

Information Services Ltd., and 45% by Time-Life Broadcast, which, in turn, owns 25% of Sterling.

Teleprompter, which has all of the heavily residential, but less affluent, north end of Manhattan, covers an area of 413,000 dwellings. Optimistically, Mr. Kahn predicts that "we should have more than 200,000 paying customers five years from now." He bases this forecast on a "consistently delivered 50% of the homes over five to six years in any market we're in, and the percent of penetration after two years in New York is higher than any of our systems anywhere else in the U. S."

At the moment, Mr. Kahn claims 11,000 paying customers and 9,000 subscription orders, with the system about 25% installed. This represents about 1,600 buildings on some 320 blocks, although main cable is now laid "in most areas" covered by Teleprompter's franchise.

So far, Teleprompter has spent about \$10 million of an anticipated \$15 million over-all investment in Manhattan.

The city's third—and by far smallest—franchised CATV system is that of CATV Enterprises Inc., in the Riverdale section of upper Manhattan and the Bronx, an upper-income residential area. In some ways, the CATV Enterprises franchise is the most difficult of the three in New York because it encounters a combination of big-city and small-town cable problems.

CATV Enterprises is 49% owned by Westinghouse Broadcasting Co. and 51% by Theodore Granik, holder of UHF's in Washington, Patchogue and New York, attorney and former television producer. Although CATV Enterprises has had all of its plant completed since last summer, it has moved slowly in the area of both subscription and origination.

The Riverdale franchise covers 20,000 families, of whom CATV Enterprises currently has 200 subscribers and another 25 orders. The company has only about \$300,000 invested in its 30 miles of wiring covering the area, primarily because most of it is conventionally strung from utility poles, unlike the Manhattan installations which must go underground.

The major technical problem posed by Riverdale is that it is an urban-near-suburban jumble of tall apartments and private residences. Situated on relatively high land, many buildings have a direct line of sight to the Empire State building transmitters of New York's major television stations, and flawless off-air reception. Yet many small apartments or residences are blocked by the shadow of larger buildings.

"We have problems of economic viability," says Charles Woodard, president of CATV Enterprises. "In some places

we have people knocking down our doors to get service, but the people with lousy reception are dotted around and there is the question of whether it is worth getting to all of them."

He acknowledges that CATV Enterprises has been moving slowly because "we haven't yet developed enough experience of needs and desires—what it takes to sell the system." Consequently, Mr. Woodard also says, "we really don't know what our total possible audience is, but I suppose a reasonable penetration figure would be 25%-30%, or about 5,000 to 6,000 subscribers." He says the operation is shooting for an immediate goal of 700 subscribers out of private homes and a base of two or three apartment buildings.

The fourth New York CATV operation—the two-year-old unfranchised Comtel Inc., a subsidiary of Bell Television Inc.—has been frozen by the continuing leaseback litigation. Using



High above the Harlem River, workers for CATV Enterprises align an antenna at the head-end site atop a 28-story apartment building.

New York Telephone Co. lines, it is serving about 2,000 subscribers, most of them in Manhattan Cable's midtown area, including hotels.

For all three franchised New York systems, technical problems have proved even greater than anticipated when the groundwork of the systems was originally mapped. Foremost among these has been the need for obtaining a much higher degree of plant perfection than required for a normal installation.

Herbert Bachman, general manager of CATV Enterprises, who had previous experience with Westinghouse Broadcasting's Georgia and Florida cable systems, says: "In a city where your subscribers are this close to a very strong broadcast signal, it is not enough for us to provide a good cable signal. It must be superb. People can make a direct A-B comparison between cable and good off-air reception. If you have shoddy operations, you're dead."

CATV Enterprises subcontracted turnkey construction of the system to Entron, with consultation from its own Southern cable system operators. "We've worked our heads off to make the system come up to snuff, and we're still learning new things all the time," says Mr. Bachman. "Everything is critical. If we have one loose connector on a trunk, we can have 25 miles of ghost."

Things are even more difficult for Manhattan Cable and Teleprompter. The Riverdale system is far enough from the Empire State building transmitters that the signal is diminished to the point where it does not require a converter to keep it from overriding the cable signal. That is not the case in most of Manhattan, and both Manhattan Cable and Teleprompter have had a long struggle perfecting suitable converters.

Says Manhattan Cable's Dolan: "The signals come off the Empire State building so darn hard that even the 300-ohm lead-in wire on the set picks it up and you get that laid over our cable signal coming in a microsecond later."

He notes there are very few other cities with a similar problem. Cleveland, for instance, has enough unused channels that the CATV signals can be switched onto them. But in New York, with seven VHF stations and three UHF's, there is nowhere to go.

In the search for a suitable converter to handle the situation, Sterling ended up buying the patents for a 25-channel converter from a subsidiary of Gulf & Western Industries. Then, Sterling contracted with a tuner company, Oak Electronics, to construct both 12-channel and 25-channel tuners, which Sterling is marketing through another subsidiary as well as using for the Manhattan Cable system.

While experimenting—along with most of the rest of the industry—on