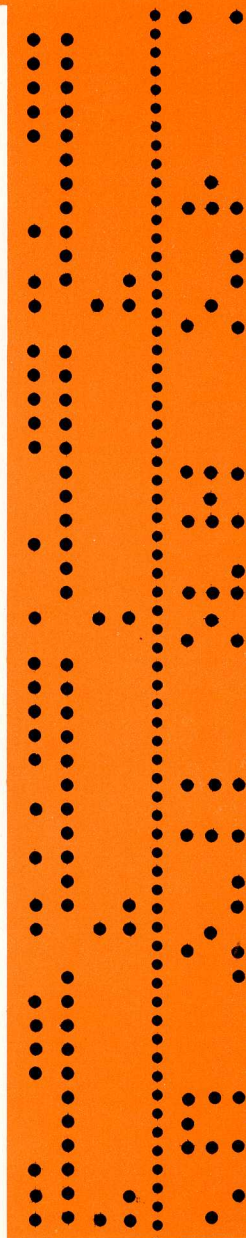
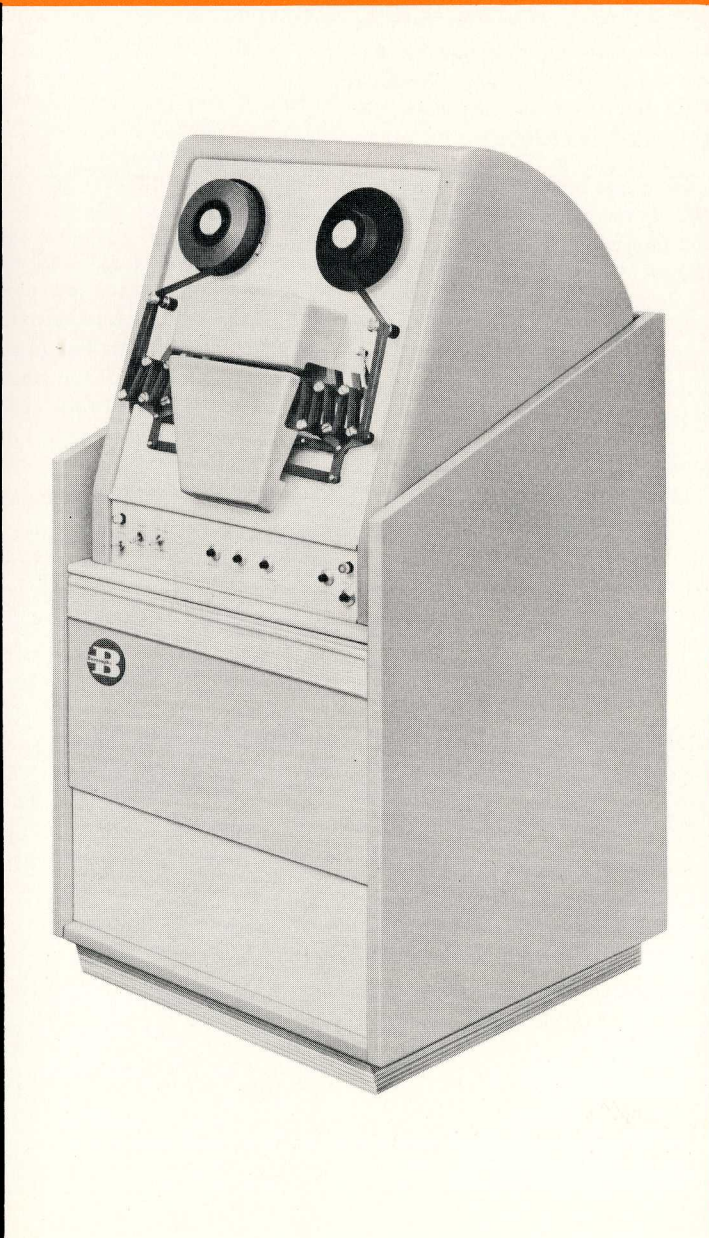
