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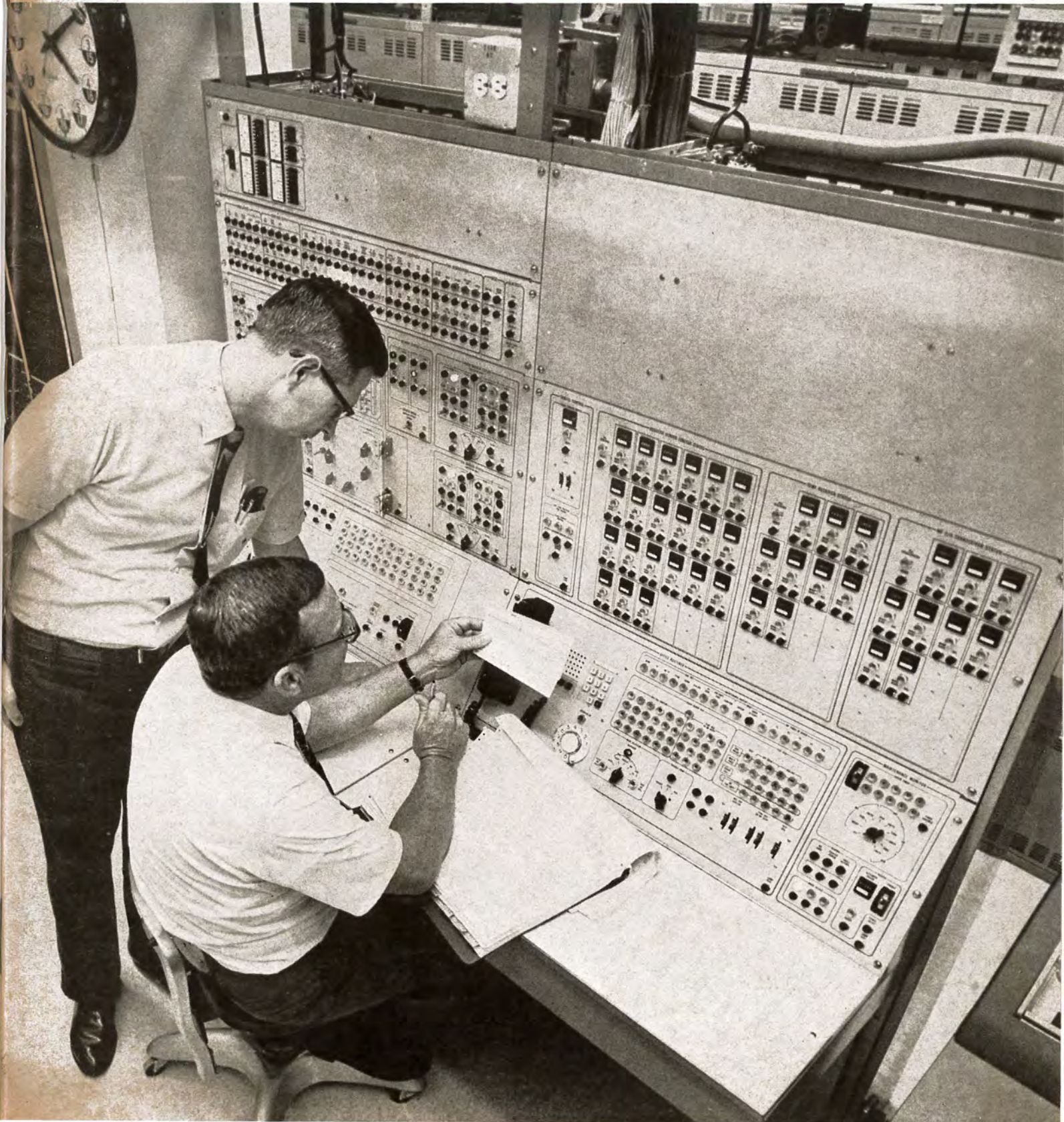
# telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY SINCE 1901

