

OEM DISK DRIVES

APR

1984

# M2294K/N

*14-inch Winchester-type fixed disk drives with 336-megabyte storage capacity.*



M2294K



The M2294K and M2294N are 14-inch (356mm) Winchester-type fixed disk drives that provide a large storage capacity, high performance, and enhanced reliability. The M2294K requires a 100, 115, or 120 VAC power supply, and the M2294N requires either 220 or 240 VAC. These power supplies are available as options. Each model consists mainly of a disk enclosure, a spindle drive motor, and five printed circuit boards. The disk enclosure integrates five disks, Winchester-type contact start/stop heads, a rotary actuator, a spindle, and IC read preamplifiers.

### **Large capacity, high performance**

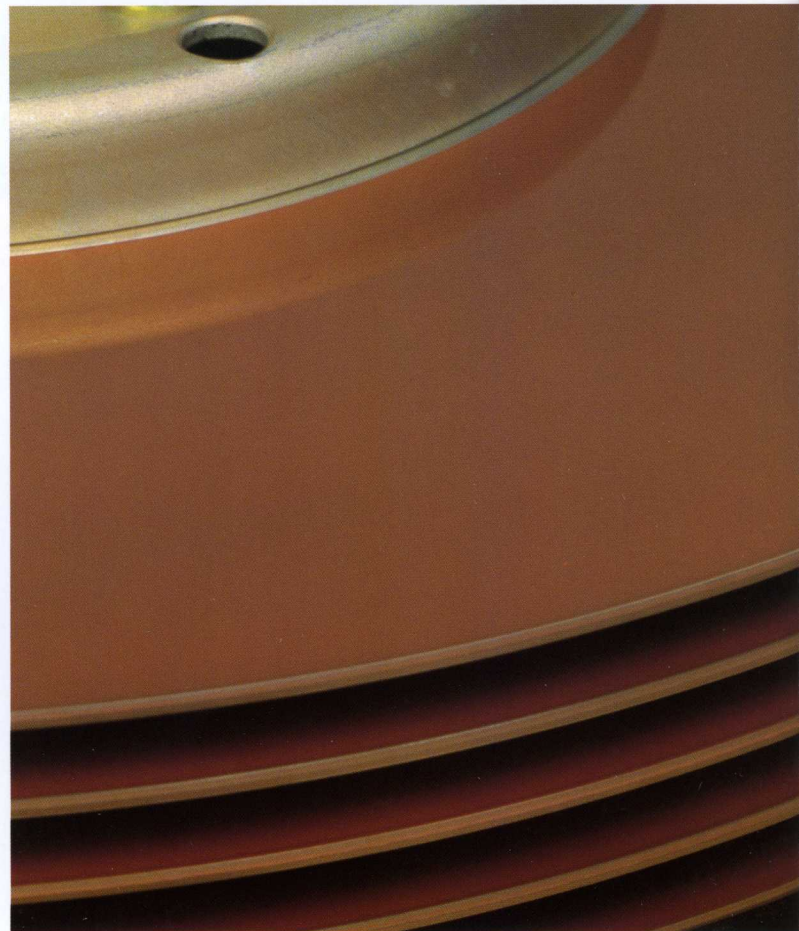
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The M2294K and M2294N each provide a large unformatted storage capacity of 336 megabytes. The average positioning time is 27 milliseconds and the data transfer rate is 1,012 kilobytes per second.

### **Reliable, maintenance free**

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The completely sealed disk enclosure incorporates a breathing filter and an absolute recirculation filter to provide a contamination-free environment. Winchester-type contact start/stop heads eliminate moving parts for head loading and unloading. The Head IC (HIC) prevents read errors caused by external electrical noise. These features assure the M2294K/N a mean-time-between-failures (MTBF) exceeding 10,000 power-on hours. Also no preventive maintenance is required. The compact disk enclosure can be replaced easily by customer engineers, and mean-time-to-repair (MTTR) is less than one hour.



