

I have no connection with RMI or Allen Organ. These are just my notes on how I think the circuit works.

The card reader circuit is located on the same pcb as the main clock generator, but the functions are not really related. There is one clock signal, fed to the card reader at Z14 pins 1,2. Z14 pin 8 will go high whenever a card is blocking the row 12 sensor. As soon as someone starts to push a card into the slot Z14 pin 8 will go high, which will enable the 1 MHz clock at Z14 pin 6.

The hole pattern in the card in rows 8 and 9 allows the various waveform data values to be read by the interface. The signals from these two rows are fed into the two halves of Z7. The signal at Z7 pin 6 enables clocking the waveform data into the seven flip flops Z10-Z13. The signal at Z7 pin 9 enables a high pulse at Z6 pin 6, which causes Z8 pin 9 to toggle. Z8 and Z9 form a 4-bit ripple counter, which counts waveform data value indexes from 0-15. After 16 values have been read, Z10 pin 8 will flip, disabling the clock and further data reads.

Q3 is probably a signal to other circuits that the next data word is ready for reading.

The Z8 flip flop was not toggling in the unit that I was working on, even though the clock and other signals were present. This is a DTL chip. MC853 or ITT9093-5N. Changing Z8 fixed the card reader.

Probing the chips on this board is made more difficult by the fact that it is covered with a conformal coating. Meter or oscilloscope probes must penetrate the coating to make a connection.