

No. 2 Electronic Switching System Developed

News of Switching System Development

A new electronic switching system known as No. 2 ESS will soon be supplying more versatile telephone service for many rural and suburban areas. The No. 2 ESS has been developed at Bell Labs for use in medium-sized central offices serving from 1000 to 15,000 lines. Thus, it will complement the No. 1 ESS, which is installed in large metropolitan areas.

The first No. 2 ESS, manufactured at the Western Electric Company Hawthorne Works in Chicago, is scheduled to go into operation in late 1970 in Oswego, Illinois, 35 miles west of Chicago. Other No. 2 ESS offices will be established later in Tucson, Arizona, and Grand Island, New York, and more will follow.

In addition to ordinary telephone switching, the new system will make a variety of custom calling services available to customers, such as:

- *Speed Calling*—Frequently called local or long-distance numbers can be reached by dialing one or two digits instead of the usual seven or ten digits.

- *Call Forwarding*—A caller can have incoming calls automatically transferred to another phone in his local calling area if he plans to be away from his phone.

- *Three-Way Calling*—Either of the two parties in a telephone conversation can bring a third party into the call by dialing his number.

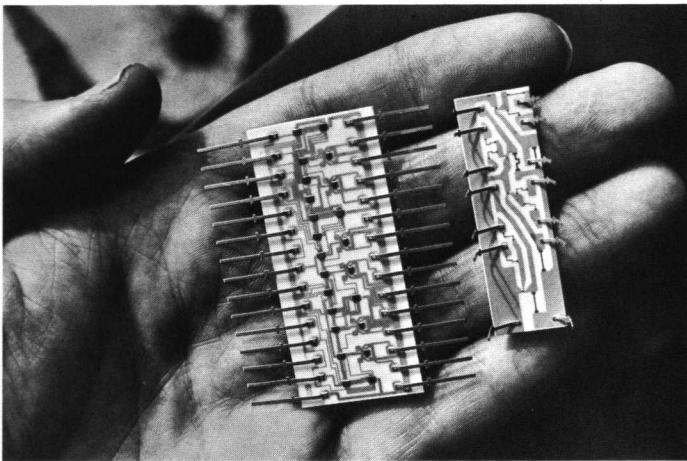
- *Call Waiting*—A customer whose line is busy is notified of an incoming call to his number and can be connected to the new call.

Up to now electromechanical systems have carried the switching load for medium-sized offices. But these systems are not as flexible as electronic switching for making new and improved services available to customers. No. 2 ESS can provide custom calling services easily and quickly, and at a

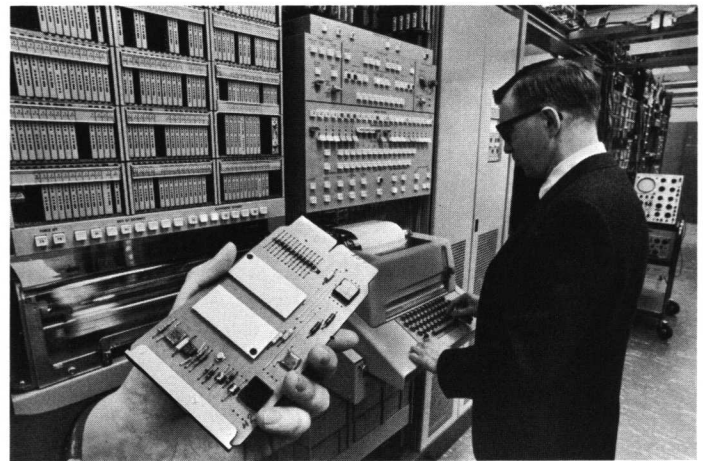
cost competitive with electromechanical systems such as the No. 5 crossbar system now in use. Moreover, No. 2 ESS occupies considerably less floor space than No. 5 crossbar.

Like No. 1 ESS, No. 2 ESS uses a ferreed network—a group of switches, made of magnetic alloy, that open and close the paths over which voice and other signals travel in telephone communications. The program store, which contains the information the system needs to switch calls and furnish other services, is a smaller version of the one used in No. 1 ESS. No. 2 ESS also incorporates advanced solid-state technology, such as integrated circuits, in the peripheral system control.

Depending on the calling rate, a single No. 2 ESS office might serve up to 12,000 or 15,000 lines. New offices, however, will start with a maximum of about 5000 lines, the number depending on calling rates, duration of calls, and projected growth.



Integrated circuits typical of the ones used in the No. 2 ESS are shown above left. Heart of the No. 2 Electronic Switching System is the maintenance control frame (right), where man and machine communicate with each other. Con-



tents of any program stored in the system can be displayed on the teletypewriter, and the machine can be instructed to make changes or corrections. Circuit pack (foreground) shows typical packaging of integrated circuits in No. 2 ESS.