Jamison

RCA Broadcast News

Volume No. 165, December 1978

WNEP-TV BUILDS BIG ENG CAPABILITY TO COVER NORTHEASTERN PENNSYLVANIA

Announcing the newest in video freedom:

all you want in a 1" VTR backed by total support from RCA.

Now you can have complete freedom from worry about helical-scan VTR support. That's because your investment in the new RCA TH-100 1" VTR is protected by RCA. That protection means 24-hour parts replacement. Emergency service. TechAlert, for help as close as your phone at any time—day or night. Training support. Service manuals. You can be sure that RCA support is there, wherever your RCA equipment operates.

Quality to start with.

The new TH-100 is yours in the new SMPTE Type C non-segmented helical format. It's available in three studio configurations—rack, console or T-cart. A small, lightweight, rugged portable—the TH-50—is available for field production. All models deliver the picture and audio quality you need for professional results.

Among the many TH-100 features are two high quality program audio channels for stereo/bilingual use; complete recording/playback of video and vertical blanking interval; one cue/SMPTE time code channel; automatic color framing; five servos for optimum tape handling; two flexible tape timers; plus much, much more.

The TH-100 offers economical first cost, economical head cost, and tape economy, too.

Simplified edit control.

One bi-directional search knob gives you forward and reverse editing control, with selectable shuttle speeds up to 60 times normal. You get a color picture to 7 times normal, a recognizable picture at full speed when used with the TBC-100 time base corrector. For more video freedom, you can manually jog frame-by-frame—again, with a color picture.

Video freedom is everything you need for quality television.

RCA offers a brilliant array of VTRs, cameras, mobile units, antennas and transmitters. For more facts about any RCA equipment, including the TH-100, just contact your RCA Representative, or write us. RCA Broadcast Systems, Building 2-2, Camden, NJ 08102.

RCA

TH-100. Part of the new video freedom.

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RCA Broadcast News

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View Finder

Nationwide Communications Upgrading TV Facilities

Nationwide Communications, Inc., based in Columbus, Ohio, is upgrading the technical facilities of its three group television stations with RCA broadcast equipment valued at approximately $1.2 million.

Two TV transmitters, a new antenna tower and associated equipment are included in the order, along with a TK-76 portable camera.

WXEX-TV, Channel 8 serving Richmond-Petersburg, Va., has replaced its existing transmitter with a TT-50FH, 50-kilowatt unit. The two individual 25-kilowatt transmitting units in the system combine to provide a maximum of 50-kW visual power with full transmitter redundancy.

A new 785-foot tower for WXEX-TV was erected at the present antenna site of WCVE-TV, a non-commercial educational station serving Richmond. The new tower facility accommodates the broadcast antennas for WXEX-TV, WCVE-TV, and for WCVW, another educational station serving the Richmond area.

Nationwide's station in Knoxville, Tenn., WATE-TV, Channel 6, has installed a new RCA TT-25FL, 25-kilowatt transmitter. WBAY-TV, Channel 2, in Green Bay, Wisc., is increasing its ENG capabilities with a TK-76 camera.

El Salvador Expands Educational TV System

The government of El Salvador is expanding the program production and transmission facilities for its educational television network with RCA TV equipment valued at more than $1.5 million.

The order includes an outside broadcast vehicle completely equipped for on-location program preparation, and more than 20 low-power translators for TV signal rebroadcast.

TVE, El Salvador's government-operated educational TV network, broadcasts over Channels 8 and 10, both in the capital city of San Salvador.

The low-power transmitters will be installed in strategic locations throughout the mountainous country to provide TV programming to the entire population. Programming originated on the two channels in San Salvador will be picked off the air by the remote translators for rebroadcast on different channels.

The outside broadcast van will give the educational TV network its first full-color program production capabilities. The vehicle will be equipped with three RCA TK-46 cameras and a TR-600A quadruplex video tape recorder, as well as complete switching, monitoring and audio equipment necessary for in-the-field production.

WTVD-TV Orders First RCA Tetra Coil Circularly-Polarized Antenna

WTVD, Durham, N. C., has become the first TV station to purchase a new RCA Tetra Coil circularly polarized high-band broadcast antenna.

The Capital Cities Communications Inc. station, operating on Channel 11 in the Durham-Raleigh market, will install the RCA antenna system next spring, atop a new 2,000-foot tower.

The TCL-16 antenna, designed at RCA's Gibbsboro, N. J. antenna development and manufacturing facility, is a top-mounted model for use on VHF channels 7 through 13. Its circularly-polarized power gain of 16, in conjunction with the station's 50-kilowatt transmitter, will enable WTVD to broadcast at maximum authorized effective radiated power.

The TCL-16 produces a pattern similar to that of RCA's popular traveling wave antenna. Vertical pattern beam tilt and null fill are supplied as standard with the Tetra Coil antenna to provide a more uniform signal.

Springfield TV Orders RCA Broadcast Systems Valued At $3 Million

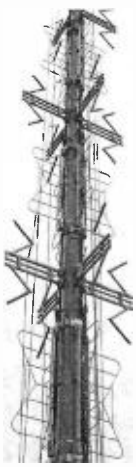
Springfield TV Corp., Springfield, Mass., has ordered RCA broadcast equipment valued at more than $3 million for installation in two new television outlets in Jacksonville, Fla., and in Salt Lake City. Utah.

The Jacksonville station, scheduled to go on air early next year, is licensed to Crown Broadcasting Corp., in which Springfield TV holds a 25 percent interest. The station plans to install a pylon broadcast antenna and RCA transmission line. Studio equipment includes three TR-600A video tape recorders equipped with AE-600 editing systems, a TCR-100 video tape cartridge recorder, and two TK-28 telecine systems.

Equipment for Springfield's new Salt Lake City outlet includes four TK-760 studio/field cameras, two TR-600A recorders, a TK-28 film origination system, and a UHF pylon antenna.

From Left to Right: MARTIN M. COLBY, Station Manager, XETV-CHANNEL SIX; CONGRESSMAN LIONEL VAN DEERLIN and JULIAN M. KAUFMAN, Vice President & General Manager, XETV-CHANNEL SIX . . . seen here discussing the newest innovation in San Diego news . . . THE CHANNEL SIX TEN O'CLOCK NEWS. Congressman Van Deerlin, now Chairman of the House Sub-Committee currently working on re-writing the Federal Communications Act of 1934, was the first anchorman at XETV-CHANNEL SIX in the 1950's.