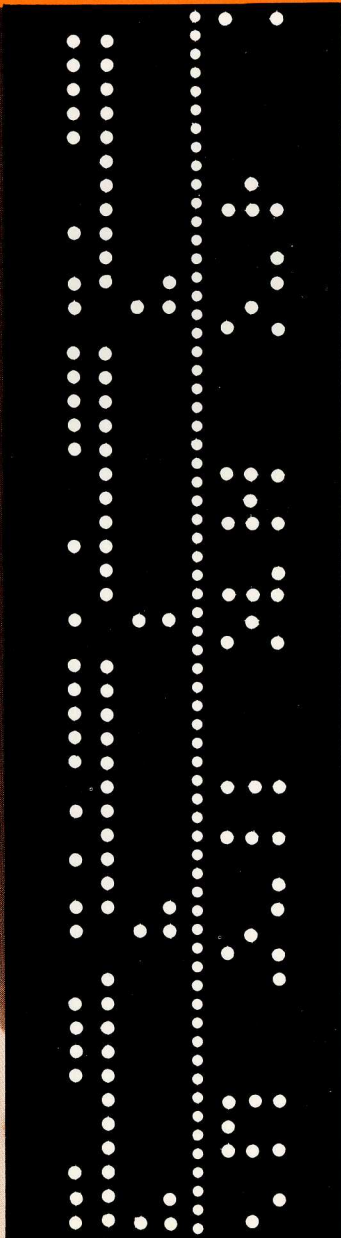
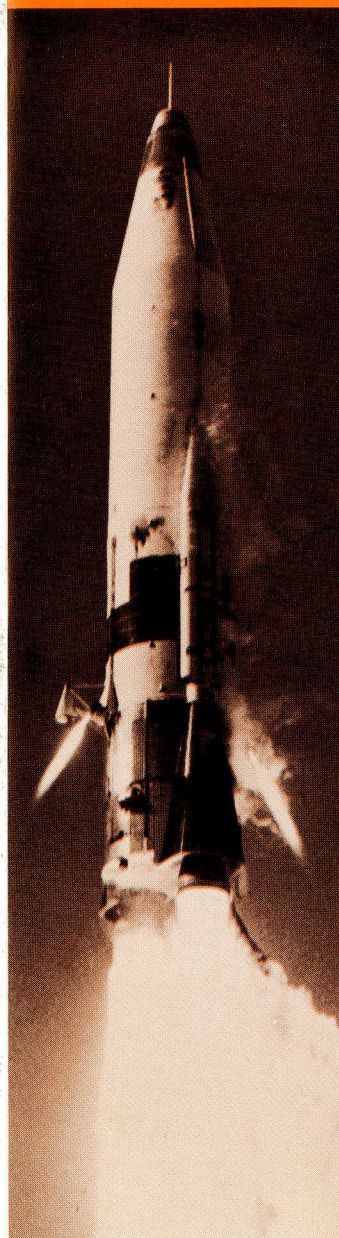


