

MODEL 7901A DISC DRIVE



The Hewlett-Packard 7901A Disc Drive is a random-access moving-head disc memory device, compactly designed for use as a peripheral unit in small and medium size computing systems. It uses a removable 2315 type cartridge. Data capacity totals 2.5 million bytes on-line, with an unlimited amount of shelf storage. Average access time is 35 milliseconds. A photoelectric positioning system, working in conjunction with a velocity transducer and voice-coil-driven actuator, provides exceptionally fast and accurate head positioning. Power for the 7901A is furnished by a power supply located inside the drive.

FEATURES



Heads

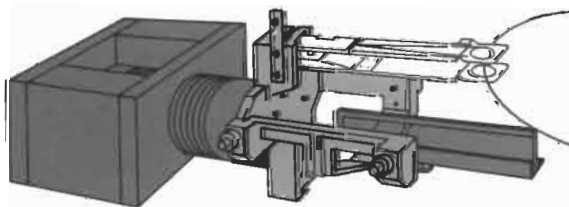
Ceramic Shoe with Ferrite Core, Straddle Erase
Hardness — Rockwell 45 N Scale: 80
Ramp Loaded

Recording

Double Frequency, 2200 bits/inch on inner track, 100 tracks/inch, 203 tracks/surface.

Actuator

Voice coil actuator with position and velocity feedback.



Positioning

To guarantee interchangeability a photo-optical system positions any actuator within three ten-thousands of an inch to its nominal position. Positioning system contains photo cells for both position and direction feedback. These cells are wired back-to-back for stable operation during variations in temperature and lamp intensity. Furthermore, a solid aluminum cast main-base provides a stable platform for all of the components in the positioning system.

Reliability

Positioning system life-tested in excess of two hundred million seeks. Designed for a minimum of moving parts and wear surfaces.

Air Filtration & Circulation

75 CFM squirrel cage blower distributes air to the cartridge. Absolute filter located at inlet to cartridge. All air passing into the cartridge goes through this filter.

Rotation

Belt-driven at 2400 RPM by a 3450 RPM AC induction motor.

Drive Electronics

Absolute cylinder addressing
Seek overlap for multiple drives on one controller
Heads retract on power failure or drive malfunction
Drive does not hang up on wrong address but instead provides status information.
Control addressing and status information transferred with TTL compatible logic signals.
Data is transferred with differential line drivers and receivers.

Electronic Interface Lines (Compatible with HP 7900A)

Differential Data Lines (Bidirectional), and:

Inputs	Outputs
Drive Select	Bus (5 lines)
Set Cylinder	Drive Ready
Set Head & Sector	Access Ready
Control	Sector Pulse
Bus (8 lines)	Sector Compare
	Ground

Possible Sector Formats

Adaptable to disc cartridges with 32, 24, 16, 12, or 8 sectors by selecting jumper on printed-circuit board.

Write Protection

Write protect on disc (switch setting inside cartridge door).

Daisy Chaining

Allows using up to four disc drives per controller and I/O cable.

Unit Select Feature

Indicator with switch setting inside cartridge door.

Interchangeability

Any disc written on any 7901A (or 7900A) within its operating temperature range (10° to 40°C) can be read on any other 7901A (or 7900A) operating within that temperature range.

TECHNICAL SPECIFICATIONS

Large Data Capacity

Approximately 24 million bits (structured as follows when in 24-sector format).

APPROXIMATE	TOTAL BITS PER	DATA BITS PER	DATA BYTES PER	SECTORS PER	TRACKS PER	CYLINDERS PER	RECORDING SURFACES
Byte	8	8					
Sector	2.6K	2K	256				
Track	60K	50K	6K	24			
Cylinder	120K	100K	12.5K	48	2		
Surface	12M	10M	1.25M	4.8K	200+3	200+3	
Disc	24M	20M	2.5M	9.6K	400	200	2

Device Type

Moving-head, single-disc drive; 1 removable cartridge.

Fast Data Access

Head Positioning (including settling time)

- Track-to-Track (maximum) 10 ms
- 67 Tracks (maximum) 35 ms
- 203 Tracks (maximum) 65 ms

Rotational Delay (latency, 2400 rpm)

- Average (1/2 revolution) 12.5 ms
- Maximum (1 revolution) 25 ms

Data Transfer

- 8 Bit Bytes/Second 312 thousand
- Bits/Second 2.5 million

Cartridge Change at 60 Hz Power

- Stop Time 35 seconds
- Start Time 30 seconds

Environmental

Temperature

- Operating +50° to +104°F
+10° to +40°C
- Nonoperating -4° to +149°F
-20° to +65°C

- Altitude 0 to 10,000 ft.
- Humidity 8% to 80% non-condensing
- Vibration 10 to 50 Hz at 0.01 inch peak-to-peak excursion
- Attitude ±30° pitch and roll

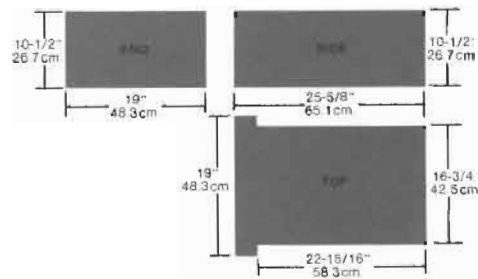
Air Filtration

Absolute Filtering System, Air Flow Rate 75 CFM

Compact Physical Dimensions

Fits standard EIA rack.

Weight 107 lbs. (48,6 kg)



Power Requirements

Voltages		50 Hz ±2%	60 Hz ±2%
100 ±10%	1φ	4.1A	3.4A
120 ±10%	1φ	3.4A	2.8A
200 ±10%	1φ	2.0A	1.7A
220 ±10%	1φ	1.8A	1.6A
240 ±10%	1φ	1.7A	1.4A