XETV SATURATES SAN DIEGO WITH NEW CP SIGNAL



For independent Channel 6 in San Diego, 1978 has been a momentous year. It is XETV's silver anniversary in television broadcasting. In marking this anniversary, the station made a major investment to provide improved service to its viewers—with the installation of a new circularly polarized antenna. XETV was first to order the new top-mounted RCA Fan Vee series of CP antennas.

In operation since June, the new system is delivering a solid signal into all parts of TV-6's coverage area, including a portion where the previous signal was not as strong. Viewers report improved reception, even in the northern parts of the coverage area which are most distant from the antenna.

Over the years, XETV has achieved outstanding success, through a combination of creative, relevant programming and excellent technical facilities.

In programming, Channel 6 features generous coverage of area sports, including San Diego Padres baseball and San Diego Chargers football games, San Diego Friars tennis matches and California NCAA basketball playoffs, as well as many more live sports events important to San Diegans.

In other areas of programming, XETV-6 has aligned itself with new sources of programming, and recently bid successfully for off-network rights to the highly rated "Happy Days" series.

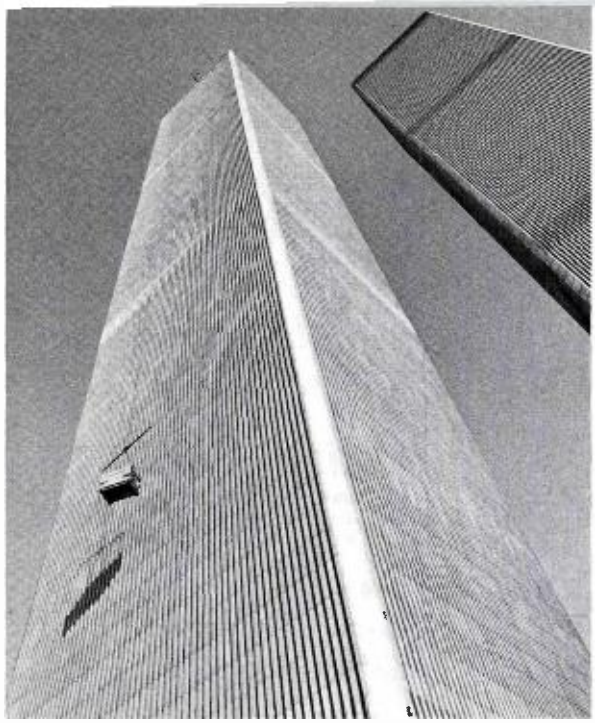
A significant contributing factor in the success of TV-6 over the years is its continuity of management. Julian Kaufman, Vice President and General Manager, has been associated with XETV for the past 25 years, starting just four months after the station went on air. A notable alumnus of XETV is Congressman Lionel Van Deerlin, who prior to his entry into Congress, was News Editor of the station. He currently is Chairman of the House Subcommittee on Communications which is involved in rewriting the 1934 Communications Act.

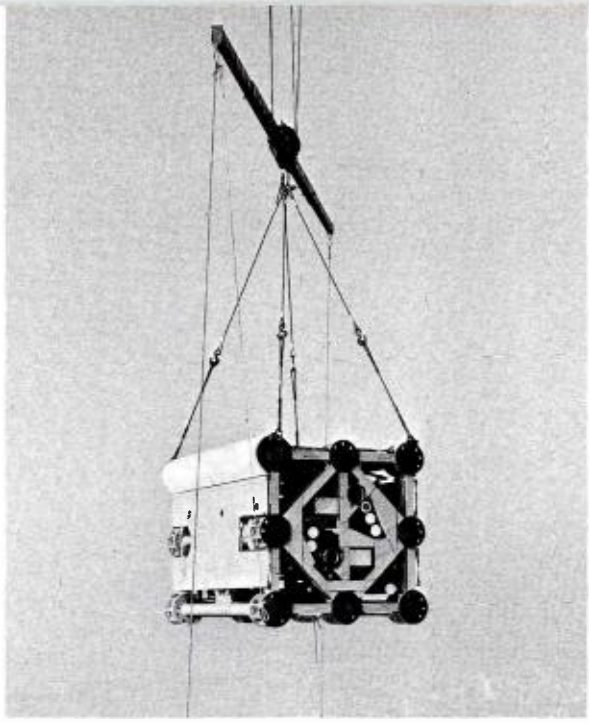
The new RCA antenna is located on Mount San Antonio in Tijuana, Mexico, 13 miles south of mctropolitan San Diego, topographically Southern California's highest point.

Designated TFV-5A6(s), it is a top-mounted, five-layer Fan Vee type. Each layer consists of two bays—one for the horizontal component and one for the vertical component of the circularly polarized signal.

The Fan Vee Antenna was designed to have an omnidirectional horizontal pattern. However, the XETV-6 installation broadcasts a directional horizontal pattern enhancing the station's already powerful signal blanketing the San Diego market, according to Chief Engineer Filipe Fernandez.

In expressing its confidence in the new technology of circularly polarized broadcasting, TV-6 is continuing its long-term practice of keeping its technical facilities up to date. And it is backing its new signal with a smooth blend of popular programming that keeps viewers tuned in.





UP AND UP AND UP AND UP AND . . .

The New York City World Trade Center antenna system takes shape as one section is hoisted to the top of the north tower. When complete, the antenna structure will be a self-supporting mast rising 351.5 feet above the tower, accommodating ten television stations and up to 15 FM stations. The installation requires one and one-half miles of transmission line which RCA is also supplying.

The individual antennas making up the stack are custom-designed in shapes to meet each broadcaster's requirements for TV signal radiation. Some have a four-sided radiating surface, some have three sides, and one is cylindrical. Two of the "on-air" antennas are diplexed, and five standby antennas are also mounted on the mast.

Christian Broadcasting Network Equips New Production Center With RCA Cameras

Christian Broadcasting Network, Inc. (CBN), has ordered RCA color television cameras valued at more than $1.5 million for installation in its new production center in Virginia Beach, Va.

The major equipment purchase includes eight RCA TK-47 fully-automatic studio cameras, and seven TK-760 compact studio/field cameras, as well as a TK-28 telecine system and associated equipment.

The new camera equipment will be installed in CBN's new program production complex and training center now under costruction. M. G. "Pat" Robertson, President and Founder, said the new facility will originate programs, such as "The 700 Club", for distribution via satellite and conventional routing, to more than 200 affiliated stations across the country, to cable services in the U. S. and Canada, and to television stations around the world.