Telephone engineers: learn  
to use annual charge studies

Blain provides inside  
▼ look at AUTOVON

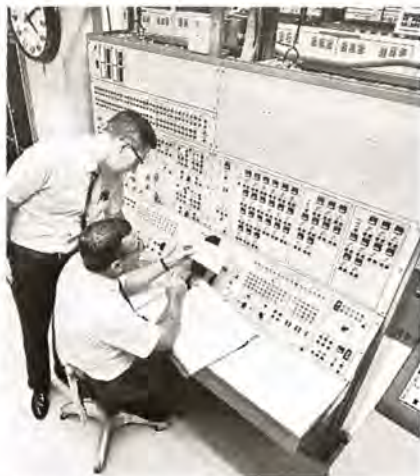
Reducing distortion in  
audio frequency amplifiers



## Florida AUTOVON tour shows extensive network

Automatic voice network has 79 switching centers for extensive and versatile defense communications

Ray Blain, Senior Technical Editor



*AUTOVON's "status control board" is the maintenance display center for the switching center in Polk City, Fla. Any malfunction located by the switching equipment, which continually examines itself for trouble, is indicated by a computer card print-out and flashing lights here.*

A PREVIEW tour of the Polk City, Fla., AUTOVON (automatic voice network) installation was given to this reporter, other members of the press, military representatives and officials of the General Telephone Co. of Florida recently.

The AUTOVON installation was placed in service April 5. This station is located in a citrus-growing area 50 miles east of Tampa. The \$4.5 million versatile, high-speed electronic switching center will serve as an important link in the U.S. government's worldwide defense communications network.

This facility is one of 79 switching centers either in service, or scheduled, for the globe-girdling AUTOVON network. It is the most extensive and versatile voice communications network ever designed for defense purposes. It is managed by the U.S. Defense Communications Agency for the Department of Defense.

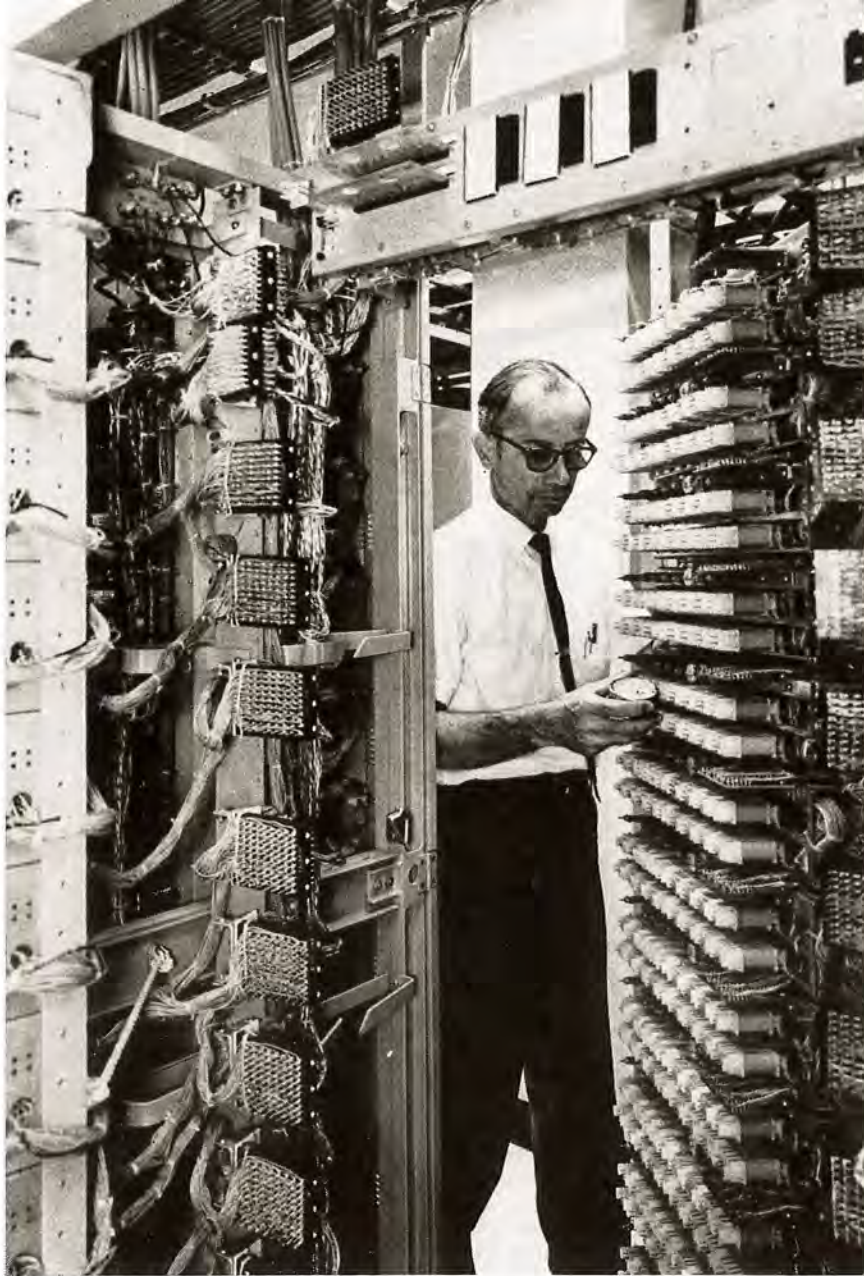
The Defense Communications System is an integrated network