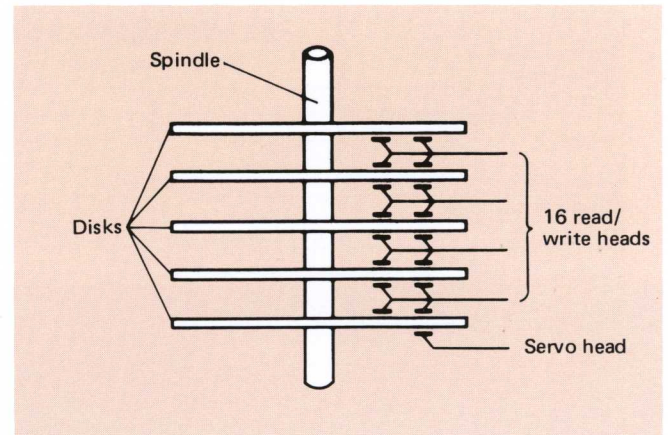
## Compact, economical

The M2294K/N disk drives can be mounted in a 19-inch rack in 6 pitches, saving installation space. Each model can also be mounted vertically in a system cabinet. And the rotary actuator greatly reduces power consumption and heat dissipation.

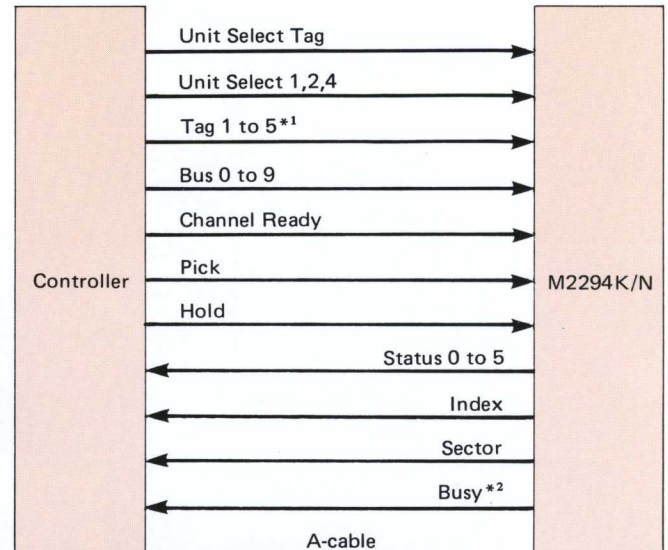
## Dual channel option

The M2294K/N can be accessed by two controllers when the dual channel option is provided.

## Head-disk structure

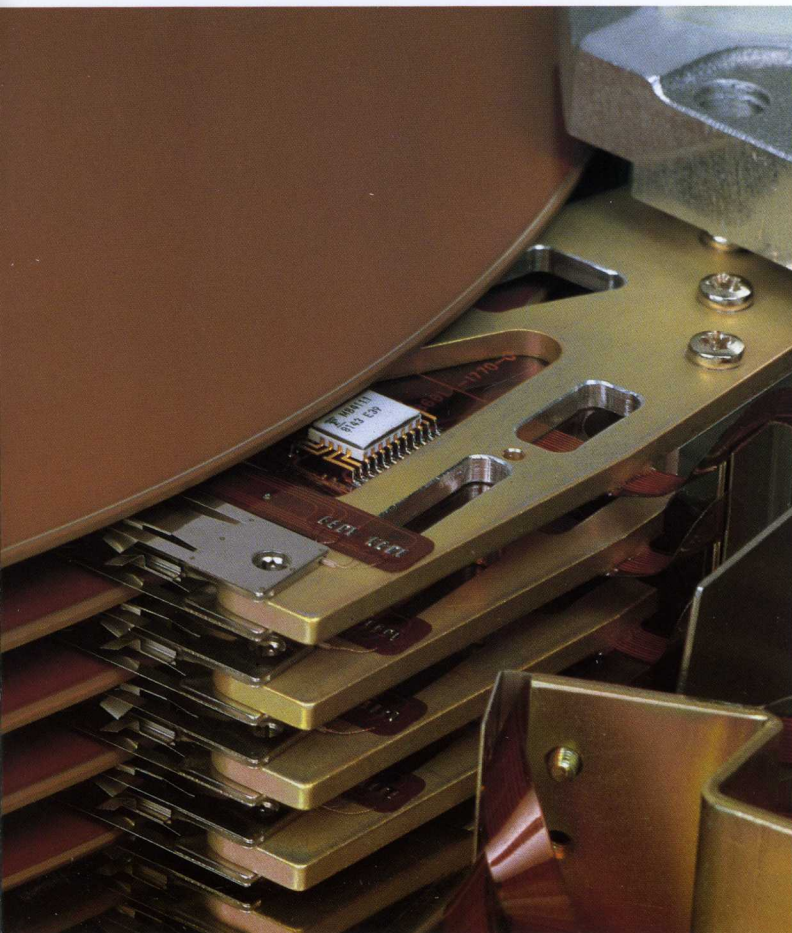
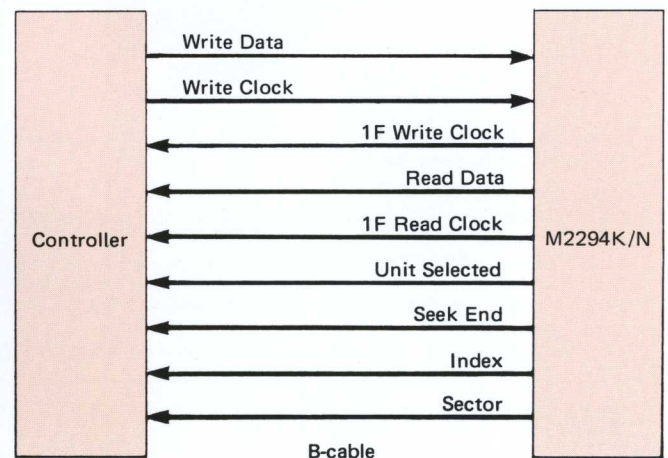