The TK-47 camera, introduced by RCA earlier this year, is a fully automatic color TV camera which features simplicity of operation and microprocessor-controlled functions. The automatics of the TK-47 make its operation simple, and also allow the total set-up of the camera at the touch of one pushbutton.

The Christian Broadcasting Network is a non-profit, non-denominational, religious corporation. The network's family and Christian programming will be increased greatly with the opening of CBN's new production facilities at the International Headquarters Building next year in Virginia Beach, Va. New programs will include made-for-TV movies, sporting events, soap operas and news.

London Weekend Television Enlarges Video Tape Production Capability

London Weekend Television Ltd., which produces programs for the independent television network in the United Kingdom, is expanding its production and post-production capabilities with RCA video tape recorders and editing systems valued at more than $800,000.

Seven TR-600A quadruplex video tape recorders are to be installed in the company's production center in Kent House in London. The machines will be equipped with RCA AE-600 built-in editing systems for sophisticated time code editing of tape. The new recorders will join RCA TR-70 machines that have been in service since 1969.

London Weekend Television produces programs for broadcast in the London region during its designated time slot, from Friday evening through Sunday night. The company also produces shows for distribution to the regional program companies and transmitting stations controlled by the Independent Broadcasting Authority, as well as to a large overseas market.

Venevision, Caracas Orders RCA Studio And OB Systems

In a major expansion of its television program production facilities, Venevision, in Caracas, Venezuela, has ordered RCA broadcast equipment valued at approximately $2.5 million.

The Corporacion Venezolana de Television C.A. (Venevision), which provides commercial TV service to cities throughout Venezuela placed the order which includes two outside broadcast vehicles and studio program production equipment.

One full-size program production van will contain four RCA TK-46 color TV cameras and a TKP-46 studio-quality portable model. A second, compact van will employ three TK-760 studio/field cameras and ¾-inch helical scan video tape recorders.

New equipment for Venevision's main studios in Caracas includes four additional TK-46 cameras, three TK-760 units and a second complete TK-28 film origination system.

Forward Communications Orders Fifteen RCA One-Inch VTR's

Forward Communications, based in Wausau, Wisc., has ordered fifteen RCA one-inch video tape recorders, valued at approximately $900,000, for five of its group television stations.

The order includes ten TH-100 helical scan studio recorders and five TH-50 portable models, along with associated equipment. Two TH-100 units and one TH-50 will be installed in each of the five stations: WSAU-TV, Wausau; WMTV, Madison, Wisc.; KCAU-TV, Sioux City, Iowa; WTRF-TV, Wheeling, W. Va.; and KOSA-TV, Odessa, Tex.

Richard D. Dudley, the group's president, said the stations will use the new recorders for studio and on-location production and for post-production work.

McClatchy Corporation Orders RCA Radio And TV Studio And Transmitting Systems

In a major upgrading of its group station technical facilities, McClatchy Corporation, based in Sacramento, Calif., has ordered RCA television and radio studio and transmitting equipment valued at more than $800,000.

Three McClatchy FM radio outlets will install new RCA BTF-20, 20-kilowatt transmitters and associated BFC antenna systems: KFBK, Sacramento; KBEE, Modesto, and KNEV, Reno.

KOVR Television, serving Stockton-Sacramento, will install three RCA TH-100 one-inch helical scan recorders for use in a computerized video production center.

In addition, KOVR (TV) and KMJ-TV, Fresno, will augment their studio tape capabilities with helical scan VTR's. KMJ-TV will install three RCA TH-100 recorders; KOVR will receive six TH-100's and two TH-50 portable one-inch units.

Tongyang Broadcasting Co. Modernizing Studios With $1.3 Million In RCA TV Equipment

Tongyang Broadcasting Co. Ltd. (TBC), Seoul, Korea, is modernizing its television studios with RCA broadcast equipment valued at more than $1.3 million.

The major equipment purchase for the Channel 7 station in Seoul includes RCA's newest studio TV cameras, video tape recording systems, and associated switching, monitoring and audio equipment.

Three RCA TK-47 fully automatic studio cameras will update TBC's program production facilities. Introduced earlier this year, the TK-47 features simplified operation through computer control of camera functions.

TK-47 automation extends to the normally complicated and time-consuming camera set-up procedure where microprocessor-controlled systems provide computer-aided semi-automatic operation, or, optionally, totally automatic set-up and pre-operational checks, at the touch of a pushbutton.

The TBC purchase also includes a TKP-46 portable, studio-quality production camera and a TR-600A quadruplex video tape recorder.

KLRU-TV, Austin, Texas To Go On The Air With RCA Transmitting Equipment

The Southwest Texas Public Broadcasting Council has ordered RCA TV transmitting systems, valued at more than $500,000, to establish a new educational television station serving the Austin, Tex. area.

The equipment order includes a TTU-55C, 55-kilowatt UHF transmitter, and a TFU-30J antenna system.

The new station, KLRU-TV, is scheduled to go on the air early next year, operating on Channel 18.

The TFU-30J antenna for KLRU-TV, custom-designed by RCA's Gibbsboro, N. J. facility, will be side-mounted on an existing tower structure. The special design of the antenna will enable it to retain its high power input rating with minimal effect on the horizontal pattern from the tower structure.

CHAN-TV, Vancouver, Expands ENG Facility

CHAN-TV, Vancouver, British Columbia, Canada, is expanding its already extensive electronic newsgathering capabilities with the addition of RCA ENG television cameras and a digital frame synchronizer.

The Channel 8 station, operated by British Columbia Television Broadcasting System Ltd., has ordered two RCA TK-76 ENG cameras. The new units will join four TK-76 cameras which have been in operation for more than a year.

The new equipment purchase also includes an RCA TFS-121 digital video frame synchronizer which will be used to synchronize remote signals into live news programming.

In addition to providing TV coverage of breaking news events, the TK-76 cameras will be used for in-the-field production of documentaries and other news programs.

Channel 13, Santiago, Chile, Moving To Color

As part of its conversion to full-color television broadcast operations, Channel 13 in Santiago, Chile has ordered RCA television studio equipment valued at more than $400,000. The equipment includes four TK-760 studio/field TV cameras and a complete TK-28 TV film originating system.

The broadcast station, operated by the Corporacion de Television de la Universidad Catolica de Chile, placed the equipment order with RCA after the government of Chile officially adopted the NTSC color television standard.

Video Tape Associates Expands Production Centers

Video Tape Associates is expanding the post-production capabilities of its facilities in Atlanta, Ga., and in Ft. Lauderdale, Fla. with RCA video tape and telecine systems.

