

FIG. 1. TYPICAL PUNCHED TAPE.

A transmitter-distributor is a unit of teletype equipment used for transmitting teletype signals to a line from a punched tape. It is mechanically geared so that the tape-sensing pins are raised at the beginning of a revolution of the distributor brush and lowered at the end of the revolution. The tape is advanced at the end of the revolution. Energizing the release magnet permits the distributor brush to rotate, and when this magnet is deenergized the brush comes to rest on the "stop" segment of the commutator.

As has been described previously, 4 hole positions of a row are used to represent digits of a word. The contacts associated with the tape pins corresponding to these 4 holes are connected to one control grid of the gate tubes in such a way that a given gate tube will pass pulses only if its associated pin finds a hole in the tape.

The sequence of operations involved in reading a number from tape into the input-output element is as follows. A start pulse fires the gas tube, causing the auxiliary relay to pull in. This in turn

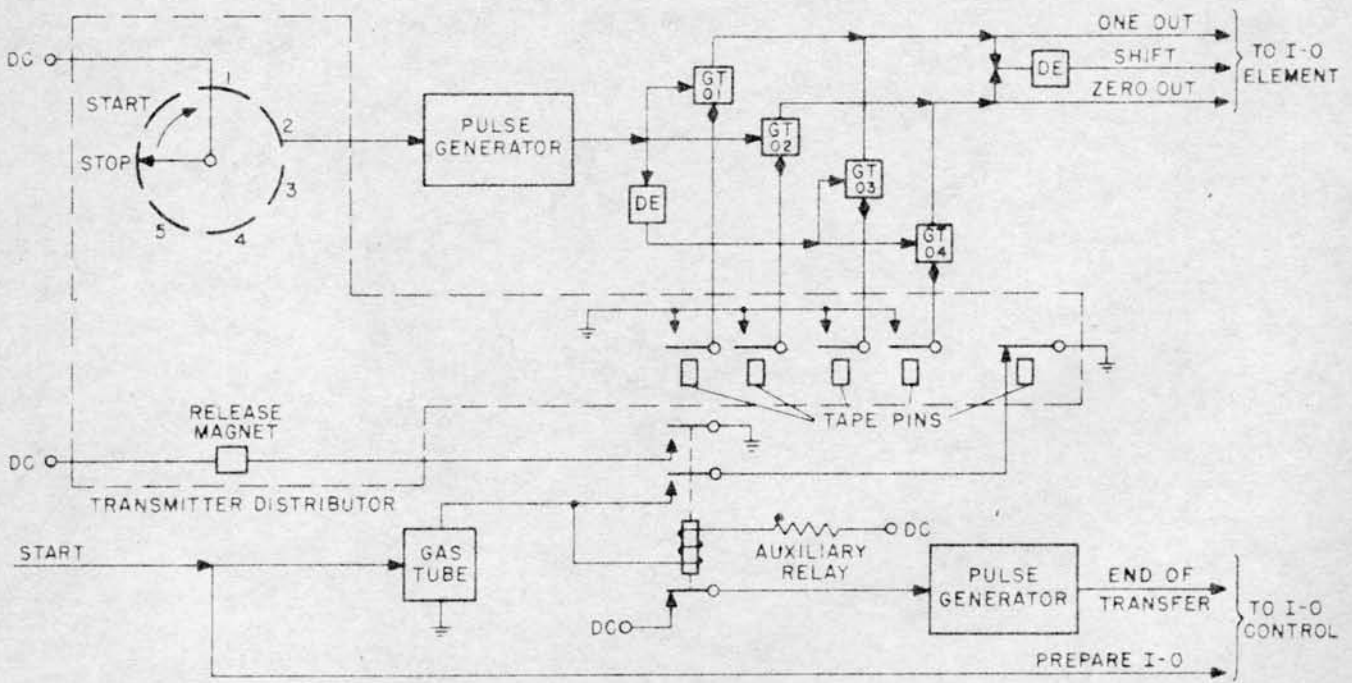


FIG. 2. BLOCK SCHEMATIC OF TELETYPE READER.

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energizes the release magnet to start rotation of the distributor brush. The start pulse also prepares the input-output element for receipt of a word. As the brush contacts segment 2 of the commutator, a pulse is generated and applied to gate tubes GT01 and GT02. The hole positions sensed by these gates correspond to a digit and its complement, so that only one gate should be open, and either a 0 or a 1 is shifted into the input-output element. After a short delay, a pulse is applied to GT03 and GT04 and a second digit is shifted into the input-output element in the same manner.

The contact associated with the fifth tape pin is used to form a holding circuit for the auxiliary relay. As long as no hole appears in the fifth hole position this relay remains energized and the tape continues to advance and shift digits into the input-output element. On the ninth tape advance, tape-pin contact 5 opens to release the relay and stop the distributor. This action generates a pulse which instructs the input-output control that the transfer has

been completed and is ready to be checked. Both the word and its complement are read into the input-output element in order that the transfer can be checked before the word is recorded on film or placed in the computer storage.

Succeeding numbers are read from the tape by repetition of the sequence described above. If the information is being put into storage, the start pulses are ordered by the computer control. If it is being recorded on film, a continue-operation pulse from input-output control following the recording process orders the next word to be read.

Many problems still exist in the design of a final system of teletype input and output devices. Most of these problems arise from the fact that present commercial equipment for tape punching and reading is not designed for applications where complete checking of all operations is required. As a result, redesign or modification of available units is necessary to obtain the accuracy demanded by the computer.