 16-bit "front end". GS/OS is a full 16-bit operating system and should be used in place of ProDOS 16 when possible. (Some old programs don't follow the rules and won't run under GS/OS.)

Q Drive: An inexpensive high performance hard drive specifically designed by Quality Computers for use with Apple computers. But you already know that, because you bought one.

Quality Computers: 1-800-777-3642. What do you mean, this isn't the Yellow Pages?

RamFAST/SCSI: CV Technology's SCSI hard drive interface card which uses advanced technology to provide better performance than Apple's High Speed SCSI Card.

Read/Write Head: The part of a disk drive or hard drive mechanism that senses and imprints data on the floppy disk or platter. In principle, its operation is similar to that of the record and playback head in a tape recorder, except that it operates on a rotating disk or platter instead of a continuous stream of tape.

SCSI ("scuzzy", rhymes with "fuzzy"): An abbreviation for "Small Computer Systems Interface", an industry-wide standard for connecting hard disks (and other devices, such as CD-ROM drives, tape drives, scanners, and printers) to computers. Theoretically, any SCSI hard disk can be used with any computer for which a SCSI interface is available, from the Apple II to the Macintosh to the IBM. In practice, sometimes things get a little more complicated, but for the most part, SCSI devices are interchangeable among computer systems.

Software: The intangible aspects of your computer system. The programs you run that make the computer do useful (and sometimes not-so-useful) things.

Startup: See *boot*. Apple has officially switched over to the term "starting up the computer", but old-timers still call it "booting". And so does nearly everyone else, actually.

Stepper Motor: A mechanism for moving a hard drive's read/write head. Similar to a regular motor except that it moves one "step" for each pulse of electricity it receives. To move the stepper motor a long distance, repeated pulses are needed. Contrast with *Voice Coil*.

Subdirectory: A file which contains other files. Also known as a *folder*.

S16: The filetype of a ProDOS 16 or GS/OS application. These programs can only be run from the Finder or another GS/OS program launcher. They can't be run on an 8-bit computer.

SYS: The filetype of a ProDOS 8 application. These are programs that you can run from the Mini-Selector or by opening them in the Finder. SYS is short for System, but most SYS files are not System Software.

System Software: The software provided with the computer that forms the foundation which all other software works with. Includes ProDOS 8, GS/OS, the Finder, and other programs provided with your computer including the System Utilities, the Installer, and the Advanced Disk Utilities. Contrast with *Application Software*.

Termination: An electrical requirement of the SCSI standard. Each end of a SCSI "chain" must be electrically terminated by resistors. The Apple II High Speed SCSI card and the RamFAST/SCSI both contain a terminator. The last (or only) drive in your SCSI chain must also be terminated. The Q Drive has an external terminator pack which can be added or removed as necessary to put it anywhere in the chain.

Toolbox: The IIGS Toolbox is a set of programs built into the Apple IIGS that handles memory management, user interface, and other common tasks to allow programmers to easily create programs that look and behave similarly. The Macintosh includes a similar toolbox.

Track: A series of invisible concentric circles into which a disk or hard drive platter is divided. The read/write head is moved horizontally to access a particular track on the disk or platter.

Track Buffer: A small amount of memory built into a hard drive mechanism which holds a track's worth of blocks. When the computer requests the first block on a particular track, the drive reads the entire track into the track buffer. When the computer reads subsequent blocks on the same track, the drive can retrieve them from the track buffer, reducing delays caused by waiting for the desired block to pass under the read/write head. The Q Drive includes a track buffer.

Tree Display: A method of graphically displaying a volume's directories so that their relationship is immediately obvious. Actually, it only looks like a tree if you turn it sideways, and then it's all lopsided, but it resembles a tree more than it does anything else.

Voice Coil: A mechanism for positioning a hard drive's read/write head. An electromagnet (a coil of wire similar to that found in a loudspeaker, hence the name "voice coil") is used to move the read/write head horizontally to access a particular track. The Q Drive's mechanism uses a voice coil for speed, accuracy, reliability, and virtual silence. Contrast with *Stepper Motor*.

Volume: A disk (or a hard drive or a RAM disk).

Volume Directory: A volume's main directory. Volume directories can hold only 51 files, but some of the files can be subdirectories, providing a useful loophole.

