

MT-75 MAGNETIC TAPE TRANSPORT AND MAGNETIC TAPE SYSTEMS



INTRODUCTION

The MT-75 Magnetic Tape Transport is the highest performance model in Potter's MT-Series of vacuum-column, digital tape handlers. The unit features IBM 7- or 9-channel operation at packing densities to 800 bpi.

The MT-75 is designed for use with small- and medium-scale computers, in mass storage, and for sequential access application where high-priced transports cannot be justified.

The MT-75 operates at a speed of 75 ips, with a three minute rewind; and data transfer rates to 120 ks (bcd). Start/Stop profiles are smooth and program restriction free over a command frequency rate up to 200 per second. In addition to IBM packing densities of 200, 556 and 800 bpi, other formats utilize 1/2-inch tape.

MT-75 Magnetic Tape Systems, which consist of an MT-75 Tape Transport, manual control unit, and suitable read/write electronics, are completely compatible with IBM systems such as the 7330 and 360/2400 series.

FEATURES

- standard unrestricted tape speeds to 75 ips
- highest performance and reliability for lowest price
- up to 60 kc data transfer
- compatible with IBM 7330 and 360/2400 series at all packing densities; 7- and 9-channel convertibility available
- low interchannel time displacement
- fast, smooth Start/Stop performance
- new over-and-under vacuum storage system
- tape loading in 15 seconds
- automatic advance to BOT

