BY TOM BENFORD

The Fast-Loader Gran Prix

Do fast-loader products really work? I held a race among four fast-loader products, and here are the results.

The 1541 disk drive is a reliable workhorse, but a slow one at that. Fast-loader products claim to load programs faster and offer other enhancement features to make life with the 1541 easier. But do these products really work? I held a race between four leading fast-loader products, and the accompanying chart shows how fast each product loaded nine commercial software products.
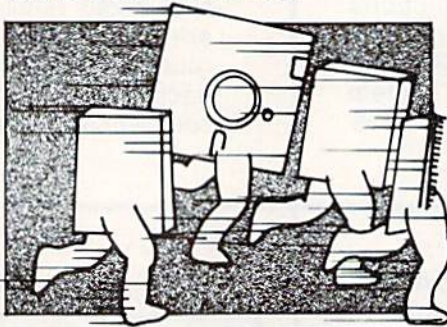

Fast Load

In addition to loading most programs significantly faster, *Fast Load* also provides several disk utilities. Press the English-pound key and access the utility menu, which includes the directory, return to BASIC, copy (file or disk), disable *Fast Load,* edit diskette, and file utility.

Selecting "file utility" brings a submenu which includes a directory, return to main menu, copy file, delete file, lock file, unlock file, and rename file. I found the lock-file function to be especially interesting, because it protects files from accidental deletion. In the event you decide to delete a "locked" file, you would need to first use the unlock utility.

Fast Load also provides a powerful monitor for editing and debugging assembly language programs. It is called by typing "!" and exited by typing "%."

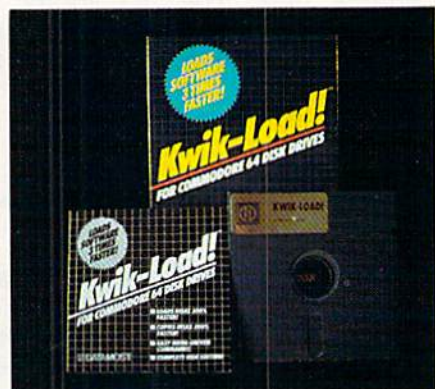*Fast Load* may be disabled from the keyboard by typing a "D" and hitting RETURN. Once it is disabled, however, it cannot be reinstated without turning the computer off and on again.

The cartridge is easy to use and comes with good documentation. Most commercial software products can be loaded by pressing the "C=" (Commodore logo) and RUN/STOP simultaneously. BASIC programs are loaded by typing "/Filename" and saved with "(left arrow) Filename."

Disk directories may be listed at any time without erasing the program in memory by typing a "$." There are also commands to read the error channel.

Fast Load performed well during testing and loaded every piece of software. It is available from Epyx at 1043 Kiel Court, Sunnyvale, California 94089, and has a suggested retail price of $39.95.

Kwik-Load!

Of the four products reviewed here, *Kwik-Load!* from Datamost is the only one that is disk-based. The program not only allows the use of two 1541 disk drives, but features a test to check the disk drive for proper operating speed. You can edit information on a diskette directly by track and sec-

The Fast-Loader Gran Prix Final Standings				
Program Used For Test	Normal Load Time	Epyx Fast Load (Cartridge)	Access Mach 5 Cartridge)	Data-most Kwik-Load (Disk)	Skyles 1541 Flash (Hardware)
Easy Script	1:02	:58	:59	:58	:30
Music Construction Set	2:47	2:43	2:43	2:43	1:40
Sword of Fargoal	1:02	:16	:16	:16	:20
Flight Simulator	2:50	1:03	1:04	2:53	1:08
The Heist	1:27	:26	:29	:26	:33
Zaxxon	2:29	2:29	2:29	2:29	1:05
VIP Terminal	2:43	2:43	2:43	Won't Load	1:09
Beach Head	2:27	:43	:45	Won't Load	:45
Kwik-Write	:32	:32	:32	:30	:29

tor, and it formats, validates and copies disks as well.

There is no way to disengage *Kwik-Load!* once it is enabled other than turning the computer off and on again. The program "bombed" occasionally during testing, and there was no way to recover from these crashes. (The documentation booklet suggests typing SYS 52480 to revive it, but this did not work.)

During testing, *Kwik-Load!* failed to load two programs, *Beach Head* and *VIP Terminal.* The package notes that problems may be encountered when trying to load software with heavy copy protection. Evidently this is the case with these two programs.

The documentation is comprehensive and well written. *Kwik-Load!* is fairly easy to use, but isn't as direct or quick as the other two cartridge-based products. It is available from Datamost at 20660 Nordhoff Street, Chatsworth, California 91311, and has a suggested retail price of $19.95.

Mach 5

Access Software brings us the *Mach 5 Enhancement Package,* a combination fast-loader cartridge and disk-based enhancement program.