The company's Atlanta center is adding a third TR-600A quadruplex video tape recorder to handle a steadily increasing workload, and the Fort Lauderdale post-production facility has enhanced its film-to-tape transfer capabilities with the addition of an RCA TK-28 telecine system, including an FR-35, 35mm projector.

Ken Chambliss, Owner and Manager, said his company is "the first full-service, highest-quality post-production center in Atlanta, offering sophisticated film-to-tape transfer services, studio and location shooting, and computer-controlled editing."

Both centers now feature the capability of transferring to video tape 16mm/35mm movies and slide material, even negative 16mm and 35mm film, all interlocked with synchronized dual-system sound, Mr. Chambliss said.

Each Video Tape Associates teleproduction facility is equipped with a TK-28 telecine system, including a TP-66 16mm projector; a TP-7; an FR-35B 35mm film projector, and a PM-86SL magnetic recorder for sep-sound. The TK-28 camera automatically corrects for variations in film.

The FR-35B projector used in the telecine system features built-in "Servo-Lock" control and drive logic for smooth film handling and accurate interface with other equipment. The PM-86SL sound recorder/reproducer also is electronically interlocked with the system to provide synchronized sound.

A STROLL THROUGH THE PARK WITH THE TK-47 AUTOMATIC CAMERA

A piece of New York City's famed Central Park was moved into the Americana Hotel to provide a colorful setting for demonstrating the TK-47 Automatic Camera at the SMPTE Fall Conference.

Brilliant autumn foliage and a vivacious model made a pretty picture for the TK-47 to work with. But pretty pictures come easy for the TK-47. The purpose of this outing was far more critical—to demonstrate the camera's unique automatic set-up features.

First, the camera was seriously mis-adjusted, and this "worst case" picture was displayed on the monitors. Then the "Auto" button on the set-up terminal was pushed, and the TK-47 automatics went to work. In a matter of seconds, the camera's microprocessor-controlled systems had automatically adjusted more than 80 control functions, cycling through the complete set-up sequence, without operator involvement.

The pre-programmed electronic memory continually monitors, compares and corrects the camera set-up with data measured from key points in the picture, automatically adjusting registration, shading, level set, gamma tracking, electronic focus and beam alignment.

As the camera automatics concluded their quick exercise, the scene on the studio monitor was once again a pretty picture indeed—perfectly registered, clear and bright.

Cinetel Productions Adds One-Inch Video Tape

Cinetel Productions, Inc., a Bagwell Communications, Inc. company, with facilities in Knoxville, Tenn. and Burbank, Calif., is adding RCA one-inch video tape recording and editing capabilities to its teleproduction facility.

The company has ordered two TH-100 one-inch video tape recorders, a TH-50 portable model, and a complete computerized editing system for a new post-production suite.

Cinetel specializes in the production of high-quality, national and regional commercials, and operates a mobile van equipped with two RCA TKP-45 portable color cameras and a TR-600A quadruplex video tape recorder.

The new portable one-inch recorder will be teamed with a TKP-45 camera, equipped with a Minipack camera control unit which allows the camera to operate as a completely self-contained unit. The new battery-powered equipment package will be available for difficult on-location assignments requiring high-quality and extreme maneuverability, according to Ross K. Bagwell, Jr., Cinetel Vice President.

The TH-100 helical scan recorders are being interfaced with a TR-600A recorder and a new Datatron editing system to provide a complete on-line and off-line editing facility for producers of national and regional video tape commercials in the one-inch format.

TV Record, Sao Paulo, Upgrades Facilities

TV Record S.A., Sao Paulo, Brazil, is upgrading its television broadcast facilities with RCA TV studio and transmitting equipment valued at more than $800,000.

Included in the Channel 7 equipment package is a TT-25FH, 25 kW transmitter; three TK-46 studio cameras, and a TK-28 telecine system.

North American Video Equips New Production Facilities With TR-600 VTR's

North American Video, a New York City TV commercial and program production facility, is equipping a new studio with RCA top-of-the-line video tape recorders.

Burton Grodin, President, said three TR-600A quadruplex recorders, equipped with RCA's AE-600 time code editing system, will be installed in North American Video's new studios at 423 East 90th Street, enabling the company to provide the highest-quality video tape master recording, post-production editing and dubbing services.

The new studio and editing facilities were needed to handle the company's increasing teleproduction workload, Mr. Grodin said. "Our 50′ x 50′ drive-in stage, as well as our studio control and editing facilities, were functionally designed by video engineers to provide the best possible environment for TV production and post-production work," he added.

The TR-600A features such built-in automatic functions as chrominance amplitude corrector, velocity error corrector, and color dropout compensator for optimized recordings and playbacks.

The AE-600 editing system provides sophisticated post-production editing capabilities. The system's electronics are built into the recorder and provide for local or remote control of one record TR-600A and up to eight playback TR-600A's.

Alabama A & M Moves To Color

Alabama A & M University, Normal (Huntsville), Ala., is upgrading its black-and-white TV program production studio facilities to full-color operation with RCA equipment.

The new color television equipment purchase includes two TK-46 studio cameras, a complete TK-28 TV film origination system, and two TR-600A quadruplex video tape recorders equipped with AE-600 time code editing systems.

TV Station In Vitoria, Brazil Expands Studio And Field Production Facilities

A Gazeta do Espirito Santo Radio e TV, Ltda., Vitoria, Brazil, has ordered RCA color television broadcast equipment valued at approximately $500,000.

Color equipment purchased includes two TK-760 studio/field cameras, two TK-76 electronic newsgathering cameras, and both studio and portable video tape recorders.

The station serves approximately 450,000 viewers in Vitoria, capital of Espirito Santo State, and in the nearby cities of Cariacica, Vila Velha and Serra. The RCA equipment will be used in the field and in the station's studios for TV coverage of local news events.

Video Taping Florida Legislative Sessions

Florida Public Broadcasting has expanded its television video tape capabilities with five RCA TH-100 one-inch video tape recorders.

The new recorders augment a system with which Florida Public Broadcasting continuously records the state's legislative sessions. Under Florida's "Sunshine" law, sessions of the legislature, as well as committee meetings and conferences, are made public.

Session highlights are distributed daily via satellite to all Florida public television stations for broadcast throughout the state.

New TV Program Production Equipment For New York Network

The New York Network television broadcasting arm of the State University of New York, is expanding its remote program production capabilities with RCA TV equipment.