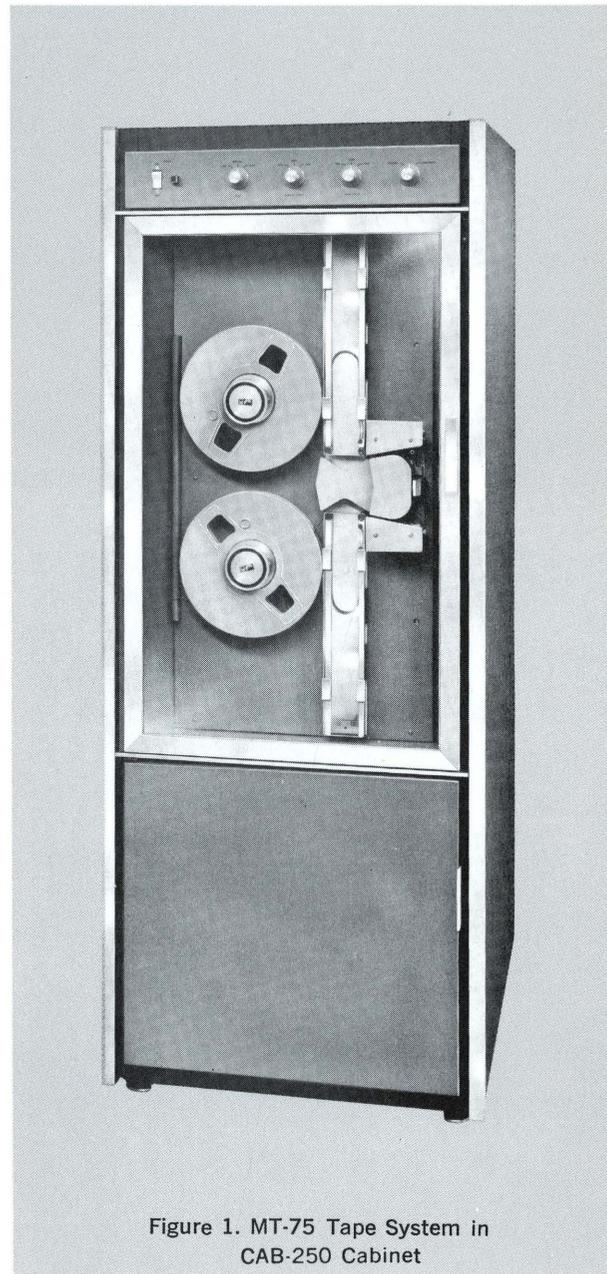


Figure 1. MT-75 Tape System in CAB-250 Cabinet

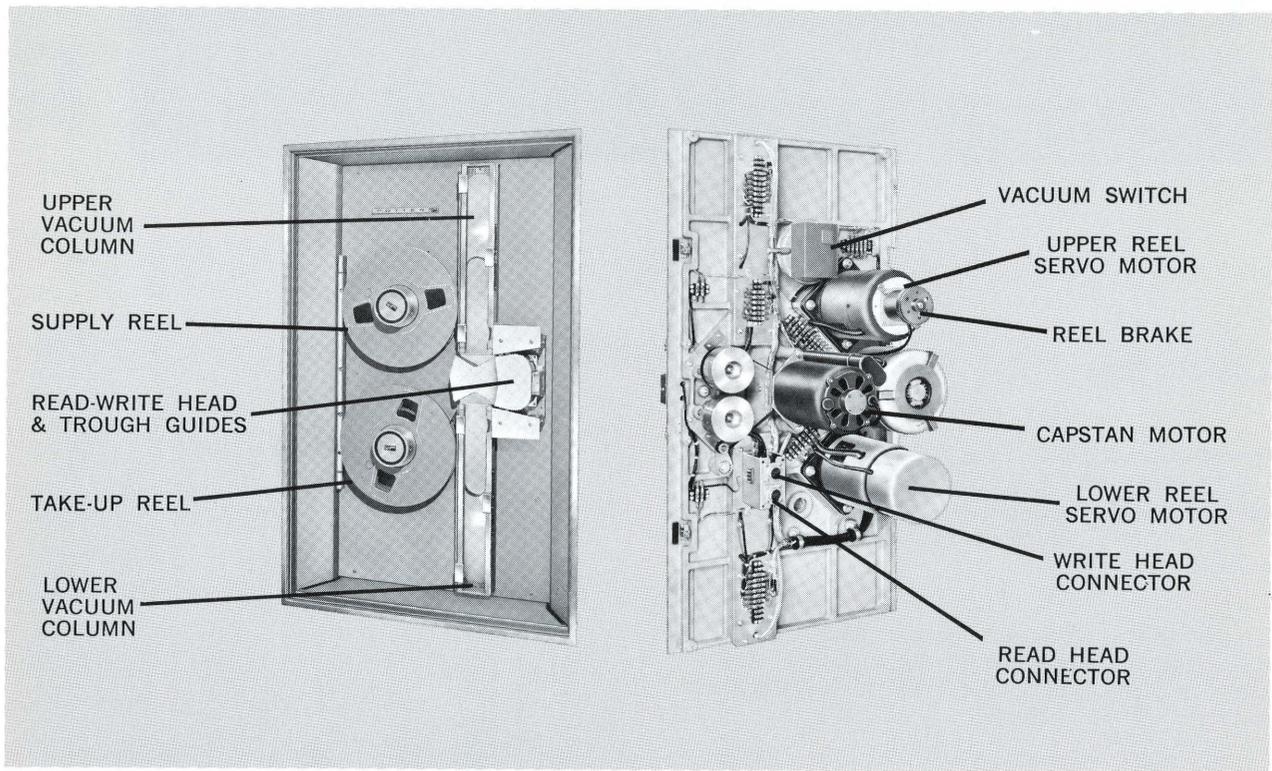


Figure 2. MT-75 Tape Drive

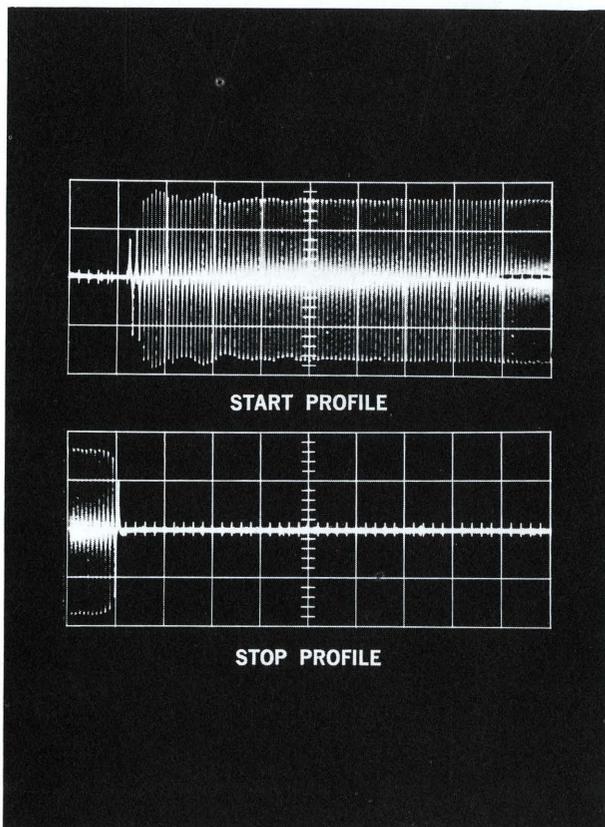


Figure 3. MT-75 Typical Velocity Profiles (1 div. = 1 ms)

DESIGN FEATURES

The MT-75 Tape Transport incorporates several outstanding design features which simplify overall operation, improve reliability and reduce service costs. Tension arms have been replaced by a dual under-and-over vacuum-column tape storage system, used in combination with Potter's precision tape drive system. Ample storage in the vacuum reservoirs provide restriction-free reading and writing.

Secondary buffers integrally designed into the vacuum columns provide extremely fast velocity stabilization. Photoelectric loop sensing reliably controls the amount of tape in both vacuum columns. The vacuum column covers are hinged for easy access to the column area for routine cleaning.

The trough guides, precision-shaped for optimum tape guidance, hold dynamic skew to ± 2 microseconds, maximum, at 75 ips. Start time is 3 milliseconds to within 10% of rated speed; stop time is less than 2 ms with smooth velocity profiles.

Integrated mechanical design throughout results in accessibility for easy maintenance. The main casting is designed to incorporate bearing mounts, vacuum columns and other components. This minimizes the number of component parts and provides simpler operation, maintenance and longer life.

Grouped control functions result in trouble-free switching.

The unit is self-checking. Safety interlock is provided for loss of vacuum, the power supply is cut off, the computer is signaled, and the tape transport stops.

