

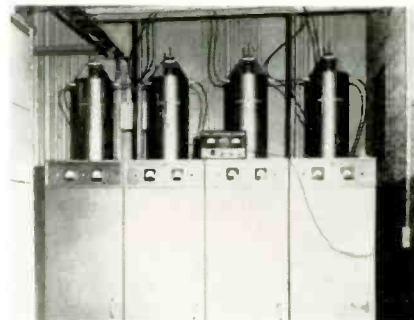


This microwave relay station serves the Indiana Toll Road, one of the most recent of the nation's super-highways to be opened to the public. Backbone of the private communications network is a General Electric Microwave system, supplemented by GE VHF mobile equipment.

Mobile coverage of the entire turnpike is provided by 50-watt 150 MC wide-band base stations at each of the five maintenance buildings. All vehicles have 50-watt transmitters. Microwave links the base stations and provides teletype and automatic dial telephone channels.



(Right) Two separate duplex VHF systems serve the Indiana State Police and turnpike maintenance personnel. The two transmitters are connected to one antenna through tuned cavities. The receivers are similarly cavity-linked to one antenna. Interaction is negligible.



## Indiana Turnpike Communications System

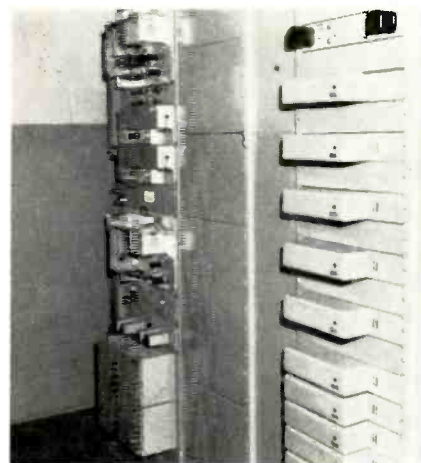
*The Indiana Toll Road, one of the nation's most recently opened super-highways, is equipped with a comprehensive system of microwave links and VHF mobile communications. Presented here are some of the highlights of the system.*

Each VHF system uses identical equipment, with complete standby equipment. All signals on the VHF circuits are recorded on a special dual channel tape recorder which is started each time the circuit is keyed. A spare reel of tape is automatically cut in when the tape on the normal reel is nearly finished. Operational VHF handsets in use are shown by panel lights in the master console.





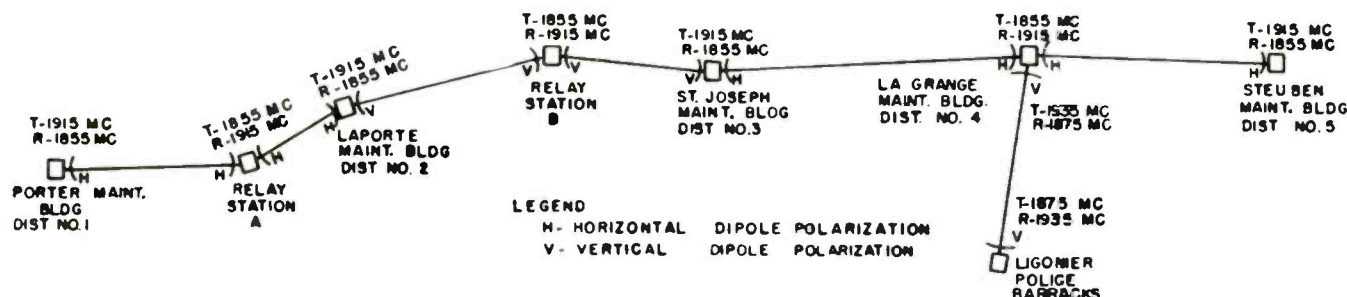
The microwave equipment provides channels for the VHF mobile system, a selective calling teletype system, and a dial telephone system. It is capable of handling 24 voice channels, giving adequate expansion possibilities over the presently used 12 channels.



VHF equipment in the toll booth communicates with a base station at the nearest maintenance station, and thence by microwave into the central control console. A short audio tone precedes each transmission originating from a toll plaza, causing a tone receiver in the control console to light an identifying lamp.

This article was prepared from material compiled by Ralph F. Lowe, of General Electric Co., and J. Schmid, Indiana Toll Road Commission.

Five of these maintenance buildings are located along the 156 miles of roadway in the East-West toll system. Base stations and microwave link equipment are installed at each maintenance building. Dial switchboards with trunk repeaters and selectors are installed at each building, as well as a party-line communications maintenance circuit.



Each patrol car is linked to all offices of the toll system, and with all other mobile units by the system of base stations and microwave links. All calls on the patrol circuit are constantly monitored by all other units in the system.



(Below) To avoid any interference between services, the maintenance department has its independent VHF communications system with which it can communicate with mobile maintenance units anywhere along the road.

