

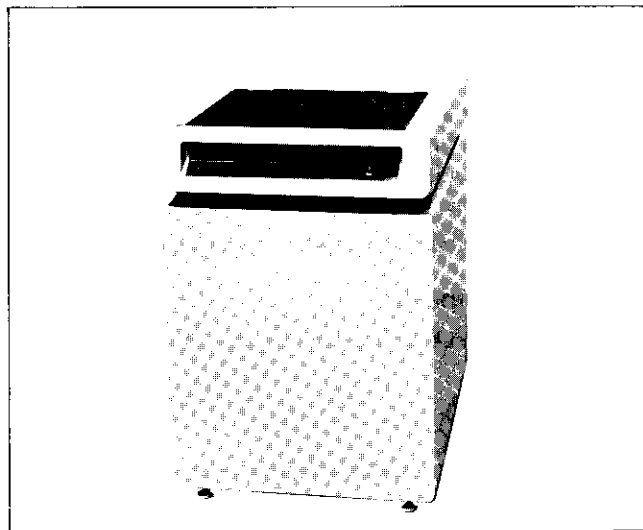
Features

- 50M bytes of formatted data
- Fast-access, track-following technology
- Advanced serviceability features
- Constant spindle speed, independent of line frequency
- Extended maintenance periods through use of prefilter
- Exceptionally fast stop/startup speed
- Microprocessor-based controller with hardware error correction for enhanced data reliability
- Up to eight drives can be connected to the 30229A HP 3000 system controller

The 7920A Disc Drive is Hewlett-Packard's newest offering in a family of disc drives. The 7920A provides for exceptionally high performance fast access storage of formatted information.

The 7920A features a disc pack having three data platters and two protective platters (upper and lower). This configuration allows for the safe handling of valuable data. Of the three data platters (six surfaces) one surface is used for servo information to control the precise positioning of the actuator mechanism. The remaining five surfaces are used for data storage at 10M bytes (formatted) per surface for a total of 50M bytes. The incorporation of positioning information in the data area provides for accurate track positioning over wide temperature variations. This also provides for automatic temperature compensation.

The controller, 30229A, provides for connection of up to eight disc drives. The eight drives may be any combination of 7920A's and 7905A's. Eight 7920A Disc Drives yield a storage capacity of 400M bytes using a single controller. A voice-coil head positioner offers exceptionally fast seek times. Average track-to-track seek time is 5 ms; average random seek time is 25 ms; maximum seek time is 45 ms. The 3600 RPM spindle speed yields an average rotational delay (latency) of only 8.3 ms, and, coupled with high bit density, provides a data transfer rate of 937.5k bytes/second.



Automatic error correction and detection

The Error Correction Code (ECC) hardware increases data reliability and system availability by reducing the effects of media errors.

The ECC hardware and algorithm are together capable of correcting one single burst data error per sector, if the error is of length ≤ 32 bits. Every single-burst data error of length > 32 bits but ≤ 48 bits will be detected without being miscorrected. For burst-errors of length > 48 bits, 99.999% are detected.

If the controller detects an error within a sector, it notifies the CPU at the end of that sector. The CPU then requests the location (displacement) of the error within the sector and three words of mask which are used to correct the record now in CPU memory. The controller calculates these masks from information accumulated in special registers. The three words are merged with data in CPU main memory to obtain a corrected record.

Specifications

Dimensions

Height: 32.5 in (82.5 cm)
 Width: 19.65 in. (50 cm)
 Depth: 32 in. (81.3 cm)
 Shipping Weight: 345 lb. (157 kg.)

Seek time

Track-to-Track: 5 ms average
 Average random: 25 ms
 Maximum stroke: 45 ms, maximum

Capacity

815 tracks
 48 sectors/track
 2 bytes/word
 256 bytes/sector
 12,288 bytes/track
 10 X 10⁶ bytes/surface
 50 X 10⁶ bytes/drive

Rotation

Speed: 3600 rpm
 Average rotational delay: 8.3 ms

Recording characteristics

Bits/inch (inside track): 4680
 Tracks/inch: 384
 Tracks/surface: 815 (plus a maximum of 8 spares)

Site preparation data

	USA (60 Hz)	NON-USA (50 Hz)
VOLTAGE	115	230
PHASES	1	1
CURRENT PER PHASE	6A	3A
CONNECTION CODE	C	E
HEAT OUTPUT (per hour)	2200 btu	554 kcal
WEIGHT	315 lb	142 kg
CABLE LENGTHS: Up to eight disc drives may be daisy-chained to a controller. The cable length from the controller to the first drive is 18 ft. (5.5 m.). The cable length between disc drives is 8 ft. (2.4 m.). In addition, each drive also has a cable back to the controller. The length of this cable for each drive is 50 ft. (15.2 m.). The maximum cumulative length of daisy-chained cable is 74 ft. (22.5 m.). Longer cables may be special ordered, but this is not advised.		

Data transfer rate

Bits/second: 7,500,000
 k-bytes/second: 937.5

Actuator

Voice coil actuator with velocity feedback, position feedback from top surface of the middle platter.

Disc pack interchangeability

Any disc pack written on any 7920A within system operating specifications may be read on any other 7920A operating within that range.

Switches and indicators

The front operator's panel has five backlit indicators: Unit Select, Drive Ready, Read Only, Door Unlocked, and Drive Fault. There is one switch: Run/Stop.

A Format switch is provided for protection of the sector address field. A group of eight LED indicators light if the internal fault detection circuitry detects a fault condition. This advanced serviceability feature facilitates troubleshooting and reduces the time to diagnose and repair failures.

In the event of power failure, heads are retracted and carriage locked using energy from the filter capacitors, supplemented by the spindle motor acting as a generator.

Ordering information

The HP 3000 Series I and Series II Models 6 and 8 each include a single 7920A disc drive, a selector channel, and a controller for up to eight drives. To order drives 2 through 8:

7920S Add-on 7920 disc drive.
 Includes drive, pack, and cables.
 7920S-01 First drive (standard on models 6 and 8).
 7920S-15 230V, 50 Hz
 13395A A pair of add-on 7920 disc drives.
 Includes two drives, two packs, and cables.
 13395A-50 Extra 7920S disc drive.
 13395A-15 230V, 50 Hz
 13394A Additional disc pack.

Installation

The 7920A and 7920S disc drives are installed by a factory-authorized Customer Engineer. Installation is included in the list price and includes unpacking, cabling, power up, and diagnostics. System regeneration is done by the customer or can be performed by Hewlett-Packard on a time and materials basis.

System requirements

The 7920A and 7920S will operate on any HP 3000 computer system which includes a selector channel and a 30229A controller (note that this is the same controller as used for the HP 7905A disc drives).