

TM-1

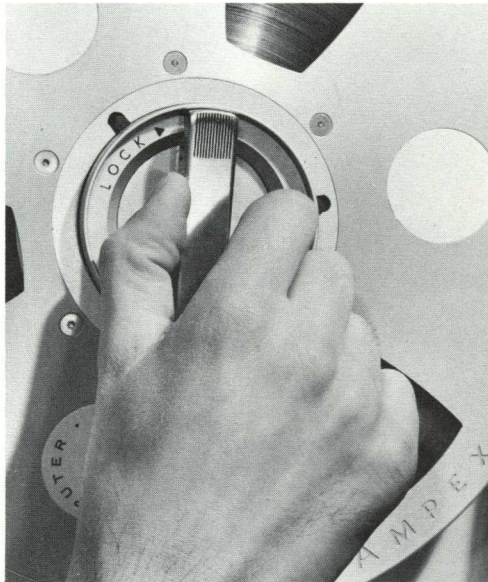
DIGITAL TAPE HANDLER

100 INCH-PER-SECOND TAPE SPEED
SIMPLIFIED TAPE THREADING
VACUUM-COLUMN TAPE-TENSION SYSTEM
BEGINNING- AND END-OF-TAPE SENSING
COMPLETELY POWER INTERLOCKED FOR SAFETY
AUTOMATIC POSITIONING TO BEGINNING-OF-TAPE MARK
GENTLE TAPE HANDLING
VACUUM TAPE CLEANING

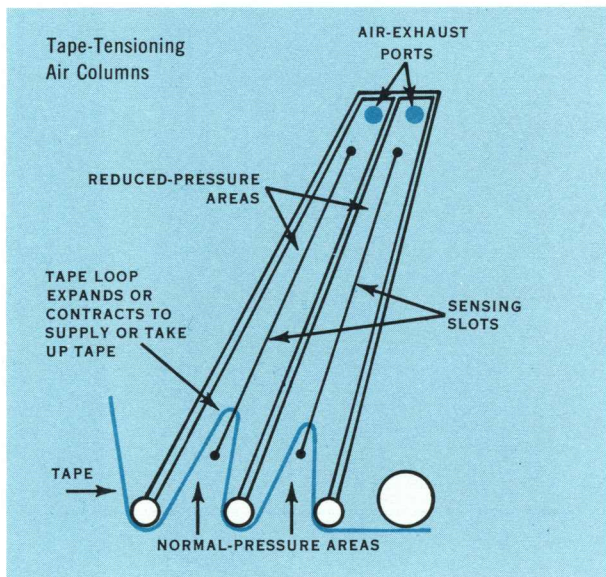
AMPEX

TM-1

DIGITAL TAPE HANDLER



New Ampex expanding reel holddowns provide quick, positive locking and release with a quarter turn. These devices automatically center the tape reel and position it properly and accurately on the turntable with respect to the tape transport and all tape-guiding surfaces.



The TM-1 is a versatile digital read/write tape handler for one-line or auxiliary applications. It can be used to make magnetic file tapes or to record the output from digital transducers or other data sources. It is ideal as an internal memory or input/output device for digital computers, or for feeding line printers, addressing machines, billing machines, data plotters, collators or even digitally programmed tools and process machines. Non-technical personnel can operate it with complete safety.

Outstanding Performance

The TM-1's tape speed and transfer rate are ideal for on-line digital work. For less demanding applications, slower tape speeds can be supplied. Rewind time for a 3600-ft reel of tape is less than 4 minutes. After rewinding, the TM-1 automatically repositions the tape at a beginning-of-file marker, and can go into forward drive again with a delay of less than one second.