1000 ch/sec
\$6600

Burroughs NEW 1,000 Characters per Second

PHOTOREADER *Model 58187*





BURROUGHS PHOTOREADER

Punched paper tape has proved increasingly valuable as an input medium for electronic data processing systems. Its low cost, operating flexibility, and ease of preparation have led to widespread use for business and scientific applications.

With recent advances in the speed and performance of computers and automatic control systems, a need has arisen for faster data input mechanisms than previously available. Burroughs Corporation has made a significant speed breakthrough with the 1,000 characters/second Photoreader Model 58187.

Developed as an input device for the Burroughs 220 electronic data processing system, this precision photoreader links the advantages of paper tape with the latest achievement in computer engineering. Its previously unattained operating speed is a further result of Burroughs extensive experience in the electronic data processing field.

The Model 58187 is a capstan drive, reel type machine which reads perforated paper tape photoelectrically at the very high rate of 1,000 characters per second. Rapid tape start, and the ability to stop positively on the "Stop" character at all operating speeds, permit maximum programming flexibility. No deviation from normal data packing density is required.

The Photoreader incorporates many automatic features as standard equipment, both to safeguard the intelligence coded on the tape and to allow its use in a system with minimum operator attention. Tape is loaded and unloaded simply and rapidly, in a "straight through" manner. The versatility of design and availability of optional features permit ready adaptation to various data processing systems and control devices.

FEATURES

HIGH SPEED

Burroughs engineers, by unique application of proven principles, have developed a paper tape reader that fulfills the stringent reliability requirements of computer operation at the very high input rate of 1,000 characters per second. A new concept in buffer-loop storage, the "parallelogram" swinging arm, provides optimum tape guidance and enables packaging in a minimum-size panel assembly.

FAST START

The Pinch Roller is actuated against the capstan by a voice-coil, bobbin-type drive unit, which produces very rapid start of tape motion. Within 5 milliseconds after initiation of the restart signal, the character immediately following a Stop character can be read.

STOPS ON SINGLE CHARACTER

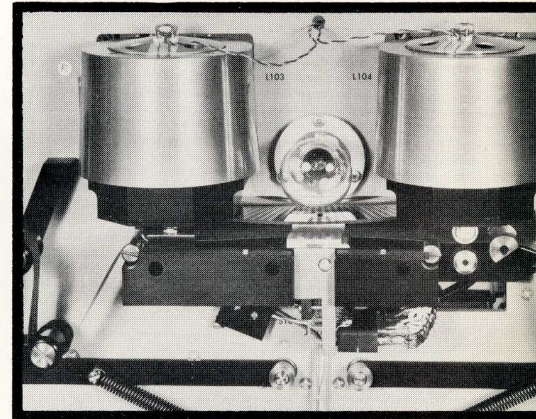
The Model 58187 Photoreader positively stops on a single character at all operating speeds. This is attained by constant application of a slight brake pressure against the tape during operation. No movement of the brake mechanism is required to stop the tape, only an increase in brake pressure. During normal tape movement, the brake permits passage of a splice. The novel application of a secondary tape storage arm augments the action of the braking mechanism.

STABLE CIRCUITRY

A chopped light source excites the photodiodes. AC amplifiers insure stable operation. Photodiode and DC amplifier drift problems are eliminated.

LOCAL OR REMOTE CONTROL

The Photoreader may be operated under either local or remote control. In "Local" the following push button controls are operational: FORWARD, STOP, REWIND, UNLOAD, and READY. IN "Remote" the UNLOAD and READY switches are operated when loading and unloading tape, but all other functions are governed by the logic and actions of a computer or other master control device.

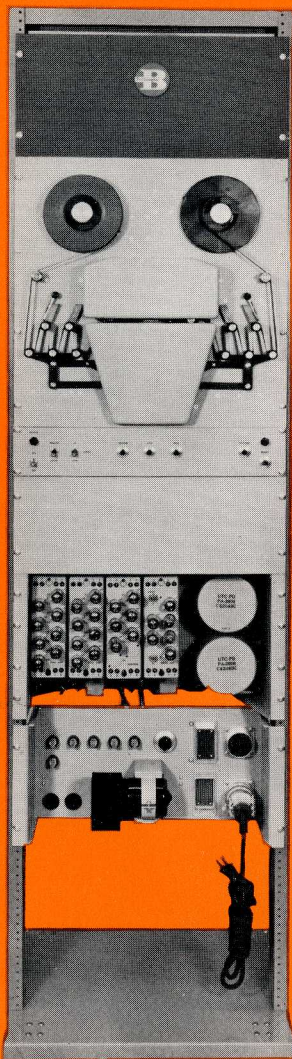


SIMPLE LIGHT SYSTEM

Mirror-less, lens-free design of the light system insures trouble-free operation. Excitation light impinges directly on each photodiode from a point source. Light source is a readily available lamp, designed for easy replacement.

TRUE STRAIGHT-LINE LOADING

The Photoreader is loaded simply and rapidly by straight-line feeding through both storage arm mechanisms as well as the reading head. Complete loading can be accomplished by the average operator in less than 30 seconds.



