



Magnetic Core Shift Register

The FX -- card consists of two magnetic core shift register positions, each capable of storing one bit of information. Each core position has three input windings, a read-out winding and two output windings.

The input windings are driven by core mode Z lines from either a capacitor storage network or from a special bit insert driver. These input windings are gated on by selecting the read-in driver circuits (HG -- or CZ -- cards).

Normally, all reset windings of a shift register are serially connected and receive a constant current read-out pulse from one read-out driver (GY -- card). The output windings are biased by read-out control drivers (HF -- card), that control the status of the output transistors.

The FX -- card contains the basic circuits used to form shift registers of various sizes capable of storing and regenerating data bits within a register; serially transferring data bits right or left within a register; and parallel transferring data bits between two different registers.

Circuit Description

MAGNETIC CORE SHIFT REGISTER OPERATION

Understanding the use of the shift register cards requires knowledge of the magnetic core shift register operation.

Figure FX-1 shows three positions of a theoretical magnetic core shift register and illustrates the principle of serial shifting and regeneration of a stored bit within the register position. Each core position consists of a transistor, three diodes, a capacitor storage network, and a magnetic core and its associated windings. The transistor is used with the output winding to charge the capacitor without excessive core loading. The diodes in the input winding circuits provide isolation from the read-in driver circuits.

Normal shift register operation is at 250kc and consists of alternated read-out and read-in pulses to the core position. A 4 microsecond duty cycle pattern consisting of a A, B, C, and D pulse, each 1 microsecond wide, is