COMPANY CONFIDENTIAL

PROJECT STRETCH
FILE MEMORANDUM #24
SUBJECT: A Card Reader for both Stretch and the 705
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The 705 Card Reader and Control Unit Set can very easily be adapted by Stretch for its use. If the units are transistorized then the power supply requirement is reduced and it seems most probable that the set can easily be packaged in one box.

The 705 Card Reader Control Unit has as inputs 13 select lines which are decoded internally. Stretch can use up to 9 of these as wanted, to select up to 100 (377_8) card readers without changing internal selection logic. The Card Reader will put a 7 bit character on the Information line every 34 microseconds. The Control Unit will emit a 4 microsecond response pulse 8.5 microseconds after the information is on the line. When a Card Reader is Selected and the Read Call line is raised, this initiates a read cycle. Information is sent to the computer immediately at a 34 microsecond per character rate, until 92 positions are sent or until a position with a Storage Mark is encountered. A Disconnect pulse is sent after the last character. This pulse can be used to sample the Read/Write Error line which indicates a Redundancy Error between the first and second reading brushes. A new card is read automatically into the buffer so that it will be ready as soon as possible for the next Read Call. When all the cards are read through the machine, the I/O Indicator line is raised whenever the Card Reader is selected. This condition is held until cards are again run in or until the Control 0000 line is raised.

If the Card Reader is to be transistorized, it seems that some simple improvements should be investigated. The first would be to power a Ready line from the Card Reader to indicate when the buffer was full. This could be used by 705 customers also as a Trasfer on Ready instruction is already incorporated in the 705. A second change for the use of Stretch alone would be for powering the 12 line output of the Buffer Register directly onto the information lines when a direct card image is desired. These could be sent 6 at a time if more equipment is included inthe Card Reader. This would facilitate the reading of binary cards. A third improvement would be to speed up the information flow. A 14 microsecond cycle could be used with present logic and with a little Card Reader, redesign a 9 microsecond cycle can be used by the 705.

It would be possible to start work on such a Card Reader immediately. It should be able to use 100 KC transistors and existing core circuits. Improvements to reduce maintenance should be incorporated to make this a pilot project for other mechanical units.

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