(Left) Rack-mounted unit.

UNIT DESIGNATE

In the Burroughs 220 Computer System, provision is made for on-line use of up to ten Model 58187 Photoreaders. The necessary "Unit Designate" switch and power transfer connectors are included in all Photoreaders as standard equipment, permitting multiple-unit operation in any data processing system.

ECONOMICAL REELS

Special molded plastic reels have been developed for use with the Model 58187. Their low cost makes it economical to store tapes directly on the reels eliminating the necessity for storage transfer. Tape handling to and from the Photoreader is further simplified by the "snap-on—snap-off" features of the reel and hub assembly. Increased tape life is an additional benefit of reel-handling of tapes.

(Below) Straight-line loading

RACK OR CABINET MOUNTING

Each of the five units comprising the Model 58187—Tape Handling, Control, Signal and Servo Amplifiers, Power Supply, and Fuse Panel—are directly mountable in standard 19" cabinetry. The Photoreader may be purchased in the 220 Computer styled cabinet (cover illustration) selecting from five cabinet colors, or may be purchased in unit form. The Power Supply may be omitted if the following voltages, regulated to 4%, can be supplied:

- 12 volts @ 5 amps
- 160 volts @ 200 milliamps
- + 250 volts @ 0.6 amps

EASE OF MAINTENANCE

Burroughs broad experience in digital computer engineering, plus five years of customer application of its 500 character per second reader, have provided the practical base for development of the new Model 58187 Photoreader. Use of modular amplifier packaging facilitates maintenance. Mechanical elements have been designed for minimum servicing.

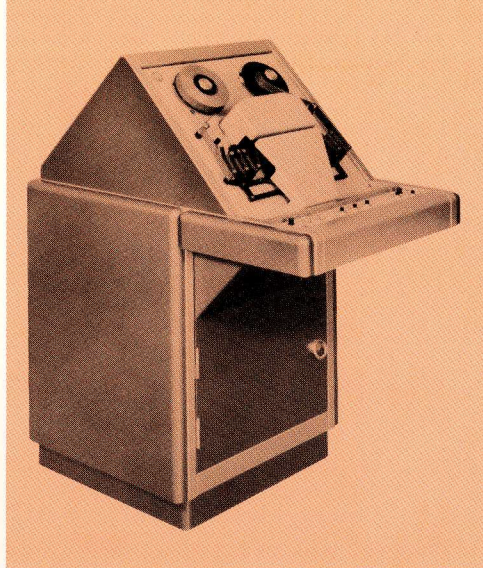
AUTOMATIC FEATURES

End-of-Tape—sensed automatically by placement of small strips of conductive foil near each end of the tape.

Automatic rewind—initiated when end-of-tape has been sensed while operating under remote control. This permits exceptionally fast re-entry of a computer program.

Automatic Shutdown—occurs in case of power failure, tape breakage or other malfunction. Positive braking of tape reels plus complete de-activation of servo system prevents tape spillage and possible loss of data due to tape damage.





PHOTOREADER *installed*
in standard commercial cabinetry.