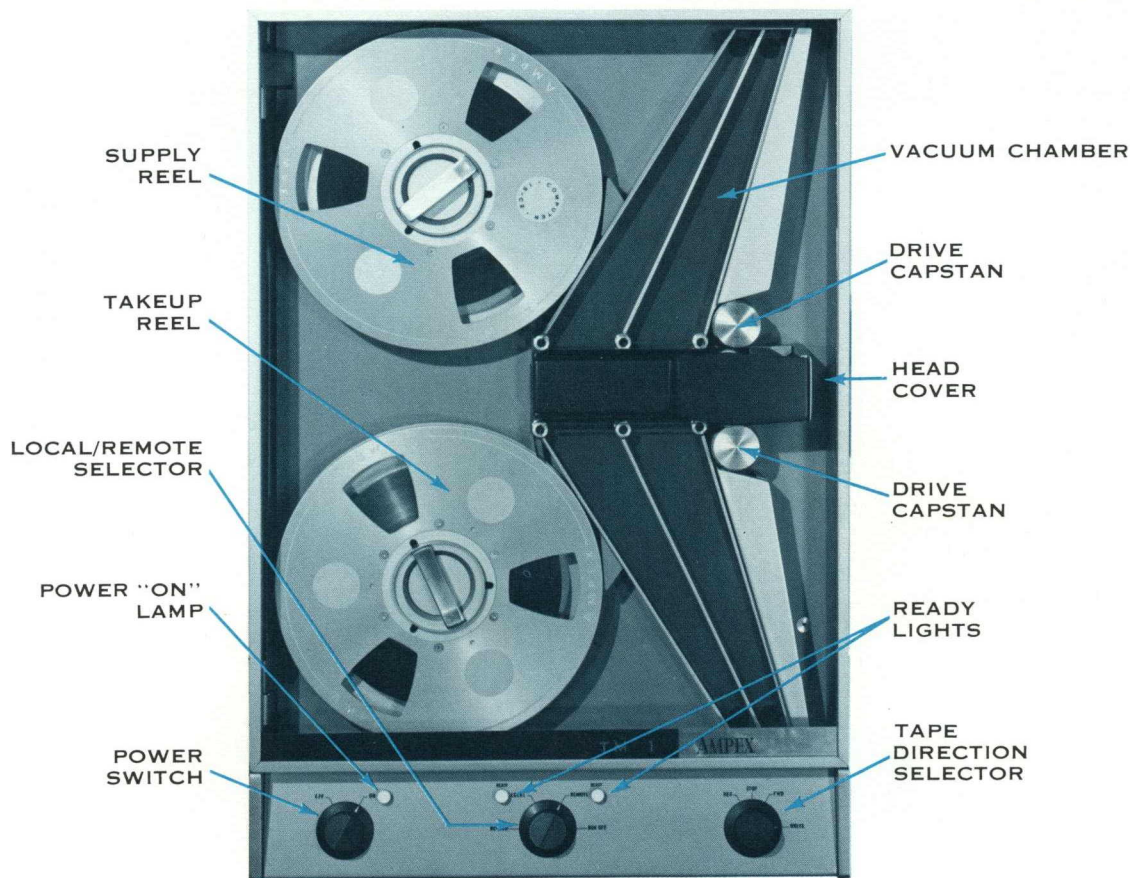
Position of the tape loops in the air chambers is determined through sensing slots providing continuous, proportional servo loop correction. A unique Ampex-developed photo-electric pressure transducer is used for linear determination of the position of the tape loop in the chamber. Tape-motion actuators employ a new "soft-throw" principle with controlled damping. This gives better control of tape acceleration, minimizing speed variations at start of tape motion. The resulting decrease in tape-speed overshoot means quicker starting times to bring the tape within speed tolerances. And the vacuum chamber tape reservoirs act as automatic tape cleaners, removing dust and oxide particles from the tape, resulting in fewer dropouts.

The TM-1 contains a buffer-delay interlock which provides an adjustable delay to start or stop commands. Thus you can set start/stop distances for machine-to-machine compatibility.

Simple Operation

Operation of the TM-1 is so easy that even non-technical personnel can use it with only the briefest introduction. The "straight-line" threading path is ultimately simple for quick loading and unloading of tapes. No special or permanent leaders are required and the tape is automatically fed into the vacuum chambers when the transport starts. Power interlocks are incorporated to insure safe operation. Tape reels are held securely and accurately in place by Ampex's new quarter-turn expanding holddowns.

Control of the tape handler can come directly from a digital computer or other remote source, or from the accessory local control panel. Another accessory device for use with the TM-1 is photo-electric beginning-of-tape and end-of-tape sensing.



Substantial Savings

Economies realized in tape savings are considerable with the TM-1. Tremendous flexibility is assured by the fact that handlers are available for $\frac{1}{2}$, $\frac{3}{4}$ or 1-inch tape, providing from 7 to 32 channels for data with a wide variety of magnetic heads, including a read-after-write head assembly. The tape handler can be used for information in IBM format, reading or writing at high or low density. Extremely fast start, stop and reverse times allow you to reduce greatly inter-record gaps on the tape.