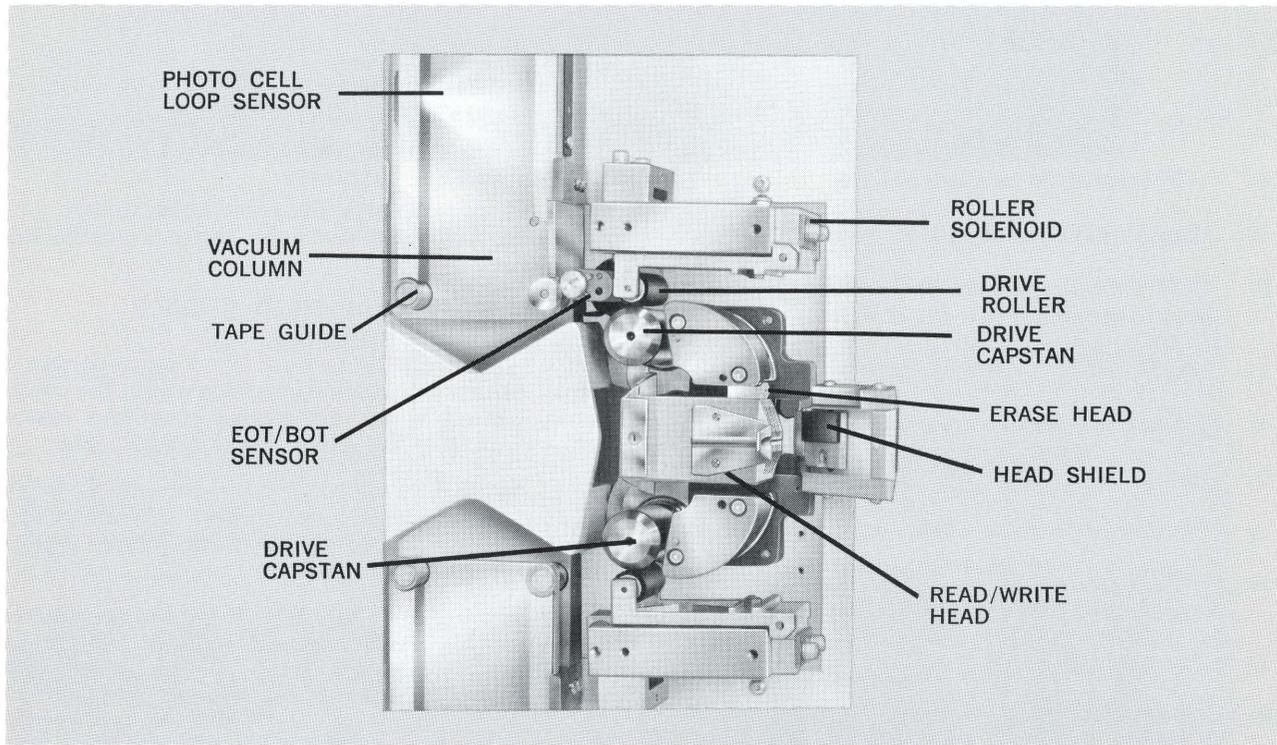


Figure 4. MT-75 Tape Drive Assembly

DRIVE ELECTRONICS & CONTROL PANEL (EC-75)

All MT-75 transport functions are controlled by a combined drive electronics and manual control assembly (EC-75) supplied with the transport. This compact package contains all electronics, together with necessary power supplies for automatic or manual operation. Electronics are solid-state and feature printed circuit plug-in cards. A hinged front door gives immediate access to plug-in cards.

For remote operation, the LOAD-MANUAL-AUTOMATIC switch is placed in the AUTOMATIC position; other controls in the STOP position.

OPERATING CONTROLS

Three Rotary Position Switches

REVERSE/STOP/FORWARD/
FAST REVERSE/STOP/FAST FORWARD
LOAD/MANUAL/AUTOMATIC

One Push Switch ON/OFF

One Momentary Switch ... UNLOAD/LOAD POINT

New type interlock switches protect equipment from operator error by prohibiting rapid switching from FAST FORWARD to FAST REVERSE.

The Potter vacuum column tape handler incorporates the simplest technique for loading and threading tape. Complete reel loading and tape threading can be accomplished in only fifteen seconds.