SPECIFICATIONS

| SPEED | 1,000 characters per second maximum at tape speed of 100 inches per second with standard code density of 10 characters per inch. High-Low switch halves speed to 500 characters per second with tape speed of 50 inches per second. Reduced operating speeds optional to a minimum of 250 characters per second. | | | | | | | | | | | | | | |
|---------------------------------------|---|--------------------------------|-------------------------------------|---------------|--|-----------------------|--|----------------|---|-----------------------|------------------------------|---------------------------------------|--------------------------------|--|-----------------------|
| START TIME | At maximum speed, character immediately following a STOP character will be read within 5 milliseconds after initiation of start signal. Tape will reach 90% of nominal speed within 15 milliseconds after initiation of start signal and will not vary from nominal speed more than $\pm 10\%$ thereafter. | | | | | | | | | | | | | | |
| STOP TIME | At all operating speeds, stops so that the character following the STOP character has not reached the photodiode area and will not be read until re-start. | | | | | | | | | | | | | | |
| OUTPUT | <table border="0"> <tr> <td>"HOLE"</td> <td>plus 160 to 170 volts</td> </tr> <tr> <td>"NO HOLE"</td> <td>plus 115 volts maximum</td> </tr> <tr> <td>MINIMUM VOLTAGE SWING</td> <td>50 volts</td> </tr> <tr> <td>RISE TIME</td> <td>15 microseconds</td> </tr> <tr> <td>FALL TIME</td> <td>20 microseconds</td> </tr> <tr> <td colspan="2">Output into 22,000 ohm resistive load</td> </tr> </table> | "HOLE" | plus 160 to 170 volts | "NO HOLE" | plus 115 volts maximum | MINIMUM VOLTAGE SWING | 50 volts | RISE TIME | 15 microseconds | FALL TIME | 20 microseconds | Output into 22,000 ohm resistive load | | | |
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| Output into 22,000 ohm resistive load | | | | | | | | | | | | | | | |
| TAPE WIDTH | $\frac{7}{8}$ " tape will be read with standard tape handling system providing 7 code information holes plus 1 sprocket hole. Other standard tape widths optional. | | | | | | | | | | | | | | |
| TAPE SPEC | Opaque, non-oiled, non-metallic tape is recommended. Use of other tapes may alter performance characteristics. | | | | | | | | | | | | | | |
| TAPE REELS | <p>$5\frac{1}{2}$" and 7" diameter plastic reels with following capacities using 0.0040 inch thick tape:</p> <table border="0"> <thead> <tr> <th></th> <th>Tape Length</th> <th>Characters</th> </tr> </thead> <tbody> <tr> <td>$5\frac{1}{2}$" Reel</td> <td>350 Feet</td> <td>40,000</td> </tr> <tr> <td>7" Reel</td> <td>700 Feet</td> <td>80,000</td> </tr> </tbody> </table> | | Tape Length | Characters | $5\frac{1}{2}$ " Reel | 350 Feet | 40,000 | 7" Reel | 700 Feet | 80,000 | | | | | |
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| 7" Reel | 700 Feet | 80,000 | | | | | | | | | | | | | |
| POWER | <p>LINE—115 volts—60 cycle—single phase POWER—Total 0.75 kilowatts Heat Dissipation—approximately 2,500 BTU per hour</p> | | | | | | | | | | | | | | |
| PHYSICAL SIZE | <table border="0"> <tr> <td style="vertical-align: top;">(a) In 220 Computer Cabinetry:</td> <td style="vertical-align: top;">(b) In Unit Form—Standard 19" width</td> </tr> <tr> <td>Width.....24"</td> <td>Transport.....19$\frac{1}{4}$" x 7" deep</td> </tr> <tr> <td>Depth.....23"</td> <td>Control.....3$\frac{1}{2}$" x 10" deep</td> </tr> <tr> <td>Height.....48"</td> <td>Amplifier.....10$\frac{1}{2}$" x 15" deep</td> </tr> <tr> <td>Weight.....290 pounds</td> <td>Fuse Panel.....9" x 11" deep</td> </tr> <tr> <td></td> <td>Power Supply.....7" x 12" deep</td> </tr> <tr> <td></td> <td>Weight.....165 pounds</td> </tr> </table> | (a) In 220 Computer Cabinetry: | (b) In Unit Form—Standard 19" width | Width.....24" | Transport.....19 $\frac{1}{4}$ " x 7" deep | Depth.....23" | Control.....3 $\frac{1}{2}$ " x 10" deep | Height.....48" | Amplifier.....10 $\frac{1}{2}$ " x 15" deep | Weight.....290 pounds | Fuse Panel.....9" x 11" deep | | Power Supply.....7" x 12" deep | | Weight.....165 pounds |
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Burroughs Corporation

ELECTRODATA DIVISION
PASADENA, CALIFORNIA