## SMD interface



\*1. Tag 4 and Tag 5 are switchable to each other.

\*2. Busy signal is used with the dual channel option.



## FUNCTIONAL SPECIFICATIONS

		M2294K/N
Storage capacity (unformatted)		335.54 megabytes
Disks (14-inch)		5
Heads	Read/write	16
	Servo	1
Track capacity (unformatted)		20,480 bytes
Tracks per cylinder		16
Cylinders		1,024 (including alternate cylinders)
Sectors	Fixed	2 or more
	Variable	Available
Positioning time	Track-to-track	6 milliseconds
	Average	27 milliseconds
	Maximum	55 milliseconds
	Average latency time	10.12 milliseconds
Rotational speed		2,964 rotations/minute
Recording density		6,500 bits/inch
Track density		793 tracks/inch
Data transfer rate		1,012 kilobytes/second
Recording code		MFM (Modified Frequency Modulation)
Interface code		NRZ (Non-Return-to-Zero)
Interface		Standard SMD (Storage Module Drive)
Head positioning method		Servo-controlled track-following
Start time		Less than 40 seconds
Stop time		Less than 30 seconds

## PHYSICAL SPECIFICATIONS

		M2294K	M2294N
Power requirements	Operating	100VAC±10%, 50/60Hz±½%, 2.5A	220 <sup>+25</sup> / <sub>-25</sub> VAC, 50Hz±½%, 2A
		115/120VAC±10%, 60Hz±1%, 3A	240 <sup>+24</sup> / <sub>-27</sub> VAC, 50Hz±½%, 2A
	Start-up	100VAC±10%, 50/60Hz±½%, 8A	220 <sup>+25</sup> / <sub>-25</sub> VAC, 50Hz±½%, 5A
		115/120VAC±10%, 60Hz±1%, 9.5A	240 <sup>+24</sup> / <sub>-27</sub> VAC, 50Hz±½%, 5A
Dimensions	Height	250 mm ( 9.84 in)	
	Width	416 mm (16.38 in)	
	Depth	650 mm (25.59 in)	
Weight		45 kg (99.2 lb)	
Ambient temperature	Operating	5°C to 40°C ( 41°F to 104°F)	
	Not operating	-40°C to 60°C (-40°F to 140°F)	
	Gradient	Less than 15°C (27°F)/hour	
Relative humidity	Operating	20% to 80% (non condensing)	
	Not operating	5% to 95% (non condensing)	
Vibration and shock resistance	Operating	Max. 0.2G ( 5Hz to 50Hz) Max. 1G (50Hz to 500Hz) Shock: max. 2G (max. 10 ms)	
	Not operating	Max. 0.4G ( 5Hz to 50Hz) Max. 1G (50Hz to 500Hz) Shock: max. 3G (max. 10 ms)	
	In storage or transport	Shock: max. 5G (max. 10 ms)	
Altitude	Operating	3,000 m (10,000 ft)	
	Not operating	12,000 m (40,000 ft)	

## RELIABILITY SPECIFICATIONS

		M2294K/N
Mean-time-between-failures (MTBF)		More than 10,000 power-on hours
Mean-time-to-repair (MTTR)		Less than 1 hour
Component life		5 years
Error rates	Recoverable errors	10 per 10 <sup>11</sup> bits read
	Unrecoverable errors	10 per 10 <sup>14</sup> bits read
	Seek errors	10 per 10 <sup>8</sup> seeks

Specifications are subject to change without notice. For the latest information, contact your local Fujitsu representative.  
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