



## Time Division Multiplexing

by  
SP4 Tuner Tropo

I'm back this issue to explain time division multiplexing. Time division multiplexing is a system of sending many different messages over the same transmitter at the same time. No, it's not magic, but it's a fascinating bit of modern technology.

The principle of time division multiplexing is not complex. Say you want to send—at the same time—a phone call on channel A and a teletype message on channel B.

All you need are two synchronized channel switches, one at the transmitter and one at the receiver. The switches automatically flip back and forth between channel A and channel B so rapidly that the "off air" times are only microseconds long. The "off air" times are so short that your

messages go along both channels without even seeming to be interrupted.

That's time division multiplex. You "divide" time equally among the number of messages you send.

To send many messages at the same time, you simply use synchronized *rotating* switches (see illustration).

Of course, time division multiplex is more sophisticated than I've implied. There are motors to drive the rotating switches, synchronizers to keep the rotations constant, pulse generators, modulators, demodulators, amplifiers, sync separators...whew! Aren't you proud of your technical controllers?

