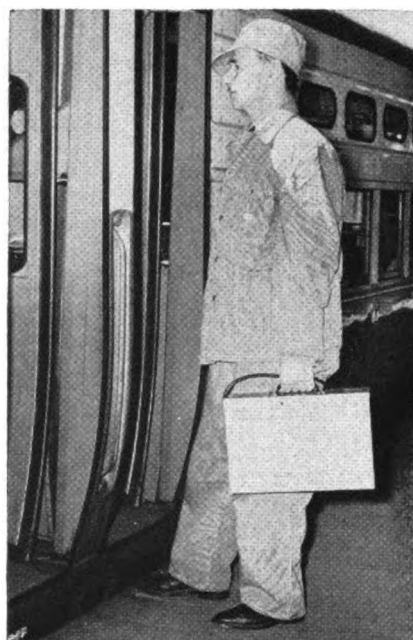




Line supervisor uses train-phone to call motorman in subway train



Transmitter-receiver is plugged in cab

Chicago Transit Tests Train-Phone

Motormen on Chicago's north-south subway trains will soon be able to talk directly to their line supervisors to report any incident, such as illness of a passenger, or equipment failure that causes gaps or delays in service. Line supervisors at Chicago Transit Authority's Merchandise Mart headquarters can talk to motormen.

INITIAL INSTALLATION in Chicago Transit Authority's north-south route, which daily carries about half of CTA's rapid transit passenger volume, will cost between \$70,000 and \$350,000, depending upon whether the transmitter-receiver sets are used as portable units or are permanently installed in the cars assigned to this route. Ultimately it is planned to equip all seven CTA rapid transit routes with the new communications system.

Basic components of the train-phone communications system are combination transmitter-receiver sets. A handset unit is permanently installed in the line supervisors' office at the Merchandise Mart. Presently six rapid transit cars have been equipped with transmitter-receiver sets. Each transmitter-receiver consists of a typical phone handset, and a speaker and power unit. This frequency modulated system is designed to transmit

and receive over phone wires in combination with the d.c. propulsion power distribution system.

When the line supervisor wishes to talk to a particular motorman on a State street subway train, for example, he picks up his handset, presses a button in its handle, and calls the motorman whom he identifies by train run number. The line supervisor's voice is carried by telephone cable to one of five fixed wayside transmitter-receiver stations located along the wayside. At the wayside station, the electrical voice impulse modulates the carrier and is fed to a telephone line which extends throughout the subway. At intervals of approximately one mile, this FM signal is "tapped off" and fed into the third rail through a blocking impedance. The impedance isolates the high voltage of the third rail from the telephone line. Any train operating in this area then receives this FM signal through its third rail "shoes," and

the motorman's transmitter-receiver demodulates the signal back to the sound of the line supervisor's voice.

If the line supervisor wishes to talk directly to passengers on the train, he will ask the motorman to operate a switch in the train's cab. When the motorman performs this operation, the supervisor's voice is carried over the train's public address system to the passengers.

When the motorman on a train wishes to contact the line supervisor, he lifts his handset, operates the button and talks. His FM signal is transmitted to the line supervisor in the same manner as described above.

The handset in the line supervisor's office is equipped with three switches. By operating one of these switches, the line supervisor can talk with motormen of trains on the northern third of the system. This section of line is about 6.5 miles long. Another switch enables the supervisor to talk with motormen operating trains in the middle 6.5-mile section of the north-south route. And the third switch is for talking to motormen in the 8-mile south section of the subway.

Installation of the train-phone equipment is being done by CTA forces under the direction of Ralph Tracy, Electronics Communications Engineer. The transmitter-receiver sets are manufactured by Femco, Inc.