Tapes are *gently* handled with a minimum of mechanical working, and are driven from both sides (which preserves oxide coating and written information). Controlled acceleration results in consistent oscillation-free starts. Forward and reverse tape-motion actuators are electronically interlocked to prevent simultaneous throwing.

You save space, too. The whole tape handler is only 24½ inches tall and 14 inches deep. An additional 3½ inches of height is required by the manual control panel. Two tape handlers and two manual control panels will fit easily in a single standard 19-inch rack. The TM-1's buffer-delay interlock permits closely predictable start/stop times, which remain virtually constant throughout the life of the handler.

The minimum space requirements and simple provisions for remote control make the TM-1 compatible with nearly all existing systems.

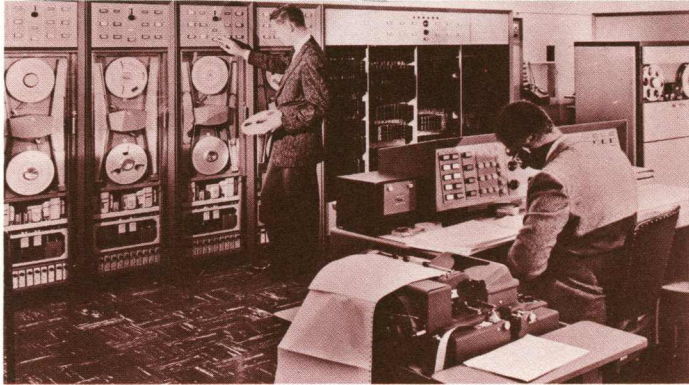
Reliability

Designed throughout to keep operating within specified tolerances, the TM-1 sets new standards of trouble-free reliability. Pinch-roller cushioning surfaces are of a new tough plastic material that outperforms previous materials by so great a margin its life expectancy has not yet been determined! However, the complete pinch-roller and actuator mechanism has been successfully life-tested through more than 100 million cycles. Loop-position servomechanisms utilize only solid-state circuitry and the reel-drive motors are powered by Silicon Control Rectifiers, all of which means positive benefits for you in terms of reliability and longer life.

Low Maintenance Costs

The TM-1 is a tape system which sets entirely new standards for low maintenance costs and long-term reliability. Well-stabilized circuitry places demands on long-life components far below their specified performance ratings. Mechanical elements are ruggedized throughout for consistent, dependable service.

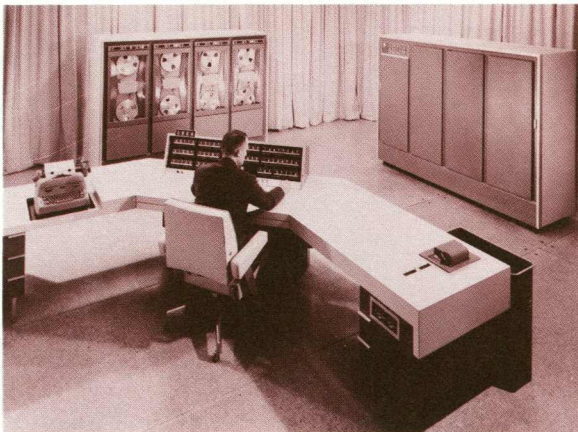
here are some typical Ampex digital system applications...



Ampex Computer Tape Handlers shown here used in National Cash Register's NCR-304 Computer system as installed in Macy's, the world's biggest, busiest store. These same instruments are used in Philco's Transac S-2000 Computer, and Control Data Corporation's Model 1604.



Ampex Computer Tape Handlers installed in a GE-100 data-handling system. These instruments are also used in the G.E.-built Bank of America ERMA system. Both the computers provide automated, accurate high-speed handling of bank accounts.



A typical digital-computer system. An installation like this is located at the Naval Post Graduate School in Monterey, California, where it is used for training and demonstrations in computer functions and operation, and also to compile and correlate incoming weather information and issue a forecast of Northern-Hemisphere weather conditions. Manufactured by Control Data Corporation, the system employs four tape handlers (top left) for input/output and data storage use. At the right is the data processor. The operator is seated at the control console (foreground).

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