Two TK-76 portable TV cameras and two HR-1020 videocassette recorders augment the Network's existing equipment for in-the-field production of news events, documentaries, educational and cultural programs. An RCA TFS-121 digital video frame synchronizer, also ordered, provides synchronization for incoming signals from various sources and is a useful source of special effects for program production.

The Network regularly co-produces programs in conjunction with the state's public television stations, and also provides on-site coverage of special state government activities.

For increased flexibility in camera operation, the Network is acquiring Minipack camera control units for its two TKP-45 portable production cameras. The Minipack allows the camera to operate anywhere as a completely self-contained unit.

Middle Tennessee State University Adds TK-76 Cameras

Middle Tennessee State University, Murfreesboro, Tenn., has added two RCA TK-76 electronic newsgathering cameras to its television operations.

The school's studio systems are used to train students for professional positions in broadcast stations, commercial and program production facilities and in educational TV operations, according to University officials. Students majoring in mass communications in the radio-TV sequence benefit from hands-on operating experience, using the latest in TV broadcast equipment.

The TK-76 cameras also are used to produce television programs of selected class subjects, and for televising local basketball games and other remote events over the local educational TV network.

Chris-Craft Industries Orders RCA 50-kW Transmitters For Group Stations

Chris-Craft Industries, Television Broadcasting Division, Hollywood, Calif., is upgrading the technical facilities of its two group television stations with RCA transmitting equipment valued at approximately $1 million.

The equipment order includes two 50-kilowatt transmitters and a Supersurnstile broadcast antenna.

KCOP, Channel 13, Los Angeles, is installing a TT-50FH transmitter and TF-6AH, six-bay antenna late this year. KPTV, Channel 12, Portland, is scheduled to install an RCA TT-50FH early next year.

Post Corp. Expands Facilities Of Group Stations

Post Corporation, headquartered in Appleton, Wisc., is expanding the studio, field production and ENG capabilities of its five group stations with ten RCA color television cameras.

The equipment on order, valued at more than $650,000, includes five TK-760 studio/field production cameras; three TK-76B portables, and two TK-46 studio models.

The cameras will be installed at WEAU-TV, Eau Claire and WLUK-TV, Green Bay, Wisc.; WLUC-TV, Marquette, Mich.; WOKR-TV, Rochester, NY, and KTVO, Ottumwa, Iowa/Kirksville, Missouri.

WKAR-TV/FM Replace Fire-Destroyed Transmitters

WKAR-TV and WKAR-FM, East Lansing, Mich., have installed RCA transmitting equipment valued at approximately $700,000.

The new transmitting systems replace those destroyed in a fire at the stations' transmitting site in late August. An RCA BTF-20ES1, 20-kilowatt FM transmitter already has been installed and put on the air in a temporary transbuilding. A second 20-kilowatt unit will be installed when WKAR-FM's new transmitter site is constructed.

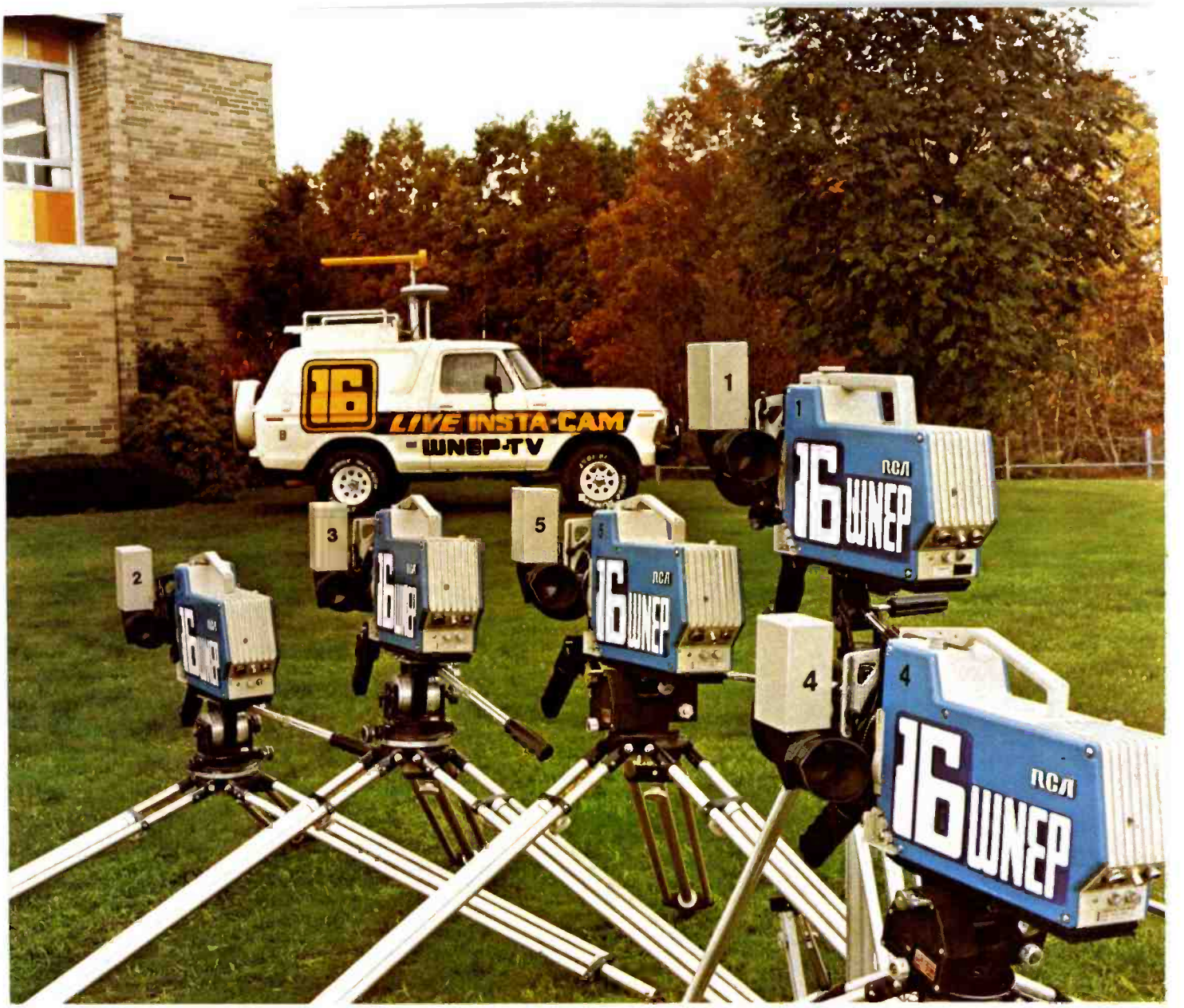
WKAR-TV has completed installation of an RCA TTU-60D2, 60-kilowatt transmitter equipped with an RCA Mod Anode Pulser, a device which reduces UHF transmitter power consumption. The transmitter also is equipped with motor driven RF patch panels for achieving various transmitter configuration by remote control.