The *Mach 5* cartridge provides a command-reference screen by pressing the left-arrow and M keys. Disk directories may be listed by typing "$," and neither the disk directory nor the command summary will disturb any program currently in memory.
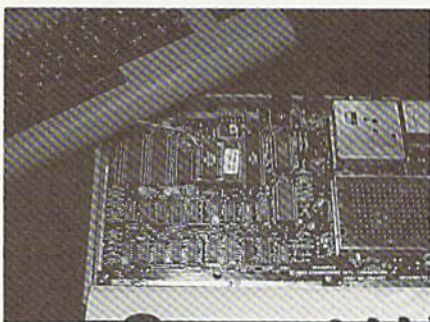
In addition to several combinations of load commands, *Mach 5* also allows the opening and closing of printer channels, screen dumping to printer, and a command for disabling the disk drive rattle when an error is encountered. *Mach 5* can be disabled and reinstated entirely from the keyboard.

In addition to the cartridge, the *Mach 5* package includes a disk with two enhancement programs, "Basic +4K" and "Mach Disk Organizer." Both programs require the *Mach 5* cartridge.

"Basic +4K" frees an additional 4,096 bytes of memory for use in the BASIC workspace and is completely compatible with all standard Commodore BASIC 2.0 commands. It relocates the BASIC ROM routines to other memory areas, so there is 43K available for BASIC instead of the usual 39K. The extra 4K is especially useful for storing variables.

"Mach Disk Organizer" catalogues your program disks and their files. Once the disks have been catalogued, the information is then stored on a data disk. The program keeps track of the file name, disk location, size of file, file type, and its location by track and sector.

Of the four products tested here, *Mach 5* was the easiest to use thanks to the built-in command summary screen. It loaded all test software, and comes with good documentation. It is available from Access Software, at 925 E. 900 South, Salt Lake City, Utah 84105, and has a suggested retail price of $34.95.

Skyles 1541 Flash

The 1541 Flash! is a hardware add-on assembly for the Commodore 64 and 1541 disk drive. The components are pre-wired, the documentation is excellent, and the unit may be switched in or out at will. A Phillips screwdriver, tape, and a flat-blade screwdriver or nail file are the only tools required. The installation should take about half an hour to complete, but may take longer if you've never done this sort of thing before.

A few words of caution: The installation of the 1541 Flash! assembly will void the warranties of both the 64 and the 1541 if they are still in effect. The kernal ROM of the computer and the operating ROM of the drive will have to be removed, as well as one of the drive's 6522 chips to insert the Flash! assembly boards. If you've never inserted or removed chips before, you may want to seek the help of a competent friend or technician.

Some early 64's have the kernal ROM soldered in place instead of in a socket. In such a case, I recommend letting a trained technician do the ROM removal and socket installation, or Skyles will do it for $28.50 if you wish.

Figure 1. Location of kernal ROM

The chips in both the computer and drive are surrounded by resistors and other components in close proximity (the boards are "densely populated," in tech jargon). Be gentle when doing the work and use a flat-bladed instrument (nail file, paring knife) to gently pry the chip up from the socket. If at all possible, work both ends of the chip, a little at a time, until it is out. If you are reasonably confident of your ability to do delicate work and follow directions, you can probably handle the installation without any problems. If you have any trepidations about doing it yourself, refer it to a service person.

And finally, the 1541 Flash! is not a cure for "sick" or "tired" 1541's! To reap the maximum benefits from the installation, you must start with a healthy disk drive.

Figure 1 shows the location of the 64 kernal ROM between the user and cassette ports (some 64's have this ROM soldered into the board—see warning above). This kernal ROM gets removed, the Flash! kernal ROM as-

sembly inserted, and the original 64 ROM inserted into that assembly.

Figure 1A shows the original kernal ROM in place on the Skyles assembly, piggy-back fashion. The slip-on connector assembly is routed through the user port opening.
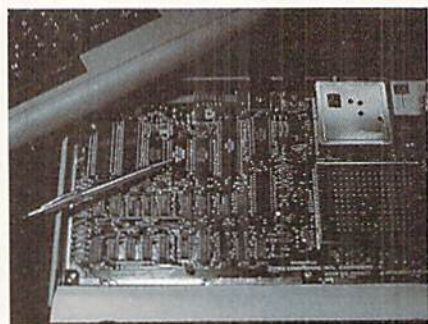

Figure 1A. Kernal ROM relocated after installation of 1541 Flash!

