Digital Computer Laboratory
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SUBJECT: A MAGNETIC CORE TEST STORAGE

To: N. H. Taylor

From: K. H. Olsen

Date: June 15, 1953

Abstract: The toggle-switch test storage units in WWI and MTC use large numbers of crystal diodes and vacuum tubes. A much simpler unit might be possible using a modified magnetic matrix switch which will both select the words and isolate the outputs. Only one core per word will be needed.

The WWI-MTC Toggle-Switch Storage

In the WWI and MTC toggle-switch storage units, crystal diodes are used both to select the words and isolate the outputs. In the MTC units, there are over 700 crystal diodes and 60 cathode followers.

Magnetic Test Storage

The proposed test storage consists of a magnetic matrix switch, the type described in R 211. A four-word unit is illustrated in the accompanying drawing. The selection flip flops with their buffers saturate all but the selected core. During the readout operation the driver pulses all the cores; the one which is not saturated switches and a voltage is induced across all its windings. Each digit output is in series with one output winding on each core. Each output winding can, however, be bypassed by a toggle switch which is in one position to represent a "zero" and in the other to represent a "one". Induced pulses will, therefore, come from a given digit only if the toggle switch for that digit of the selected word is in the "one" position.

Both selection and isolation are accomplished using only one core per word of storage. Each core will have a large number of windings but the cores can be large with many turns in the driving windings because operation of test storage need not be fast.

Signed Kenneth H Olsen
Kenneth H. Olsen

KHO:hpm

Attached:
Drawing No. SA-55295

cc: R. R. Everett - W3-413
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SA-55295

A 4 Word Test Storage Using Magnetic Cores for Selection

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