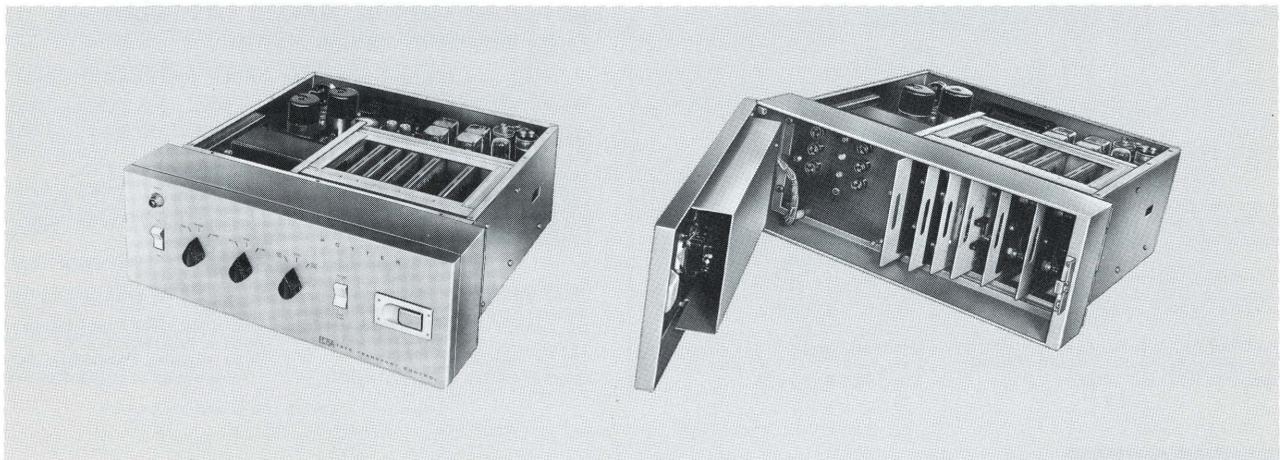


Figure 5. EC-75 Drive Electronics & Control

ACCESSORIES

MT-75 TRANSPORT ACCESSORIES

READ/WRITE HEADS

A complete selection of magnetic heads is available, including heads for IBM 7- or 9-channel format. Heads are all-metal, precision fabricated for maximum tape life and minimum interchannel time displacement.

REELS & HUBS

IBM-type reels and hubs are standard equipment on MT-75 transports for 1/2" tape. Reel/hub combinations of other manufacturers can also be accommodated.

EOT/BOT SENSING

Photoreflective (IBM-type) end-of-tape and beginning-of-tape sensing is available for reliable MT-75 tape control.

WRITE CONTROL

A Write Lockout (Write Enable) switch is available for use with file protect rings on IBM or NAB reels.

MT-75 SYSTEM ACCESSORIES

READ/WRITE ELECTRONICS

Standard amplifiers are available to accommodate packing densities up to 800 bpi and data transfer rates up to 60 kc.

Each read/write electronics assembly contains:

- up to nine Read/Write amplifier channels
- Clock Generator
- Write Inhibit electrical switching
- Erase head control
- head compensation for Read/Write (as required)
- power supply

For further information see the following Product Data Sheets:

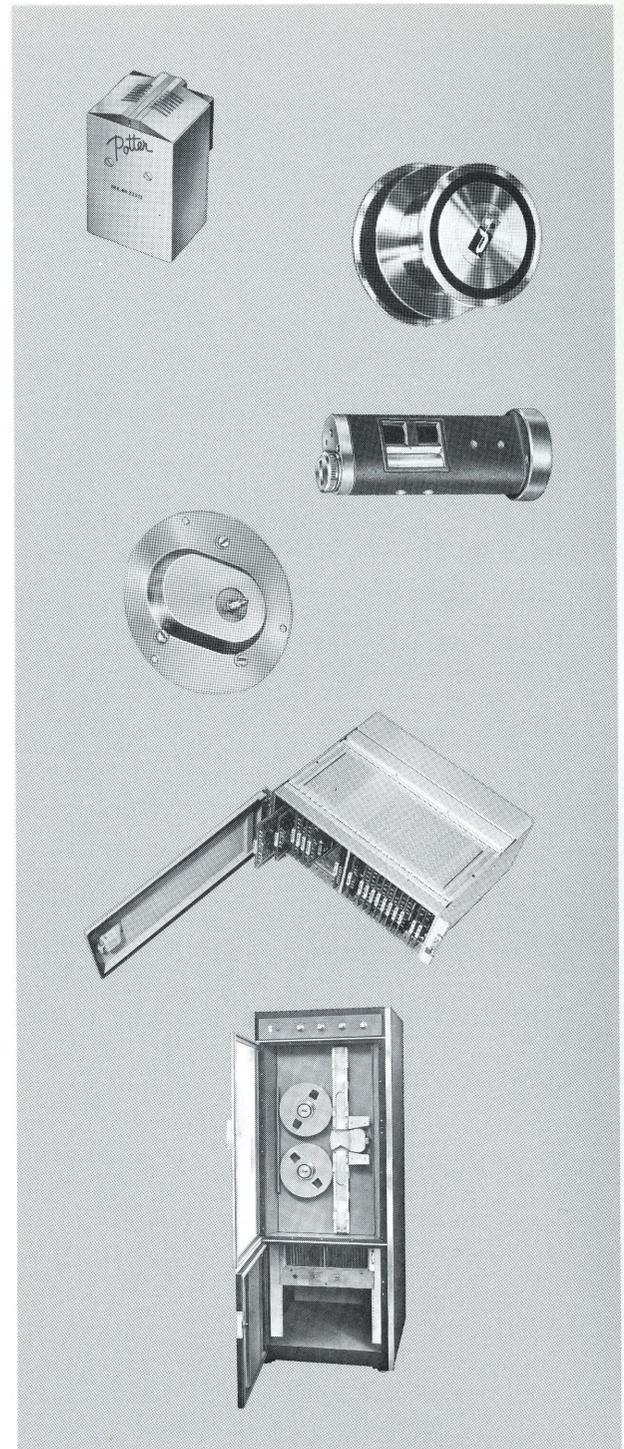
- No. 1-400 Read/Write Amplifier for 9-channels
- No. 1-402 MA315 Read/Write Amplifier
- No. 1-403 MSA375 Read/Write Switching Amplifier
- No. 1-404 MA212 Read/Write Amplifier

