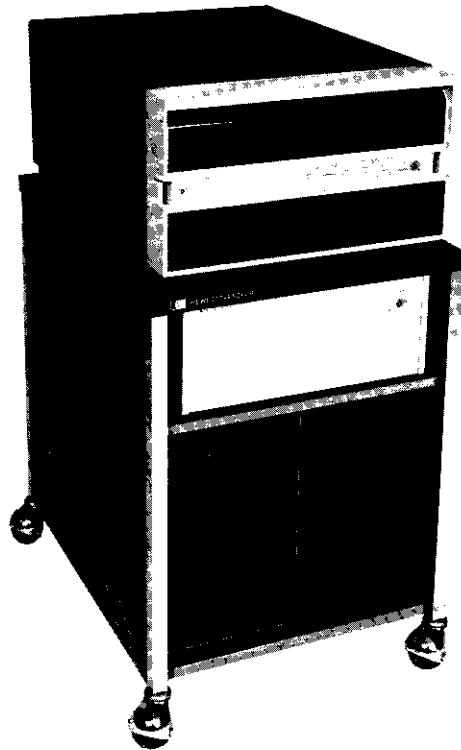


HEWLETT  PACKARD

MODEL  
**30**

## 9880B MASS MEMORY SUBSYSTEM

TECHNICAL DATA DEC. 15, 1973



### DESCRIPTION

The HP 9880B Mass Memory Subsystem provides the HP 9830A Calculator with the large data storage capability required for applications such as payroll, account maintenance, inventory control, patient records, credit verification and large banks of data for structural design, statistical analysis and many other scientific, industrial and commercial fields.

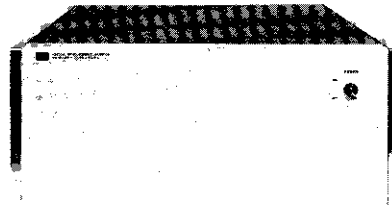
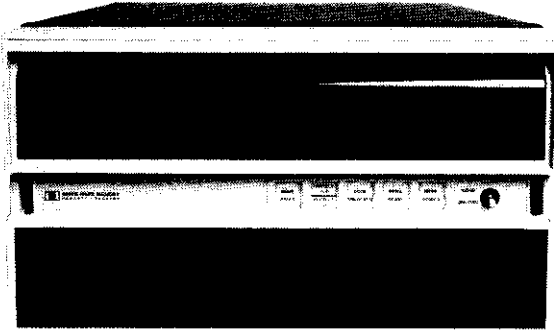
The memory media of this peripheral is a permanently installed memory platter and an interchangeable cartridge (HP 12869A), each having a capacity of 2.4 million bytes; this is the equivalent of more than 600,000 total items of data of 12 digits each.

One of the main advantages of this system is data safety and security. Master data can be recorded on the removable cartridge, transferred into the calculator for manipulation, stored temporarily on the fixed memory platter for further

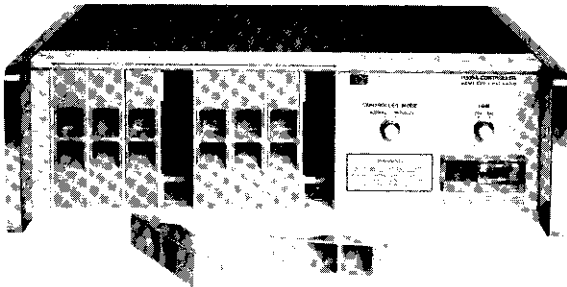
use by the calculator's program and verification prior to modifying the master data on the removable cartridge. Also with this system, duplication of data files is easily accomplished. Year to date payroll data, inventory updating, account receivables and payables updating are just a few examples where this dual system offers great safety of the data base and affords the opportunity to verify the results prior to modification of master files. Should an error occur, it is easily corrected by repeating the operation, since the initial data still resides on the removable memory cartridge.

In addition to providing a large amount of data storage, the 9880B Mass Memory Subsystem is fast. A 10 x 10 array can be transferred to the cartridge in about 1 second and a typical 250 line program of 2000 words can be transferred in less than 2 seconds.

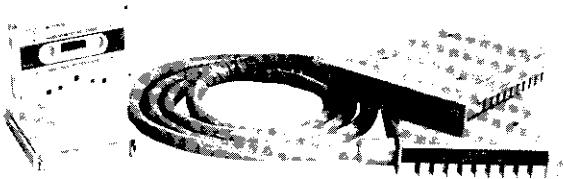
## 9880B MASS MEMORY SUBSYSTEM



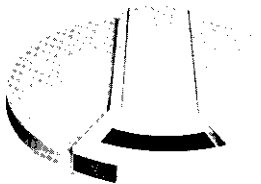
**HP 9867B:** Dual Platter (one removable, one fixed) Mass Memory Drive with interface cable (6 feet) and separate HP 13215A Power Supply.



