CALCOMP

1030 DISK STORAGE FACILITY

CalComp's 1030 Disk Storage Facility is designed to provide users with large-capacity, high-performance, on-line data storage capabilities for IBM 370 computers. Attached to a block multiplexer channel, each 1030 Facility offers up to 800 million bytes of on-line data storage with a data transfer rate of 806 kilobytes per second (1,612,000 digits per second).

The 1030 Disk Storage Facility consists of a Model 1030 Disk Storage Controller integrated with up to eight spindles of storage using CalComp Model 230 and Model 231 Disk Storage Units. These units utilize the IBM 3336 Disk Pack or equivalent. Each Model 230 contains two independent disk drive spindles while the Model 231 has one spindle. Each of these spindles stores 100 million bytes of data.

Rotational Position Sensing (RPS), allows the channel and storage control of the 1030 Facility to be released during rotational delay, thereby making them available for other operations during this period. This is accomplished by the controller monitoring the rotational position of each of the spindles. This feature serves to increase total system throughput.

Multiple requesting allows up to eight channel command sequences (one per drive) to be active within the 1030 Storage Facility. This capability, in combination with RPS, permits maximum use of the facility and contributes to improved response to system I/O requests.

Standard checking and retry features increase system reliability and availability for batch processing and data base applications.

An outstanding feature of the 1030 Disk Storage Facility is the Micro Program Load file. The MPL file provides the system with the capability to load from read only storage (floppy disk), micro program data into the 1030 Controller.

**MODEL 230
DISK STORAGE UNIT**

**MODEL 1030
CONTROLLER**

MODEL 1030
DISK STORAGE CONTROLLER

- Interprets and executes commands issued via the block multiplexer channel
- Controls block multiplexer channel and disk storage interfaces
- Serializes and deserializes data transfers
- Performs data error detection and correction
- Performs diagnostic evaluation of the facility

MODEL 230 AND 231
DISK STORAGE UNITS

- Responds to commands given by the 1030 Controller.
- Positioning of access mechanism to a cylinder and selection of the proper read/write head.
- Powered drawers and frontal pack-loading facilitate disk pack loading and unloading.
- Address plugs permit changing a disk drive for in-line servicing, or overlapping set up of new disk packs while processing continues on other 230 Series Disk Storage Units.

DATA FORMAT Variable; controlled by 1030 internal microprogram with record length specified by computer.

COMMAND SET The 1030 implements the same set of commands as the IBM 1030 Direct Access Storage Facility which provides additional commands for rotational position sensing and improved serviceability.

ERROR CORRECTION The 1030 Disk Storage Controller detects and corrects data errors within the facility, thus increasing reliability.

ERROR RECOVERY The channel/storage control retry convention (command retry) allows recovery from many facility errors and permits the using system to be available during the retry attempt.

ERROR LOGGING The 1030 records and stores error events for increased facility serviceability.

MICRO PROGRAM LOAD (MPL) A file providing the capability to load micro program data from the floppy disk into the Model 1030 Controller.

1030 DISK STORAGE FACILITY SPECIFICATIONS

ON-LINE CAPACITY
Up to 800 million bytes of on-line storage plus one spare spindle (100 million bytes per spindle)

DATA TRANSFER RATE
806,000 bytes per second

ROTATIONAL SPEED
3600 RPM (16.7 milliseconds per revolution)

ACCESS TIME
Minimum: 10 milliseconds
Average: 30 milliseconds
Maximum: 55 milliseconds

CYLINDERS PER PACK
404 plus 7 alternates

TRACKS PER CYLINDER
19

COMPATIBILITY
IBM 3803/3330 Disk Storage Facility
IBM 3336 Disk Pack (or equivalent)
IBM System/370 (Block Multiplexer Channel)

POWER REQUIREMENTS
208V or 230V AC ($\pm$10%), Three Phase; 60 $\pm$0.5 Hz (50 $\pm$0.5 Hz available)
Model 1030 — Run Current: 4 Amps rms

Model 230 (per spindle) — Start Current:
17 Amps rms, 10 sec
— Run Current: 5.5 Amps rms
Model 231 — Start current — 17 amps for 10 seconds
Operating current — 5.5 amps

START/STOP TIME
Start 15 seconds (drive ready)
Stop 15 seconds

OPERATING ENVIRONMENT
Temperature: 60°-90°F; Maximum rate of change 15°F per hour.
Relative Humidity: 10-80 percent.

HEAT DISSIPATION (Maximum)
Model 1030: 4,000 BTU/hour
Model 230: 6,560 BTU/hour (two spindles)
Model 231: 3,280 BTU/hour (single spindles)

DIMENSIONS
Model 1030 — 32 in. wide; 33.5-in. deep; 60-in. high.
Floor space required — 7.4 sq. ft. (with side panels)
Model 230 & Model 231 — 32-in. wide; 34.5-in. deep; 60-in. high
Floor space required — 7.7 sq. ft. (with side panels)
Total floor space for controller and eight spindle system: 38.8 sq. ft. (cabinets bolted together without side panels between)

WEIGHT
Model 1030 — 600 lbs.   Model 230 — 850 lbs.
Model 231 — 700 lbs.