SWITCHING ELECTRONICS

Switching amplifiers are available which reduce the cost of digital magnetic tape systems by permitting time-sharing of a single Read/Write amplifier package among groups of up to four tape units.

CABINET

Potter Standard cabinet, Model CAB-250, as shown in Figure 1 is recommended for housing the MT-75 transport. Other cabinet styles are available for special requirements. All cabinets are rigidly constructed and will accommodate the transport, manual control,



drive electronics, power supply, read/write amplifier assemblies, and all accessories that comprise the system. The Cabinet provides accessibility, both front and rear, and allows space for customer electronics. Casters permit easy maneuverability.

Cabinets are supplied with standard Potter colors or can be finished to customer specification. Main Structure: charcoal gray, semi-gloss, Federal Standard 595, Number 26081, Doors, Front and Rear: light gray, semi-gloss, Federal Standard 595, Number 26622.

MT-75C SPECIFICATIONS

TAPE SPEEDS	60 and 75 ips standard; other speeds available to 75 ips
TAPE SPEED VARIATIONS	±2%
TAPE REWIND	3 minutes, maximum, for full 2400 foot reel
TYPICAL PERFORMANCE	at 75 ips with ½-inch, 1.5 mil Mylar tape
START TIME	3 ms from receipt of command to within ±10% of tape speed
START DISTANCE	over cycling range of 0 to 200 commands per second tape travels 0.100" ± 0.035" 3 ms after receipt of command
STOP TIME	2 ms to cease all tape motion
STOP DISTANCE	0.090" ± 0.025"
COMMAND REPETITION RATE	Start/Stop; 0-200 commands per second, 5 milliseconds between commands for performance within specification.
WOW & FLUTTER	less than 2% rms at 75 ips
INTERCHANNEL TIME DISPLACEMENT (at 75 ips, any two channels, ½" tape)	Static: 4 microseconds maximum Dynamic: ±2 microseconds Total: 6 microseconds maximum
TAPE WIDTHS	½ inch
TAPE TYPE	3M777 or equal recommended
TAPE REELS & HUBS	IBM-type 10½" reels and hubs standard for ½-inch tape.
TAPE LOADING	complete tape loading and threading is less than 15 seconds
REMOTE CONTROL INPUTS	Run/Stop; Forward/Reverse; Normal Speed/Rewind Speed, Speed control: High/Low. All 0v/-5v at 6 ma, d.c. levels.
CONDITION INDICATION	EOT/BOT Sensing Ready Automatic-Manual Write Lock-out (Form C contact) Power Supply
ELECTRONICS	All control circuits completely transistorized; modular plug-in construction used throughout
HEAD SPECIFICATIONS	For IBM compatibility, specify Model 17513-7 head. Heads for other formats available

