FEATURES

- Any bidirectional tape speed up to 120 ips
- Easy tape loading — stops on load point
- Unrestricted programming capacity
- IBM 7- and 9-channel (IBM 360 and ASCII) capability
- Speed tolerance ±2%
- Information density to 800 bpi, NRZI; 1600 bpi, phase modulated recording
- Revolutionary new single-capstan tape drive
- Data reliability — only surface in contact with oxide is read/write head.
- No mechanical adjustments required
- Photocell tape position sensors
- All solid-state servo controls
- Long Life . . . minimum servicing

GENERAL DESCRIPTION

The Potter Model SC-1060 represents a new design in tape transports. This tape system is one in a family of the industry’s simplest, high-performance, single capstan tape transport.

The new Potter SC-1060 is a single-capstan digital tape transport capable of bidirectional tape speeds to 120 ips with no program restrictions. The unit is completely compatible with IBM 729 and 2401 series Tape Transports at all packing densities.

The SC-1060 is IBM 7- or 9-Channel compatible. Other 1/2- or 1-inch tape formats, including ASCII 9-channel, IRIG or TIAC are available with packing densities to 800 bpi, NRZI and 1600 bpi phase modulated recording.

The SC-1060 single capstan tape transport is designed for use with high performance computer systems. The transport features operator convenience, high transfer rate and high-speed rewind. The basic simplicity of the SC-1060 transport assures maximum data reliability and system up-time.

Figure 1. Potter SC-1060 Tape Transport System

EFFECTIVE: APRIL 25, 1966
TAPE LOADING

The tape drive design utilizes a single capstan to pass the tape across the read/write head. Tape is threaded from the supply reel, over the read/write head to the take-up reel on the left side of the transport. When the LOAD push button is pushed, tape is automatically dropped into the vacuum columns, driven to the LOAD point and automatically switched from LOCAL to REMOTE.

TAPE PATH

In normal forward/reverse operation the oxide touches no surface except the read/write head, while the Mylar™ side of the tape is guided gently to eliminate wear particles, greatly increasing tape life and data reliability. Simple loading with Potter IBM-compatible QUICK-LOCK™ hubs enhances operator convenience.

Control of the tape path is maintained by a precision edge guidance system guaranteeing IBM interchange. Data may be transferred to or from the tape transport at standard bit densities of 200, 556, 800 and 1600 bpi or at any other transfer rate up to 192 kc at 120 ips. Tape tension is uniform throughout the entire reel, resulting in a smooth even pack, during rewind a vacuum column maintains constant tension. During rewind the tape does not contact the read/write head, but "floats" on an air film over the head because of the unit's high rewind speed — over 360 ips. There are no vacuum or pressure switches, guide rollers, air guides or tension arms to restrict performance. Complicated mechanical adjustments are eliminated.

LOW INERTIA CAPSTAN DRIVE

A low inertia drive provides rapid linear acceleration and deceleration while maintaining control of the tape on the capstan at all times.

The tape is driven as shown in Figure 3 by passing the tape 180° around a metal capstan coated with a resilient material. Sufficient force is applied to the Mylar side of the tape by the vacuum capstan to preclude slippage of the tape with respect to the capstan.

The capstan is directly driven from a high-performance dc motor which utilizes a combination of integrated and discrete solid state drive circuitry. Program restrictions of any kind are completely eliminated so that any sequence of commands, FWD/REV, FWD/STOP or REV/STOP may be given with no intermediate delays up to a maximum of 200 commands/second. No longer are "stop-delays" or "FWD/REV delays" required. Internal circuitry "remembers" command sequences and executes them properly, eliminating any requirements in tape-control units.

REEL SERVOS

The tape position in the vacuum columns is controlled by two "closed-loop" servo systems, one column for the left reel and one column for the right reel. Position is detected by photoelectric cells in the tank which drive the servo amplifier to control the servo motor to pay out tape into, or take up tape from the vacuum column as required to follow capstan movement. The servo motor utilizes a dynamic braking system which eliminates forever, mechanical brakes and adjustments. No tachometers or other velocity sensors are required. The new system is fail-safe even if AC power is interrupted during high-speed rewind, providing maximum tape protection.
**SPECIFICATIONS**

**TAPE DRIVE**
- Single Capstan

**TAPE SPEED**
- 75, 112.5 ips, 120 standard
- 120 ips & other speeds, optional

**TAPE SPEED VARIATIONS (steady state)**

**REWIND SPEED**
- 380 ips, average
- Less than 80 seconds for a full 2400' reel

**PACKING DENSITY**
- 200/556/800 bpi, NRZ I
- 1600 bpi, phase modulated recording

**PROGRAM RESTRICTIONS (1/2-inch tape)**
- None

**TYPICAL PERFORMANCE (1/2" 1.5 mil Mylar)**

<table>
<thead>
<tr>
<th></th>
<th>at 75 ips</th>
<th>at 112.5 ips</th>
<th>at 120 ips</th>
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<tbody>
<tr>
<td>Start Time (to within ±10% of speed, max.)</td>
<td>5ms</td>
<td>4ms</td>
<td>4ms</td>
</tr>
<tr>
<td>Start Distance</td>
<td>0.185 ± .025&quot;</td>
<td>0.225 ± .035&quot;</td>
<td>0.240 ± .040&quot;</td>
</tr>
<tr>
<td>Stop Time</td>
<td>3ms</td>
<td>4ms</td>
<td>4ms</td>
</tr>
<tr>
<td>Stop Distance</td>
<td>0.160 ± .020&quot;</td>
<td>0.200 ± .020&quot;</td>
<td>0.215 ± .020&quot;</td>
</tr>
<tr>
<td>Command Repetition Rate</td>
<td>Any sequence up to 200 commands/second</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed Stability — Long Term (1 sec)</td>
<td>±1%</td>
<td>±1%</td>
<td>±1%</td>
</tr>
<tr>
<td>Short Term (15 ms)</td>
<td>±1.5%</td>
<td>±1.5%</td>
<td>±1.5%</td>
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**SKEW**
- Static usec, max.
- Dynamic usec, peak