designed to meet the voice and data communications requirements of the armed services during any global condition.

As a nucleus of this system, AUTOVON provides numerous vital communications services. These include conference calls to link parties on several continents, automatic pre-emption of users' telephone lines for high-precedence calls and "hot lines" that cause a predetermined telephone to ring as soon as the caller picks up his own instrument.

The AUTOVON system is actually a private-line network that links over one million telephones, teletypewriters, and data sets at 2,000 military bases around the world. These switching centers are similar to a local telephone exchange which is capable of handling both local and long distance calls.

This switching center—one of two in Florida—is capable of serving 1,500 intercity telephone, telegraph and data circuits. It makes use of computer-like units that can establish



*HUNDREDS of correed relay units are in the Polk City, Fla., AUTOVON center which opened last month. Eugene H. Hayden, General Telephone of Florida equipment supervisor, is testing some of these units.*

connections between parties in a fraction of a second. To insure service, the switching equipment continually "diagnoses" its performance, and in the event of a malfunction can produce a punched card that indicates the nature and location of the trouble. This electronic switching system was developed, manufactured and installed by Automatic Electric Co.

The switching centers are generally installed at locations re-

mote from large cities and major industrial sections, and communications routes that interconnect them bypass these areas. Each center has a minimum of three communications routes to other centers—and those in priority locations have as many as nine alternate routes. The U.S. portion of the network consists principally of leased commercial telephone channels. The overseas portions are primarily U.S. Government owned microwave and

radio communications facilities.

The Polk City center is linked to MacDill Air Force Base at Tampa by a Lenkurt microwave system. Five microwave relay points are provided on this route.

#### **Unusual building features**

The building constructed by the General Telephone Co. of Florida to house the Polk City center is two stories high and contains 19,000 square feet of floor space. The 18-inch-thick walls of steel reinforced concrete are designed to withstand shock and vibration. They are also without windows. A sprinkler system on the roof can wash the structure to cleanse it of radio-active dust should this ever become necessary.

The roof is also coated with a special material that will not retain radio-active particles. Air circulated through the building is kept pure by a special filtration system. Emergency diesel-driven generators are installed to provide for all electrical requirements in the event there is a failure of the commercial power. Two deep wells provide an ample water supply. The building also contains a well-equipped kitchen, sleeping facilities and food stocks ample to sustain employees for a period of 21 days. The center is operated and maintained by a staff of 24 employees of the General Telephone Co. of Florida.

#### **Other centers**

The AUTOVON system is scheduled to utilize a total of 53 switching centers in the U. S., nine in Canada, and 17 in Europe, the Pacific and Panama. Automatic Electric also developed, manufactured, and installed the 17 overseas centers under an Air Force contract of more than \$34 million. In addition to the Polk City facility, Automatic Electric is also producing and installing 10 other switching centers in the Continental United States. □