Special-Purpose TV Antennas

EFFICIENT TV-antenna systems are important. Inferior TV sets operating on well-designed and properly installed antenna systems will outperform better receivers that are using poor antennas in the same locality. Of course, if you are near transmitting stations or in an area where the TV signals are strong, almost any type of TV antenna will work, at least on some of the stations. However, in practically every locality where television stations are on the air, the antenna problem must be given careful attention if maximum results are to be expected.

Special-purpose TV antenna systems are now making good picture reception possible in fringe areas, and in remote locations ordinarily beyond the expected range of TV transmitters. In these remote locations, height above ground becomes an important factor; also two or more bays, (or sections) of antenna units are usually stacked together for added gain to overcome losses due to distance. The height problem is easily solved by the use of specially designed, self-supporting aluminum-alloy towers now available from several manufacturers. A tower of this type with a two-bay Amphenol TV stacked array antenna is shown in photo A; this installation gave excellent results on Chicago TV stations over a distance of 60 miles. The height of the antenna array from the ground was 75 feet. A close-up of the two-bay array, with provision made for rotating it in any direction, is illustrated in photo C.

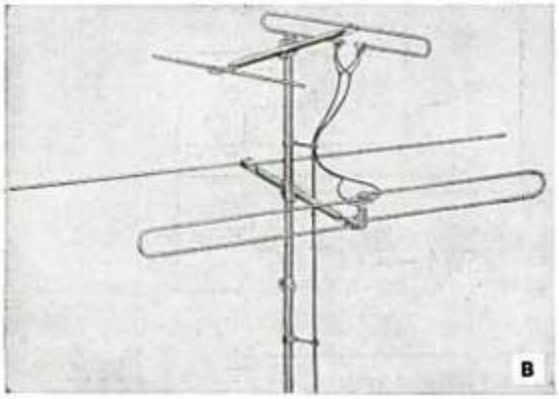
Where there is only one TV transmitting

(Continued to page 244)


A


FIG. 1


FIG. 2


B


C

Special-Purpose TV Antennas

(Continued from page 237)

station in a locality, the antenna problem is not serious. Trouble begins when other TV stations go on the air in different locations in the area and operate on widely separated frequency channels. This situation calls for specially designed antenna systems with high and low-frequency sections that can be separately oriented. In other words, in some locations the TV antenna must look in two directions at once in order to receive the maximum signal in both the high and low TV band. The Piggyback type of antenna illustrated in photo B is designed for this purpose. It consists of a high-band folded dipole with reflector in one plane, and a low-band folded dipole with reflector underneath. Although built for locations receiving signals from two directions, this type of antenna may also be used in localities where the TV stations are in the same direction. It is designed to receive on all 12 TV channels, using only one common transmission line, of either the standard flat 300-ohm twin-lead shown in Fig. 1, or the improved Amphenol tubular 300-ohm twin-lead illustrated in Fig. 2. This tubular-type twin-lead is claimed to reduce wind resistance and losses due to dirt and moisture, an important consideration in long runs, or in locations of low signal strength. The fact that it retains its efficiency in wet weather makes it ideal for critical installations.

POPULAR MECHANICS

Popular Mechanics, November 1949