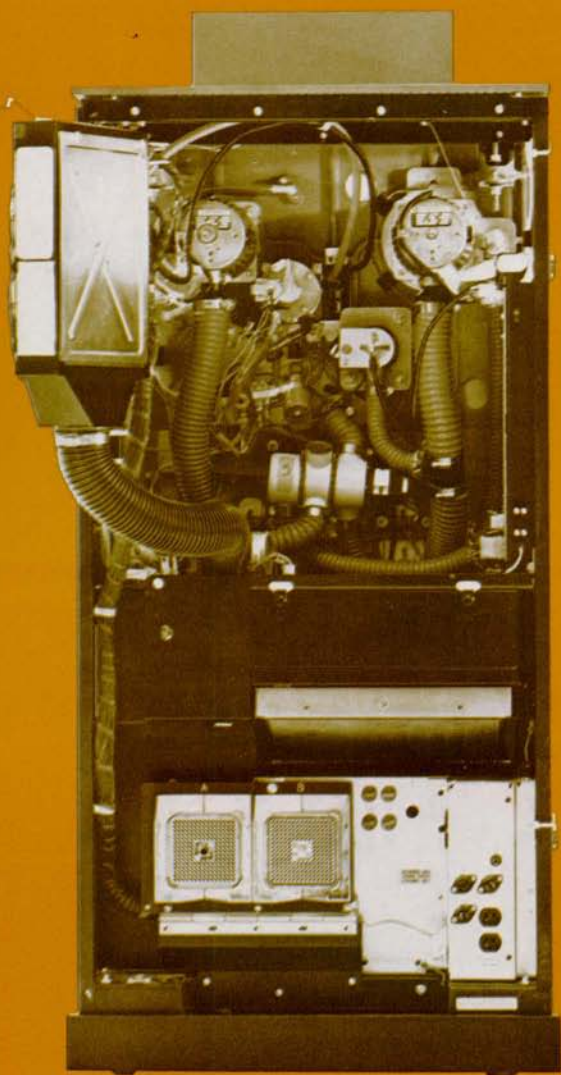


**IBM 2420 Model 5
Magnetic Tape Unit**



Design Features

A tape cartridge stores a 2400 foot reel of 1/2 inch tape. Any standard 10 1/2 inch reel may be inserted in the cartridge. With a solid flange reel the tape is sealed from dust and other outside contamination. Mounting the assembly on a tape unit is similar to mounting a single tape reel. This feature reduces considerably the possibility of tape damage by handling. A reel of tape may be used with or without a cartridge.

Some of the prominent features of the 2420 Model 5 are:

Air Bearings provide low friction tape path in the vacuum columns.

SLD circuits provide dense packaging with few logic cards.

Power access window contains rack and pinion direct drive for opening and closing.

File reel mounted on the right hand side puts the backing side of the tape in contact with the vacuum column walls and the drive capstan rather than the oxide side.

Automatic threading enables the operator to mount a reel of tape or a cartridge containing the tape on the hub and depress the load rewind pushbutton. Without a cartridge, the end of the tape must be placed on a threading chute. The tape is automatically threaded and loaded; this greatly reduces tape handling and thus reduces tape damage.

Short, tapered buffer columns are additional vacuum columns that reduce the length of tape to be accelerated, permitting a fast access time.

IBM 2420 Model 5 Magnetic Tape Unit

Description

The IBM 2420 Model 5 is a 9 track tape unit using the phase encoded format. It was designed for improved reliability by greatly reducing the number of moving parts and adjustments. Mechanical components have been designed and packaged to maintain a high degree of serviceability. The tape unit operates at a speed of 100 inches per second with a data rate of 160 KB per second. The 2420 Model 5 attaches to the System/360 I/O interface through a 2803 Model 2 SLT tape control unit with an attachment feature. The tape format and programming for the 2420 Model 5 magnetic tape unit is compatible with the present 2400 Model 4, 5, 6; 2415 Model 4, 5, 6; and the 2420 Model 7.

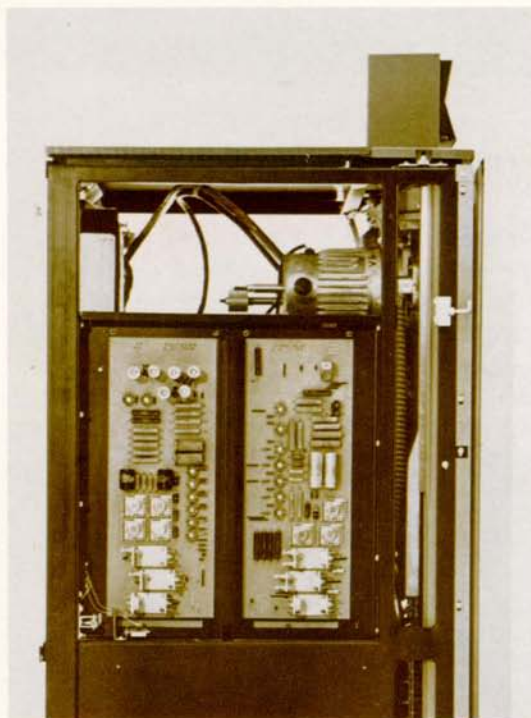
Service Features

The machine is designed for front and rear servicing to allow maintenance without moving the unit out of a line of drives.

The logic is functionally packaged. It contains SLD cards that are packaged according to function for ease of troubleshooting. The entire reel motor circuitry is mounted on two pluggable printed circuit boards (left and right). They can be easily swapped or replaced.

A new small tester is used. It reads, writes with or without gaps, exercises tape motion with variable alternate go forward and backward controls. The tester plugs into the logic gate instead of the I/O connector and requires no terminator.

The use of the single drive capstan with a digital speed control has eliminated all mechanical adjustments in the tape path/tape motion area with the exception of tracking and mechanical skew. Over-under voltage detection will indicate power supply failures.



Pluggable Printed Circuit Boards

General Characteristics

Access Time - Writing	3.4 milliseconds
Access Time - Reading	3.9 milliseconds
Tape speed	100 inches/second
Tape density	1,600 bytes/inch
Byte rate	160,000 bytes/second
IBG	0.6 inch
Rewind speed (Nominal)	500 inches/second (tape in columns)
Rewind time (2400-foot reel)	1.2 minutes
Recording format	Phase encoding
Tape format	Nine track
Tape	1/2 inch Series/500, Dynexcel, and heavy duty
Packaging	Single tape unit in one frame

Single Drive Capstan is controlled by a reversible dc motor. The tape contacts over 180 degrees of the capstan and thus requires no mechanical device to hold it in contact with the capstan. The capstan motor is a permanent magnet, direct current, printed-circuit motor. The torque-producing element of the motor is a thin, tubular armature constructed of printed conductors. The light weight of this armature permits rapid acceleration of the capstan-armature assembly.

Direct coupled reel drive motors eliminate the need for magnetic clutches and belts.

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