NAME OF SYSTEM:

Automated Engineering Data Retrieval and Reproduction

ORIGINATOR:

Engineering Support Division

Procurement and Production Directorate

Army Electronics Command

Fort Monmouth, New Jersey 07703

OBJECTIVE. To establish and operate an image storage and retrieval system that will automatically locate engineering drawings and reproduce aperture cards for use in procurement actions.

BACKGROUND. The Army Electronics Command is responsible for managing the electronic-communication "commodity" for the Army. This encompasses not only the research and development activities, but also the procurement, production, and maintenance of each developed item. The Procurement and Production Directorate translates material planning and requirements (specifications) into the acquisition of specific hardware items.

Before an item can be acquired, a series of preparatory procurement actions must be taken. One of these actions is gathering the pertinent documentation making up the technical data package that is given to the prospective bidders. Accompanying each of these data packages is a set of engineering drawings and associated lists that describe in detail the item(s) to be procured. As the size of bid packages increased due to the complexities of procurement items, it became increasingly difficult to meet deadlines for distribution of the technical data package to prospective bidders. After many studies of the growing problem, the Army Electronics Command adopted a highly automated image search and retrieval system to solve the problem.

THE NEW METHOD. The Documentation Automated Retrieval Equipment (DARE) is the heart of the new system. It is used for the automatic storage and retrieval of film chip copies of coded aperture card reproductions of engineering drawings. These chips measure 35-mm. by 3 inches and contain both binary-coded identification information and the image of the engineering drawing. The film chips are stored in a special automated file container, which currently contains about 490,000 images of active engineering drawings.

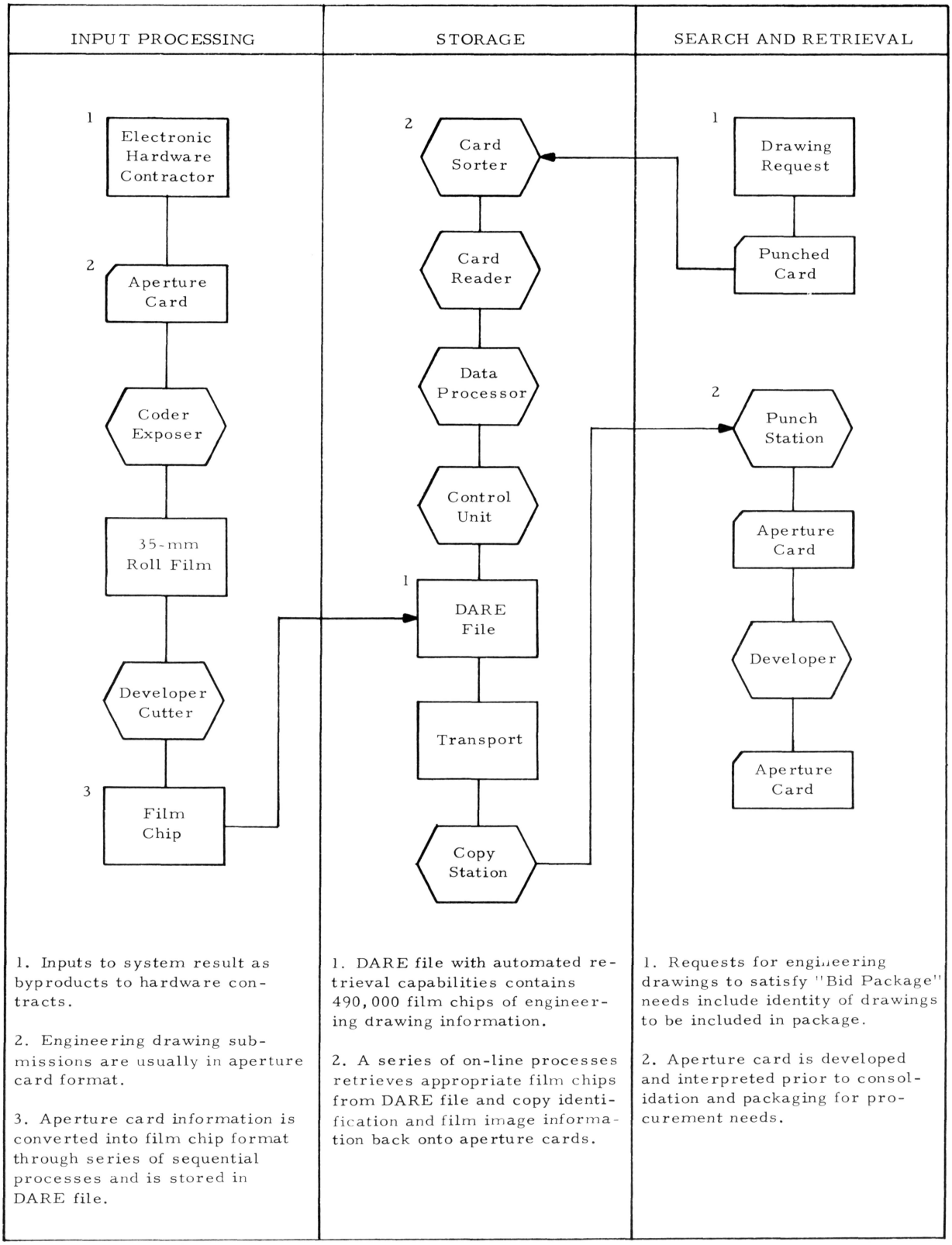
As specific groups of drawings are needed to support procurement package requirements, previously sorted punched cards containing appropriate engineering drawing data are placed in a punched card reader. The information interpreted by the reader is passed to the central processing unit that transmits the information to the control unit. The electronic impulses from this unit command the transport unit's mechanism to retrieve the proper film chip from the storage container. (The actual identification of the chip is performed by an optical reader that scans its binary-coded information for image selection purposes.) The chip image is then copied onto an output aperture card, and the binary-coded information is keypunched into the output card. Subsequent film development and interpretation (printing) at the top of the punched card are performed on-line.

The system can also be programed to automatically make multiple copies of the same drawing. Output controls allow for the proper batching of aperture cards intended for individual bid packages. As many as 4,000 engineering drawings can be selected and processed per day for forwarding to prospective bidders.

REMARKS. The DARE system is especially effective when applied to large and active files of document information that must be conveyed to users on short deadlines and in reduced size for handling and transmission purposes.

The system can store up to 855,000 engineering drawings or similar information displays, and through use of a modular concept it can double that capacity. In addition to the automatic retrieval and copying capabilities, it can also accept and purge 2,000 documents per day.

AUTOMATED ENGINEERING DATA RETRIEVAL AND REPRODUCTION



1. Inputs to system result as byproducts to hardware contracts.

2. Engineering drawing submissions are usually in aperture card format.

3. Aperture card information is converted into film chip format through series of sequential processes and is stored in DARE file.

1. DARE file with automated retrieval capabilities contains 490,000 film chips of engineering drawing information.

2. A series of on-line processes retrieves appropriate film chips from DARE file and copy identification and film image information back onto aperture cards.

1. Requests for engineering drawings to satisfy "Bid Package" needs include identity of drawings to be included in package.

2. Aperture card is developed and interpreted prior to consolidation and packaging for procurement needs.