Volume Name: A unique name assigned to each disk (or hard drive partition). You can't have two volumes with the same name in drives at the same time.

WIMP: Apple's Windows/Icons/Menus/Pointer user interface is often known by its acronym, WIMP. No kidding.

Q DRIVE LIMITED WARRANTY
1 YEAR PARTS AND LABOR

Quality Computers warrants the Q Drive to be free from defects in material and workmanship and to perform in accordance with published specifications for a period of 1 year from the date of our invoice to the Customer.

During the warranty period, Quality Computers, at its option, will repair or replace products that prove to be defective, at no charge, provided that the return procedures (next page) are followed. The Customer pays shipping to Quality Computers. Quality Computers pays return shipping via a comparable method. Gold Star Service (which includes pickup and shipping to Quality Computers via the next-day parcel service of our choice, 24-hour repair or replacement if stock allows, and next-day shipping back to the customer), is available for in-warranty returns from within the continental United States only, for a per-return fee of $50, at the discretion of Quality Computers Technical Support.

This warranty does not cover accidental damage, acts of God, misuse, misapplication, improper installation, connection to interface cards other than those specified or chaining to non-SCSI drives, or damage resulting from modification or service by any organization other than Quality

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WARRANTY INFORMATION

Computers. In no event shall Quality Computers be liable for any incidental or consequential damages, including (but not limited to) damages for lost data, loss of use, or lost profits. Quality Computers is not responsible for recovery of data stored on a Q Drive.

This warranty is valid only for Q Drive owners who have returned their product registration to Quality Computers within 30 days of original purchase. This warranty is non-transferrable and is not extended by in-warranty repair.

RETURN PROCEDURES

- Call Quality Computers Technical Support. Technical support will attempt to resolve the problem over the phone, and may save the time and trouble of returning the drive for repair. If this is not possible, Technical Support will issue a Return Materials Authorization (RMA) number for return. If you request Gold Star Service, the technician will discuss method of payment with you at this time.

- Pack the Q Drive in the original packaging. Write your customer number and your RMA number prominently on the package, as well as

your address and Quality Computers' address. Be sure to enclose the same information, as well as a brief summary of the problem and a phone number where you can be reached during 9 AM-5 PM Eastern time,*inside* the package.

- You are responsible for shipping and insurance charges when returning the Q Drive to Quality Computers; we will pay for return of the drive to you by a comparable method. If you request Gold Star Service ($50 fee), Quality Computers will send a next-day parcel service (of our choice) to pick up the Q Drive; this is included in the Gold Star Service fee.

- If the drive is not in warranty, a Quality Computers technician will contact you upon receipt of the Q Drive to estimate the time and cost of repairs. The actual cost for repair will not exceed our estimate by more than 10%. If you requested Gold Star Service, your Q Drive will be repaired or replaced within 24 hours of our receipt, assuming sufficient stock, and returned to you by next-day parcel service.

- If these return procedures are not followed, the warranty may be invalidated. Quality Computers is not responsible for recovering the data on a malfunctioning Q Drive. We encourage you to make frequent backups.

Q DRIVE REGISTRATION INFORMATION

(Keep For Your Records)

Q Drive Model (size in MB) _____

❏ Check if Removable Media drive

Q Drive Serial Number _____

Quality Computers "Customer Number" _____
(from Sales Order)

Quality Computers "Order Number" _____
(from Sales Order)

Date of Sales Order _____

Date registration info mailed to QC _____

Q DRIVE REGISTRATION INFORMATION

(Mail this page to Quality Computers Immediately)

Q Drive Model (size in MB) _____

❏ Check if Removable Media drive

Q Drive Serial Number _____

Quality Computers "Customer Number"
(from Sales Order) _____

Quality Computers "Order Number"
(from Sales Order) _____

Date of Sales Order _____

THE ABOVE DRIVE IS REGISTERED TO:

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Country _____

Day Phone (_____) _____-_____

Eve Phone (_____) _____-_____

COMMENTS, QUESTIONS, JOKES...

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Remove this page from the manual and mail it to:

Quality Computers, Inc.
20200 Nine Mile Rd.
St. Clair Shores, MI 48080
Attn: Q Drive Registration