Israel Broadcasting Authority Places RCA TK-76's In Service

The Israel Broadcasting Authority, headquartered in Jerusalem, has placed in service four RCA TK-76 electronic newsgathering color TV cameras.

The TK-76 cameras are the first to be used in Israel. They are expanding the Authority's newsgathering capabilities which in the past relied entirely on the film medium.

Two of the RCA cameras are being used in a mini-mobile unit constructed locally by the IBA. The other two cameras went operational as stand-alone ENG units. All four cameras operate on the European PAL color television standard.



WNEP's hard-working quintet of TK-76 cameras take a break from their busy schedule to pose for this front lawn portrait.

PROGRESSIVE WNEP-TV EXPANDS ENG CAPABILITY

For Added Punch In News and Local Programming

WILKES BARRE and SCRANTON

THE Northeastern Pennsylvania market (#41) encompasses two metropolitan areas—Wilkes Barre and Scranton—and a number of important smaller municipalities. What makes this market unusual is that it is covered by three strong commercial UHF television stations. The station managements are progressive and responsive to market needs, and technical standards are maintained at high levels.

Chester Sawicki, Vice President for Engineering at WNEP-TV, has no problem in coping with this competitive environment. It fact, he thrives on it, and uses it to advantage to keep TV-16 technically advanced and profitable.

Examples are numerous:

- The TV-16 transmitter has operated on remote control since 1966.
- In 1971, a pioneering custom automation system was installed, covering both business and technical operations, with extensive refinements added since.
- Earlier this year, a new TFU-28G antenna was installed for improved signal coverage—the first such radomed UHF Pylon antenna in use.
- In 1977 a comprehensive ENG capability was placed in operation and already has been expanded this year.

Mr. Sawicki is particularly pleased with the ENG operation which, he asserts, has had a positive impact on station operation; on local programming; on production, and on ratings.

One significant effect of the "INSTA-CAM" facility, adds Mr. Sawicki, is that it has muscled TV-16 into the #1 local news slot in the market. Further, the mobility of the ENG system and its fast set-up has enabled the station to provide much more extensive coverage of local news, sports and events throughout the area. It has also given TV-16 a new outreach to its many communities by permitting local program origination from just about anywhere. Still another "plus" for the system is increased capability for on-location production of quality commercials.

TK-76 Camera Complement Grows

TV-16 started with two TK-76 cameras for both ENG and commercial production use. The quality production results achieved with the TK-76 generated enough added business to require the third camera. Subsequently two more cameras have been added for Public Affairs use. Mr. Sawicki rates the TK-76 as a superior, very durable camera.

Most commercials are produced on location, using a single TK-76 and a ¾-inch casscte recorder. After editing at the studio, the completed spot is dubbed up to quad. All tape commercials aired by TV-16 are dubbed to the TCR-100 carts.

The TK-76 cameras have provided excellent service under a variety of operating conditions. For example, a cross-country motorcycle race gave one of the cameras a bruising ride. And a six-hour Disco Concert on New Year's Eve—a three-camera production shoot—tested the TK-76's ability to deliver quality pictures at low light levels.

ENG Programming

To thrive in a sprawling middle market, a station must scramble to relate to the market, Mr. Sawicki notes. WNEP (*N*orth *E*astern *P*ennsylvania) has been successful in covering the spread-out communities in the area designated by their call letters. And ENG is helping them to do it more effectively.

ENG helps in building relationships with the many communities in the market. It permits developing special programming such as "Town Meeting of the Air", a regular feature that presents topics of interest to area viewers. The ENG capability is used to present regular timely documentaries. On Memorial Day weekend, for example, the topic was "Summer Safety", and a nearby State Park and lake were used as the setting for the television production.

"NEP Scholarship Bowl", featuring high school contestants vying for scholarships, is an event sponsored by the station, with the finals being aired from Kings College in Wilkes Barre, using three TK-76's.

NEP EVENTS is a popular one-hour Sunday program which centers on area sports events. The program is edited from tapes of the previous week.

When the Ringling Brothers Circus visited Scranton, the TV-16 ENG crew shot the setting-up operation, with the roustabouts and the elephants raising the tent. The opening performance was covered by ENG also as the setting for the station's "Dialing for Dollars" show.

TV-16 is also an active participant in the annual Jerry Lewis Telethon for Muscular Dystrophy which is handled as a three-camera production, with the TK-76's originating programs from different locations, along with the network program. This production was ideally suited for the TFS-121 Frame Synchronizer, which permitted switching between network, five remote sites and studio signals without a roll, tear or glitch.

The ENG operation has altered the production and presentation of the news, and has made it much more spontaneous. For example, at TV-16, the anchor man goes to the "hot" news source to report, and frequently anchors the news program from the remote location. The anchor and co-anchor are responsible for writing the news as well as delivering it.

On-location commercial production job for TK-76. Director Demetrius Witiak (left) also supplied photos for this WNEP article, including cover picture.

Three Mobile Units

The ENG/EFP facilities at WNEP-TV include a number of innovations that will be of interest to others involved in these operations.

The ENG function includes two production vans and a Bronco mobile unit. Five TK-76 portable cameras are used for News, Production and Public Affairs. In addition, five film crews have been used to cover area events. With the expansion of the ENG operation, film activity has dwindled to the point that the station expects to be out of the film business by the end of the year.

The Bronco four-wheel drive vehicle is fully equipped for a two-person operation—a cameraman/VTR operator, and a reporter. Equipment carried includes:

TK-76 Camera
¾ inch VTR
Tactec Portable 2-way Radio
TV Receiving Antenna
Monitoring Facilities
Farrinon Microwave
Nurad Dual Microwave Antenna

The microwave unit is mounted on a Wilbert telescoping pole which can be raised to 35 feet for extended distance coverage.

Production Unit #1

ENG Unit #1 is a self-contained production vehicle, complete with its own 6.5 kW power plant. It is equipped with an 8-input, 3-bus ADC switcher with special effects. Two audio boards provide up to 7 microphone inputs. The unit is also equipped with a TK-76 camera; Tactec radio; ¾-inch cassette VTR and Nurad antenna. A 5 watt Terracom 2 gHz microwave transmitter is carried in the van. A mini-link short-range portable is used to transmit to the ENG vehicle for taping or relaying to the station. The TK-76 cameras are equipped with 300 feet of reel-loaded cable.