<table>
<thead>
<tr>
<th></th>
<th>225/ips</th>
<th>180/ips</th>
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</thead>
</table>

Dynamic Skew: Tape written and read on SC-1060 or written on IBM 729-VI and read on SC-1060 transport.

**TAPE WIDTH**
- 1/2"

**TAPE TYPE**
- 3M893B, or equal; 1.5 mil Mylar

**TAPE REELS**
- Potter QUICK-LOCK IBM-compatible hubs.
- Diameter reels IBM-type 10½-inch

**REEL HUBS**
- Complete tape loading and threading in less than 15 seconds

**REMOTE CONTROL INPUTS**
- 0 ± 5V standard, 0/-5, -5/0, 0/5 with logic conversion board. Maximum current draw is 3 mA

**STATUS REPLIES**
- EOT; BOT; Ready, Rewinding; Write Lockout form "c" contact

**ELECTRONICS**
- All control circuits fully transistorized for integrated, modular plug-in construction throughout

**SERVO CONTROL**
- All solid state with dynamic braking eliminating mechanical brakes.

**ENVIRONMENTAL CONDITIONS**

<table>
<thead>
<tr>
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<th>45° — 110°F</th>
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<tbody>
<tr>
<td>Ambient Temperature — Operating (within tape characteristic)</td>
<td>0°F to 165°F</td>
</tr>
<tr>
<td>— Non-Operating</td>
<td>20% to 80% (without condensation)</td>
</tr>
</tbody>
</table>

**POWER**
- 115V AC ±10%, 60 cps, single-phase (50 cps, optional)
- 7 amperes — standby
- 8 amperes — Running
- 10 amperes — Peak (less than 100 ms)

**DIMENSIONS**
- Transport/Cabinet (without control panel)
  - Height: 63"
  - Width: 27"
  - Depth: 26½"
- With Control Panel
  - Height: 68½"
  - Width: 27"
  - Depth: 26½"

**WEIGHT**
- 500 pounds, approx.
ACCESSORIES

Dual-Gap Read/Write Head Assembly
The dual-gap read/write head assembly is used for magnetic heads, which are designed for higher reliability. The read/write head assembly is designed for IBM tape transport equipment.

Reel and Hub Assemblies (Standard on SC-1060)
IBM-compatible reels and hubs are provided. The reel and hub assembly is designed for maximum tape life and minimum interchange time displacement.

EOY/BOT Sensing (Standard on SC-1060)
The EOY/BOT sensing system is provided under the SC-1060 technology, providing standard equipment with the SC-1060.

WRITE LOCKOUT
A non-contact write lockout switch is provided at the reading head. A single form "c" connector is brought to the transport interface connector. No need for the interlock device.

LOGIC CONVERSION
A standard logic conversion board is available to provide any input logic of '0's and '1's in the ground or grid range. The standard read/write amplifiers are available to accommodate packing densities up to 1600 bpi and data transfer rates up to 192 kcs. Each read/write assembly contains:

- clock generator
- erase head control
- write inhibit electrical switching
- head compensation
- power supply

STANDARD COLORS:
- Cabinet - ARMORHIDE* Light Grey Textured #U-1021
- Transport Panel and Operator Control Panel - ARMORHIDE* Medium Grey Textured #U-1042
- Decorative Trim - ARMORHIDE* Ocean Blue

*QUICK LOCK is a trademark of Potter Instrument Company, Inc.
**Mylar is a trademark of E.I. du Pont de Nemours Company, Inc.
RELIABILITY AND MAINTENANCE

Reliability of operation is a prime requisite of computer peripheral equipment. The SC-1060 has been planned with this consideration receiving major attention. The mechanical design incorporates a minimum of moving parts with all electronic components derated to conservative levels. There are no mechanical adjustments, and only a minimum number of electrical adjustments are necessary in the operation of the SC-1060 transport.

Mean-time-between-failures is estimated to exceed 1,000 hours when the equipment is supported by a normal maintenance program.

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 72 hours 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.

POTTER TAPE TRANSPORTS AND TRANSPORT SYSTEMS

Potter offers the world's broadest line of digital tape transports and tape transport systems.

Tension arm, vacuum-column, single-capstan and incremental transports are available, as well as a complete line of components and accessories, including read/write amplifiers, magnetic heads, drive electronics, manual controls, QUICK-LOCK hubs and cabinets.

In the single capstan series, units are available with tape speeds to 150 ips at all packing densities with unrestricted programming.

For further information, write, wire or call General Sales Manager, Potter Instrument Company, Inc., 151 Sunnyside Boulevard, Plainview, New York. Telephone (516) OVerbrook 1-3200. TWX 510-221-1852.