PHYSICAL DATA:

	Dimensions (inch)			(lbs.) Weight
	High	Wide	Deep	
MT-75 Tape Transport	36¾	19	12	120
ECA75 Drive Electronics & Control	7	19	19	55
CAB-250 Rack Cabinet	70	27	31½	290
M3340 Cabinet	76	27	35	415

POWER

115v ±10%, 60 cycles, 600 watts, 900 watts peak; 230v, 50 cycles optional

AMBIENT TEMPERATURE (Operating)

32°F. to 125°F. (within tape limitations)

*QUICK-LOCK IS A TRADEMARK OF POTTER INSTRUMENT CO. INC.

MT-75 INTERFACE CONNECTIONS

Letters refer to contact pins, connector J/P-102, EC-75 Drive Electronics Chassis:

- A. -5v run/0v stop, at 5 ma
- B. -5v reverse/0v forward, at 5 ma
- C. Stop at EOT input (place jumper to pin D)
- D. EOT Output: Not on Foil, -15v. Maximum load to ground, 5 ma. On Foil, 0v.
- E. Ready Signal: -10v at 5 ma
- F. 10v nominal servo supply sample at 2 ma
- G. Rewind Command: -5v at 10 ma
- J. Stop at BOT input (place jumper to pin K)
- K. BOT Output: Not on Foil, -15v. Maximum load to ground, 5 ma. On Foil, 0v.
- L. Chassis GND
- M. Circuit GND
- Q. Automatic Mode Reply: -7.5v at 2 ma
- T. Capstan Speed Change Command: -5v at 5 ma
- U. +15v sample (for interrogation only) at 5 ma
- V. -15v sample (for interrogation only) at 5 ma
- W. EOT Lamp Out Signal: Out, 0v, 24 ohms to ground; On -5v to -10v @ 5 ma
- X. Write Lock-out Switch (normally closed contact)
- Y. Write Lock-out Switch (common contact)
- Z. Write Lock-out Switch (normally open contact)

MT-24 AND MT-36 TAPE TRANSPORTS AND TAPE SYSTEMS

The MT-75 is one member of a family of vacuum-buffered tape transports providing a range of speed capabilities as follows:

- MT-24 Tape Transport 1 to 36 ips
- MT-36 Tape Transport 1 to 50 ips
- MT-75 Tape Transport 1 to 75 ips

All these units employ the same basic design configuration, and most parts are interchangeable between models.

POTTER WORLDWIDE FIELD SERVICE AND LOGISTICS PROGRAM

Repair centers in strategic locations within the continental United States and abroad have been established to support the entire Potter product line.

Staffed by highly-trained field representatives, these repair centers are equipped to effect on-site installation of equipments and to perform quality repair, maintenance and overhaul.

Supplementing this capability, if a customer prefers to provide his own equipment support. Potter has established standard instruction courses to train customer personnel, either at Potter or in the field.

A Spare Parts Department, backed up by an extremely large inventory, and streamlined order processing, is available for customer convenience and economy. This inventory permits the customer to realize virtual elimination of downtime as well as savings on spare parts dollars by offering expeditious delivery for replaceable parts. Delivery is available in 24 hours to meet customer emergency requirements - within one week for standard parts under normal conditions. Potter also offers provisioning and logistics capabilities to meet all existing military specifications.

The Potter field service and logistics program is one of the finest in the EDP equipment industry. With reliable, quality-engineered equipment, supported by comprehensive field service, Potter guarantees satisfaction.

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