Tactec radio base unit in technical area at studio is used for expediting ENG microwave set-up.

ENG Unit #2 on-location.

Tactec Radios Expedite Microwave Set-up

Microwave is essential in covering the TV-16 area because of the hilly terrain; the distances involved; the tight set-up schedules and limited staff. The Tactec Portable Radio System is used to expedite the alignment of microwave systems from remote locations. In handling this operation, the station has established a number of specific points for microwaving signals back to the station for more effective pickup and broadcast of microwave transmissions.

Two receiving antennas are used for relaying signals to the station: one at West Mountain, five miles north of the studio, and a second at Penobscot Nob near Wilkes Barre, where the TV-16 transmitter and a broadcast antenna are located. Each tower has a Nurad 360° rotatable receiving horn for full coverage. The radio repeaters are located on the same towers, at the 700 foot level. In addition, there is a 7 gHz microwave link from Wilkes Barre to the main studio, and a 13 gHz link from Scranton.

Fast Double-hop Set-ups

"Dialing for dollars", a popular TV-16 program, illustrates both the utilization of ENG facilities, and the effort made by the station to relate to the numerous communities in its market area. This two-hour production is aired from 4-6 p.m. daily, featuring a movie, with an MC personality who travels to various locations in the TV-16 market to provide live inserts for the program, including personality interviews as well as the "Dial" calls.

During the time trials for the Pocono 500 Auto Race in June, the show originated from the race track, including an interview with Al Unser (who later won the race). Handling a remote such as this is not of itself unusual. However, this one-shot segment required a double-hop microwave transmission, with only 40 minutes available for set-up.

Accomplishing this task in that tight time frame required careful pre-planning and precision execution. The ENG #1 mobile unit drove to the Pocono Race Track and dropped off the talent, a TK-76 camera; audio equipment, and the 13 gHz portable "mini-link" microwave unit.

Then the production van proceeded to a predetermined high location between the track and the studio, and raised its telescope microwave pole and aimed toward the receiving antenna on the Penobscot Nob tower.

Color bars were fed from the truck via microwave to the studio, and the Tactec radio was used to advise the studio that the color bars were being transmitted. From the technical area at the station, an operator switched in the audio of the microwave transmission and played it back to the mobile unit on the Tactec transmitter. This transmission permitted the ENG unit to lock in the audio. A single "Feedback" button installed at the Tactec transmitter in the studio handles the playback for lining up the audio.

Adding the Mini-Link Hop

With the transmission set from the mobile unit to the station, the next step was to line up the link between the track and the mobile unit. The Tactec radio was also involved here, first in contacting the technician at the track location to advise that color bars and tones were being transmitted. The 13 gHz mini-link at the grandstand fed the color bars and tones back to the ENG truck. In this case, Shure tone generator is used with the Tactec to line up the microwave system.

According to Mr. Sawicki, the audio is an even more critical alignment than video in microwave transmission. Even with the two-hop microwave from the Pocono track, there was no noticable degradation of signal, he noted.

The Tactec radios are portables which can be removed from the mobile units and carried along with the camera to provide an intercom link. The radio system can hit either the Scranton or the Wilkes Barre repeaters, providing more flexibility and 360° coverage.

Another Use for Tactec

Another unique application for the Tactec radio system is to use one of the channels to handle remote control functions. The system uses a programmed "touch-tone" type coder-encoder to provide remote control of 24 functions. Functions controlled relate to the microwave system and the system is programmed to operate the Nurad horn on the tower at West Mountain. A weather radar is also controlled by this system. Functions include: Turn-on; Tilt; Raise-Lower Gain; Change Scan. The system was designed by RCA Mobile Communications Service Representative, Dave Thomas, who has been successful in adapting Tactec systems for multiple functions.

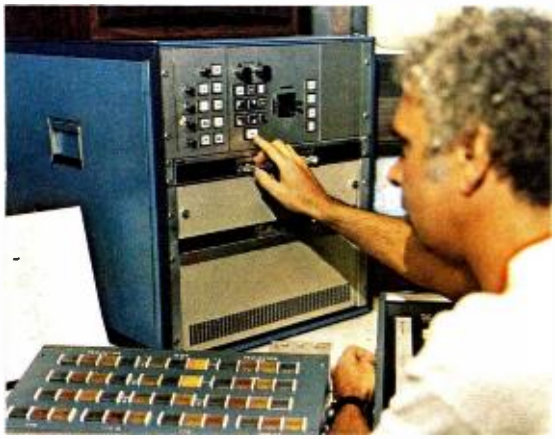
Intrepid TV-16 Engineers

Joe Balkan and Ken Pavlick are the two TV-16 engineering staff members most responsible for installation and operation of the ENG units.

Their enthusiasm for the ENG operation on occasion carries them beyond the normal call of duty. One such situation followed the heaviest snowstorm of 1978 which completely isolated the Northeastern Pennsylvania area. Even the main Highway I-81 was closed to traffic. To dramatize the severity of the situation and to discourage motorists from venturing out, Ken and Joe teamed up to provide live helicopter coverage of the snowbound highway.

This was accomplished by Ken carrying a TK-76 camera on the helicopter while holding a 13 gHz microwave transmitter on his lap. Joe Balkan stood on the roof of the TV-16 studio building, holding a receiving antenna. The range was only 1½ miles, but was sufficient to provide graphic on-air evidence that the roads were totally impassable.

Unit #1 with mini-link relay. Stu Wilson uses RCA Tactec portable radio to expedite microwave alignment.



TV-16 uses the TFS-121 Frame Synchronizer for ENG operations; for network programming, and for production. Director Steve Carlin is using the system here.

Frame Synchronizer Aids ENG

In extreme situations such as this as well as in routine operations, the ENG performance has been aided by the installation of a TFS-121 Digital Frame Synchronizer. In addition to switching smoothly between non-synchronous video sources without disrupting synch, the TFS-121 freezes on the last frame of video. This prevents losing continuity if the incoming signal is lost momentarily—and also can be used as a production effect for lead-ins and transitions between ENG reports.

All network programming is fed through the TFS-121 Synchronizer. However, TV-16 does not take a straight "cut" from the network, preferring to bring it in with an effect, such as freeze frame.

