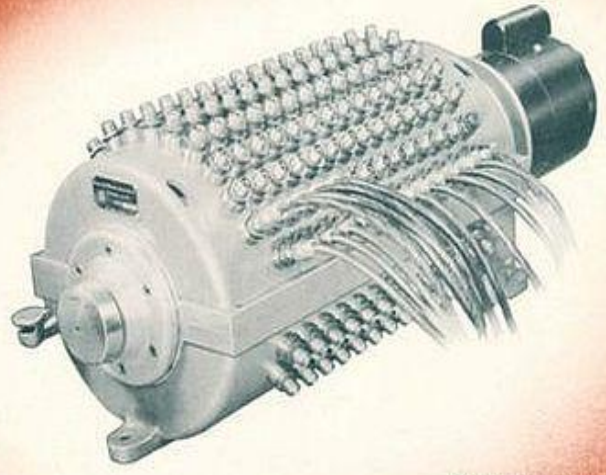
ERA MAGNETIC STORAGE SYSTEMS



You can now replace storage relays, stepping switches, punched tape, and other bulky forms of storage with an ERA Magnetic Drum Storage System. When used to store commands and other information for automatic machines, ERA Magnetic Storage Systems provide the reliability, the storage capacity, the economy in dollars and in space, and the high-speed operation required in many modern applications.

Engineering Research Associates, INC.

ST. PAUL, MINNESOTA ARLINGTON, VIRGINIA

Magnetic Storage Systems

ERA Magnetic Drum Storage Systems

have been developed to meet the requirements of modern automatic data-handling systems for rapid-access storage of initial data, commands, and intermediate and final results of computations.

In some instances, relays, punched cards, or punched tape are used for this purpose. However, to handle large-scale problems efficiently requires the rapid handling of large amounts of information. The present-day use of electronic circuits has so greatly increased machine operating speeds that dependable storage systems are now required which provide both large capacity and rapid access to the information stored.

Dependable, large-capacity, high-speed digital storage equipment is also required for many types of automatic inventory systems. The rapid development of these systems has been handicapped in the past because of the bulk and high cost of suitable storage systems.

ERA Magnetic Drum Storage Systems, proven in operation, fill the requirements of these and other digital storage applications. They are the only commercially available storage systems which offer the combination of alterable yet non-volatile storage (recorded intelligence is not affected in event of power failure), dependability, high-speed and large capacity.

The heart of a Magnetic Drum Storage System is a precision-built cylinder coated with a magnetic material. In operation, these drums rotate at speeds ranging from 1200 to 7000 rpm. Magnetic recording heads incorporating both recording and reading windings are mounted close to the drum surface so that each head covers a narrow band around the periphery of the drum.

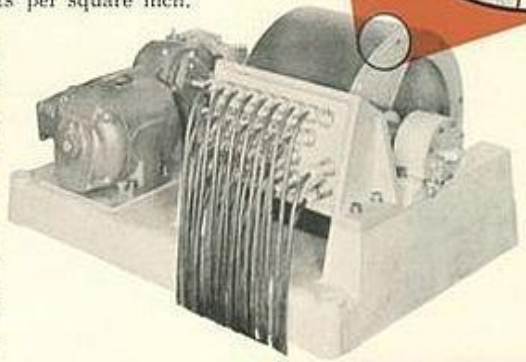
ERA Magnetic Storage Drums range in size from large-capacity models measuring up to 24 inches in diameter to small spinner types measuring only two inches in diameter. In this photo heads are being installed in a 6-inch model which has found application in a number of computer research and development laboratories.

The ERA Model 1100A1 Magnetic Storage Drum incorporates more than 200 individual reading-recording magnetic heads. Approximately 8.5 inches in diameter and 14 inches in length, it has a storage capacity of 720,000 binary digits. The drum provides access to any stored item of information in a maximum of one-sixtieth of a second.

Intelligence is recorded on the drum as combinations of magnetized marks or spots. Information thus recorded is represented by combinations of two possible states of the medium (binary representation)—a technique commonly used with relays, punched tape, and punched cards. Combinations of marks can represent decimal numbers, characters of the alphabet, or other forms of intelligence.

Depending on which of two basic storage techniques is used, data may be recorded on the drum at a maximum density of 1280 or 2060 binary digits per square inch. ERA has developed Magnetic Storage Drums with capacities in excess of one million binary digits. This capacity is adequate to represent a quarter million decimal digits. Data may be recorded or be made available to associated equipment at rates up to 125,000 digit groups per second.

Reading, writing, and control circuits incorporated in ERA Magnetic Drum Storage Systems represent the utmost in dependability under conditions of line voltage fluctuation, temperature variation, and component aging. Ruggedly built to exacting specifications, these units are mounted on pluggable chassis which may be exchanged with ease. Physical construction is specifically designed to facilitate the transfer of heat from the tubes and components with a minimum temperature rise. When desired, the electronic sections of the storage systems may be located remotely from the drum.



Whether your information storage requirement be one associated with large-scale computers, with automatic inventory control, billing or scheduling systems, or other special purposes, ERA engineers will be pleased to investigate the possible application of ERA Magnetic Drum Storage Systems to your problem. Write to Engineering Research Associates, Inc., Room 105, 1902 West Minnehaha Avenue, St. Paul 4, Minnesota.

When installed in ERA Magnetic Storage Drums this widely used ERA Magnetic reading-recording head is positioned 0.002" from the drum surface—and maintains this setting during all normal conditions of shipment or use. Low impedance coils permit locating the drum remotely from associated electronic equipment.

This photo of a portion of a typical electronic section of an ERA Magnetic Drum Storage System illustrates the pluggable chassis construction feature. These individual pluggable units may be easily replaced, thus simplifying maintenance and insuring maximum system operating efficiency.

IMPORTANT FEATURES OF MAGNETIC DRUM STORAGE SYSTEMS

Ruggedly Designed to rigid specifications, ERA Magnetic Drum Storage Systems are dependable in operation.

Non-volatile property of data record permits retention of stored information for extended periods; data retention does not depend on or require the continued operation of electric circuits.

Large Storage Capacity—as high as 2060 binary digits per square inch is available.

Economy results from re-use of same recording surface over and over again. Since recording heads are not in contact with drum surface, no wear occurs.

High Speed of associated equipment is possible since data may be stored or read at rates up to 125,000 digit-groups per second.

Engineering Research Associates, INC.

1902 W. MINNEHAHA AVE.
ST. PAUL, MINNESOTA

507 18th STREET SOUTH
ARLINGTON, VIRGINIA