Figure 2 shows the CableCard assembly inserted into the user port. The exposed edge connectors act as an extension of the user port contacts, so you can still use your modem.
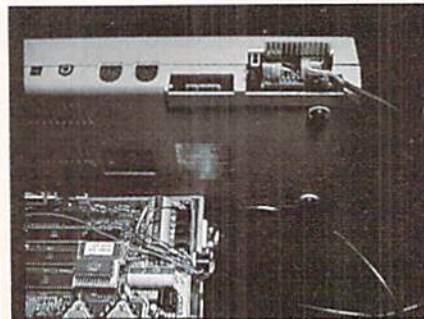

Figure 2. CableCard inserted in user port

Figure 3 shows Flash! operating ROM assembly in place of the original 1541's ROM chip. The original 1541 ROM gets inserted into the socket in this assembly. The slip-connector is routed through the back of the drive's case.

Figure 4 shows the 6522 with the "leg" of pin 19 bent straight out. Note the mini-clips in place in pins 18 and 19. The ground wire will be attached to the chassis ground screw in the rear left corner of the main circuit board.

Figure 5 shows the completed installation on the drive, waiting to be tested before reassembly. Selector switches are located on both the drive connector and at the user port connector. Note that you will still have to

use the serial cable to connect the drive and the computer in conjunction with the 1541 Flash! cable.

Once the boards and chips have been inserted and tested, it's time to close the computer and drive. Then for the fun part—using it!

The 1541 Flash! allows a shorthand form of many "everyday" commands. For example LOAD"*",8,1 is replaced with the [SHIFT]/[RUN/STOP] and RETURN. Other useful commands include switching to fast or slow drive speeds through software control, soft reset of the drive, and warm start for the 64.

A useful set of DOS commands are also activated when you type SYS 65526/RETURN. These include initialization, directory, change drive number, copy, scratch, new, validate, and other commands. Most of the DOS commands are invoked with one or two keystrokes.
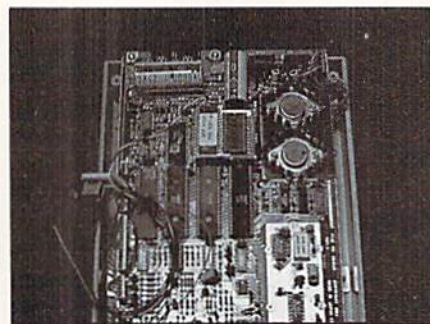

Figure 3. Flash! ROM assembly in place of original ROM

Ten editing commands include cursor control, pausable listings, and escape quotes. Several advanced programming commands for speed setting, linked loaders, and a run-time debugger are also present.

If you'd like, you can apply the brakes either through software or hardware control. The software method involves a few keystrokes, while the hardware method involves flipping a switch on the cable connector. In this way, the assembly can be engaged or disengaged instantly.

The features mentioned above are nice to have, but they really wouldn't justify the cost of the 1541 Flash!. The real strength of the unit is its speed—it really turns the 1541 into a "hot rod" disk drive.

The overall performance of the unit is excellent. It even speeded up the

load of *VIP Terminal* and *Zaxxon,* as well as appreciable speed gains on some other loads. It worked reliably during extensive testing.

In addition to being the most impressive speed enhancement for the 1541 disk drive, it is also the most difficult to install and the most expensive: The 1541 Flash! has a retail price of $99.95. A model for dual drives is
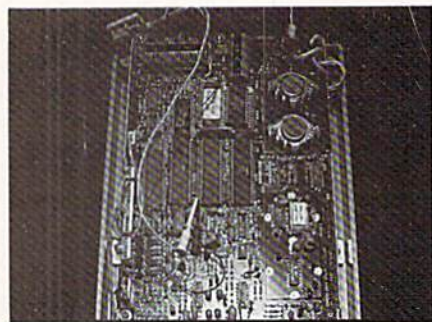

Figure 4. 6522 chip with leg of pin 19 bent out

also available from Skyles. If your 64's kernal ROM is soldered in, you can plan on paying another $28.50 to have Skyles install a ROM socket. If you elect to contract a technician to do the installation, it will probably cost between $15 to $30 for labor. Under the worst circumstances, this could set you back about $155 for the hardware and installation. Doing it yourself keeps the cost down to $99.95.
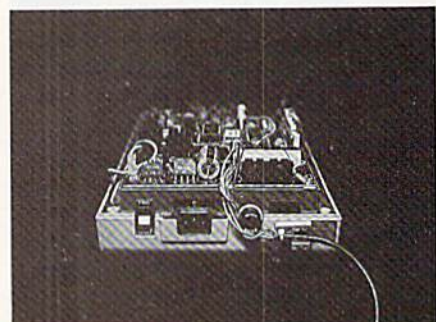

Figure 5. Completed installation

On the plus side, all the components are top quality, the documentation is thorough, and the excellent performance of 1541 Flash! makes the cost justifiable for "heavy" applications. If you want the Rolls Royce of the fast-loader Gran Prix, the 1541 Flash! is it.

The 1541 Flash! is available from Skyles Electric Works, 231E South Whisman Road, Mountain View, California 94041.