

"feedback" replies.

Fourth, the aging 12 kilowatt transmitter was to be replaced as soon as possible by the most modern and technically advanced transmitter available. Today, the Gates BT-55U 55 kW UHF transmitter provides the performance and signal strength to complement WRAU-TV's studio and programming capability.

### Transmitter Goals

"Performance-wise, we were looking for increased signal strength, along with color fidelity," comments Donald K. Clausen, WRAU-TV Chief Engineer. "We also had a critical installation situation, and the new Gates BT-55U was the only transmitter that met all these requirements."

WRAU-TV needed the new Gates transmitter on the air for Fall, 1971, programming. Installation had to take place while the old transmitter was still operating, and the change-over had to take place without interruption of programming. Mr. Clausen and his staff mapped plans, working closely with Gates engineers.

The plan called for the old transmitter's driver cabinets to be separated, moved to the sides of the transmitter room, and rewired. The smaller, more compact BT-55U was then placed in the space vacated, and the change-over was completed. Within 19 days after the BT-55U was released for shipment at the Gates factory, it was installed and ready to go on the air at WRAU-TV.

### "Biggest Plus-Color"

"With the new transmitter, our effective radiated power was increased from one-half megawatt to 2.09 megawatts," Mr. Clausen recalls. "Previously we had half the signal strength of our competitors; the BT-55U provided us with twice their power output.

"Even with our existing slot type antenna, we found that our former Grade A coverage became city grade, our Grade B coverage became Grade A, and our Grade B contour moved out.

"The biggest 'plus' with the BT-55U



GATES BT-55U IMPROVES SIGNAL, COLOR—Don Clausen, WRAU-TV Chief Engineer, reports that the new Gates BT-55U kW UHF transmitter was the only one which met all the station's requirements for signal strength, color fidelity, and installation compactness. The inset photo shows the trim, functional transmitter building and part of WRAU-TV's 656-foot antenna tower.

was improved color quality," he declares. "Even with everything tweaked up, the old transmitter just couldn't compare with it in color reproduction.

"We put two receivers side by side, with our new signal on one and another transmitter's signal on the other. The BT-55U's greater depth of modulation makes a visible difference, especially in the apparent greater color contrast.

"Gates' IF MODULATION design allows us to modulate harder without distortion," he reports. "We maintain frequency response to 4.2 MHz plus or minus .25 dB. The carrier frequency of the transmitter varies only about plus or minus ten Hz from month to month, and over a period of time the variation could get down to two Hz."

The new transmitter's solid-state exciters and klystron amplifiers make it very stable, Clausen reports, with very little drift and only routine maintenance.

### Remoted—From 300 Feet!

The highly-stable BT-55U is operated by remote control from the station's main building 300 feet away. This arrangement allows more efficient use of manpower, with the technician who does production switching also operating the transmitter. The switching controls and transmitter remote control terminal equipment are clustered in the control room to facilitate these operations.