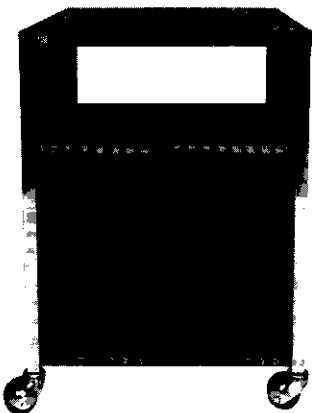
**HP 11305A:** Controller. Provides the necessary interface to transfer data and programs bidirectionally between the HP 9830A Calculator and the HP 9867B Mass Memory.



**HP 11273B:** Read Only Memory, Calculator Interface Cable (10 feet) and Cassette for the HP 9830A Calculator. The ROM enables the HP 9830A Calculator to generate the necessary commands to write into and read from the Mass Memory. The cassette contains the program necessary to initialize a new memory cartridge and perform a system check out.



**HP 12869A:** Memory Cartridge with 2.4 million bytes capacity.



**HP 11304A:** Cart (optional). Provides support for the Mass Memory, the power supply and the controller and storage for several memory cartridges.



## SPECIFICATIONS

The HP 9880B Mass Memory Subsystem can be expanded in terms of increased data and program handling capacity. Up to two HP 9867B's can be connected to one HP 9830A Calculator through one HP 11305A Controller. The UNIT command enables the user to address any one of the desired memory platters.

Also, for increased versatility, up to four HP 9830A Calculators can be connected to the Mass Memory through the same Controller; however, only one calculator can be used to access the system at any one time. The HP 11305A Controller will sequentially service any of the four 9830A's requesting access to the mass memory.

### MASS MEMORY COMMANDS

As many as 10 data files can be used in one FILES statement at the same time.

Each file on the mass memory device is identified by a unique name of 1 to 6 characters in length.

Program and special function key files are accessed by using the SAVE, GET, and CHAIN commands.

Data files are created with the OPEN command; the user specifies the number of records to be reserved. The READ and PRINT statements permit both sequential and random data access.

Program and data files are erased from the mass memory by using the KILL command.

The IF END statement makes end of file processing routines easy to write.

The CATALOG command causes information about the files contained on the mass memory device to be printed.

The UNIT command allows the user to access up to 4 mass memory platters from one calculator.

With the PROTECT command only authorized users, those who know the protection code, can access a data file. Also, protected files cannot be accidentally erased.

Special commands are also provided to allow the user to copy and to rename files and to create backup copies of files either on cassettes or on additional cartridges.

Many other commands and statements correspond to common time-share system commands and statements.

In conjunction with the String Variables ROM, strings can be stored as data, and they also can be used as variables for the access of files by name.

With the Matrix Operations ROM, two additional statements, MAT PRINT and MAT READ are available with the Mass Memory ROM.

### Data Capacity Available to User

Bytes	4,866,048
Bytes per word	2
Words per record	256
Number of records	9,504 (4752/platter)
Maximum number of files	1,536 (768/platter)

### Speed

Average access time	42.5 m sec.
Data transfer time	5.7 m sec. per 512 bytes

(Mass Memory to Calculator or vice versa)

### Environmental (Entire System)

Temperature	
Operating	+ 10 to + 40°C
Non-operating	- 20 to + 65°C
Altitude	0 to 10,000 feet
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

#### HP 9867B Mass Memory Drive

Absolute filtering	0.3 micron
Air flow rate	75 CFM

### Power Requirements

#### HP 9867B Mass Memory Drive and HP 13215A Power Supply

Standard:	100/120V ± 10%, 1φ, 3.4A, 60Hz (7A Starting Surge)
	200/220/240V ± 10%, 1φ, 1.7A, 60Hz (3.5A Starting Surge)
Option 001:	100/120V ± 10%, 1φ, 4.1A, 50Hz (8.5A Starting Surge)
	100/220/240V ± 10%, 1φ, 2.0A, 50Hz (4A Starting Surge)

#### HP 11305A Controller

100/120V + 5% - 10%, 48 to 66 Hz, 150 VA
220/240V + 5% - 10%, 48 to 66 Hz, 150 VA

## Dimensions

### HP 9867B Mass Memory Drive

Height	10½"	(26.7 cm)
Width	19"	(48.3 cm)
Depth	25¾"	(65.4 cm)

### HP 13215A Power Supply

Height	7"	(17.8 cm)
Width	16¾"	(42.5 cm)
Depth	19¾"	(50.2 cm)

### HP 11305A Controller

Height	5½"	(14.0 cm)
Width	16¾"	(42.5 cm)
Depth	13¼"	(33.7 cm)

### HP 11304A Cart

Height	29"	(73.7 cm)
Width	21"	(53.3 cm)
Depth	27"	(68.6 cm)

## Weights

HP 9867B Mass Memory Drive	117 lbs	(53.1 kg)
HP 13215A Power Supply	55 lbs	(25.0 kg)
HP 11305A Controller	20 lbs	( 9.1 kg)
HP 11304A Cart	95 lbs	(43.2 kg)

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