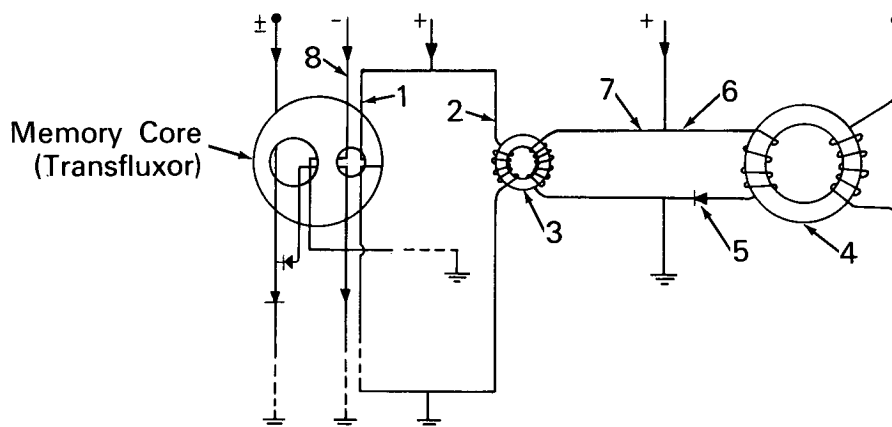


NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Transfluxor Circuit Amplifies Sensing Current for Computer Memories



The problem: A highly reliable sense amplifier was desired for a computer magnetic core (transfluxor) used as a memory element. The output current from the memory was not sufficient to operate directly in the arithmetical section of the computer; it was therefore necessary to amplify the data from the memory before it could be used in the computer.

The solution: A method of transferring the data stored in the memory (transfluxor) into a core which is independent of the memory. At a later time the data can be transferred from the independent core to the appropriate portion of the arithmetical section of the computer. An increase in signal strength is obtained in the second transfer.

How it's done: The initial transfer from the memory utilizes a two-turn read winding 1 on the memory core paralleled by an amplifier winding 2, on the core 3, into which the data is transferred. To

read out information stored in the memory core, it is primed by passing a current through prime wire 8, after which the information is transferred by passing a current through the read wire 1. When the memory core is so magnetized that read current tends to change the direction of magnetization, this change acts as an impedance to reduce the read current through the read wire 1, causing a large share of the read current to flow through the amplifier wire 2 instead. If the memory core (transfluxor) is not magnetized so as to oppose the read current, most of the current is in read wire 1 and not in the amplifier wire 2. The turns ratio between cores 3 and 4 provides a gain in signal strength. A diode 5 is included in branch 6 to prevent current from flowing counterclockwise around branches 6 and 7; this loop could otherwise act as a shorted transformer secondary winding on core 3 to unduly decrease the impedance of branch 2.

Patent status: NASA encourages the immediate

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