With the TFS-121, local inserts can be fitted into network programs without a noticable difference—no glitch or change in picture quality, Mr. Sawicki says. "The TFS-121 is one of the best pieces of equipment to come along recently," he adds.

Wireless Cueing System

Also a part of the ENG production van facilities is a cueing system for talent which was designed and installed by the TV-16 technical staff. Useful for both ENG and production assignments, the system employs a Comrex one-watt transmitter which transmits both the off-air audio signal and the output of the Tactec portable radio. The on-camera talent wears a receiver earpiece, and hears intercom instructions form the truck, as well as the on-air audio.

In handling newscasts from remote locations, Channel 2 of the Tactec radio is used as the intercom for the producer in directing the news crew. The on-camera newscasters and cameraman receive instructions via the Comrex receiver. The same system is used at the studio for the anchor. When instructions are transmitted via the Tactec, they override the on-air audio. The talent hears the off-air audio until the intercom overrides.

The van is equipped with a Mini-State TV receiving antenna (an RCA Distributor and Special Products unit) which includes a built-in rotor for bringing in the best signal from the station. The off-air picture is displayed on a 12-inch rack-mounted color monitor. A switch at the monitor permits sending the off-air audio to the Comrex transmitter.

Pioneer in Total Automation

WNEP-TV pioneered in total station automation, having installed a GE system in 1971. Since then, extensive refinements have been made to the system to meet changing operating requirements. The system includes two terminals: one for programming; the second for handling up to 16 other programs, including numerous business functions; even billing. Five weeks of program schedules are stored in the computer memory. Programming and maintenance are handled by station personnel, Mr. Sawicki states, and this has made the system even more cost-effective.

Two TCR-100's Interfaced

Two TCR-100's video "cart" machines are interfaced with the computer system. With the TCR-100's and the automation system, one man can operate the station, according to Mr. Sawicki.

All film commercials, PSA's and tape commercials are dubbed to the "cart". The computer controls all switching functions from the GE Master Control Switcher. Wipes and dissolves are programmed in, so that there is a transition between "carts" instead of a "fade to black".

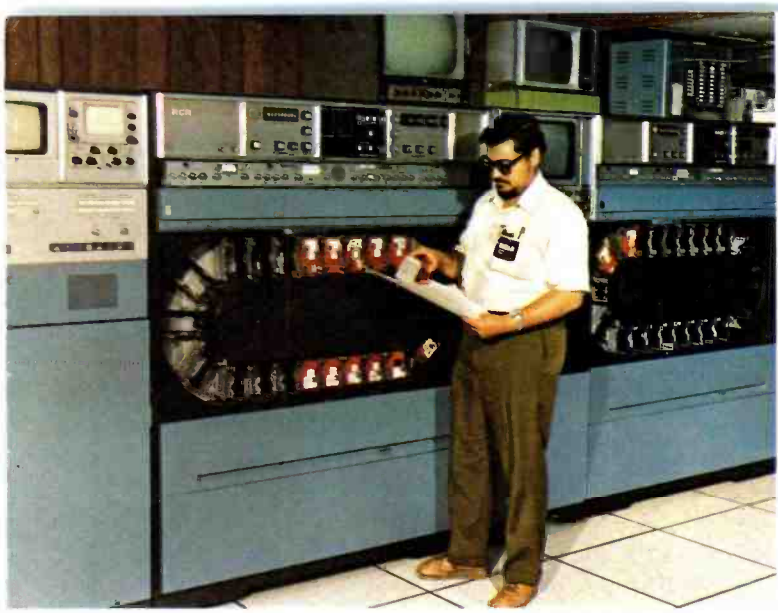
The MC switcher is an Audio-Follow-Video, with two buses plus Preview. Although it is computer-controlled, manual over-ride capability is provided. Since manual operation is limited, only a few basic push-button controls are needed on the switcher—"Hold"; "Skip"; "Auto"; "Pre-set"; "Manual"; "Roll"; "Take". A CRT readout shows the Master Control operator the event on-air; the event on "Preview" and the next 10 events scheduled.

Since the computer operates on a duration time and pre-rolls the TCR, tape and film sources, it is necessary that the programs and commercial spots be carefully timed to avoid cut-offs or bad transitions.

News segments or live network shows with live local inserts require that the computer be kept on a "Hold" or "Cue" status. For example, ABC's "Good Morning America" show is carried by TV-16, and includes six live inserts plus two five-minute news segments. During the news, the computer is in a "Hold" mode. At the first news break, Production Control activates the computer to proceed with the programmed commercial block. When the break is completed, the computer is put on "Hold" status again while the live news segment is on-air.

The Master Control operator is responsible for checking video output to main-

WNEP Vice President Chester Sawicki in Master Control checking computer automation operation.



Two TCR-100 "cart" machines are interfaced with the computer system at TV-16. All film and tape commercials, and PSA's are dubbed to the "cart".

tain quality; for loading tape and film machines, and maintaining the log to verify that the events ran as scheduled. The individual events are printed out automatically on an "as-run" log as they are aired.

Round the Clock Tape Operation

The two TCR-100's put in a full work day, since the station broadcasts for 20 hours a day, from 6:00 a.m. until 2:00 a.m. sign-off. The tape machines are never turned off. The "Cart" machines are used heavily for both commercials and news, Mr. Sawicki says, averaging up to 500 plays per day. One of the machines has logged one and a half million cycles.

V-11 designates the TCR-100 used for on-air operations, and V-10 is the second "Cart" machine which is used for production, for dubbing carts, and as a back-up system. If time permits, edited ENG stories are transferred to carts for airing.

The TV-16 tape complement includes two TR-600A VTR's with AE-600 Time Code Editing. The TR-600/AE-600 systems are also operated 'round-the-clock for production and programming. In addition, there are two separate editing rooms for the video cassettes. These are equipped with BVU-500 automatic editing control units.

Two TR-600A quad tape machines with AE-600 Time Code Editing Systems are used for program playback, production and editing.

First Radomed RCA UHF Pylon Antenna

Long before 1978's severe winter became a memory, the WNEP-TV management made a decision to change antennas to improve service and to provide protection against the problems created by extreme icing conditions.

The new antenna, an omnidirectional TFU-28G Pylon is the first such RCA antenna to be radome-covered. The antenna replaced, a TFU-36J, had been in service since 1967.

The new custom antenna provides a better signal throughout the area, without requiring an increase in transmitter power, according to Mr. Sawicki. This antenna delivers a wider beam with a 1° beam tilt which provides a stronger signal and improved coverage for close-in areas.

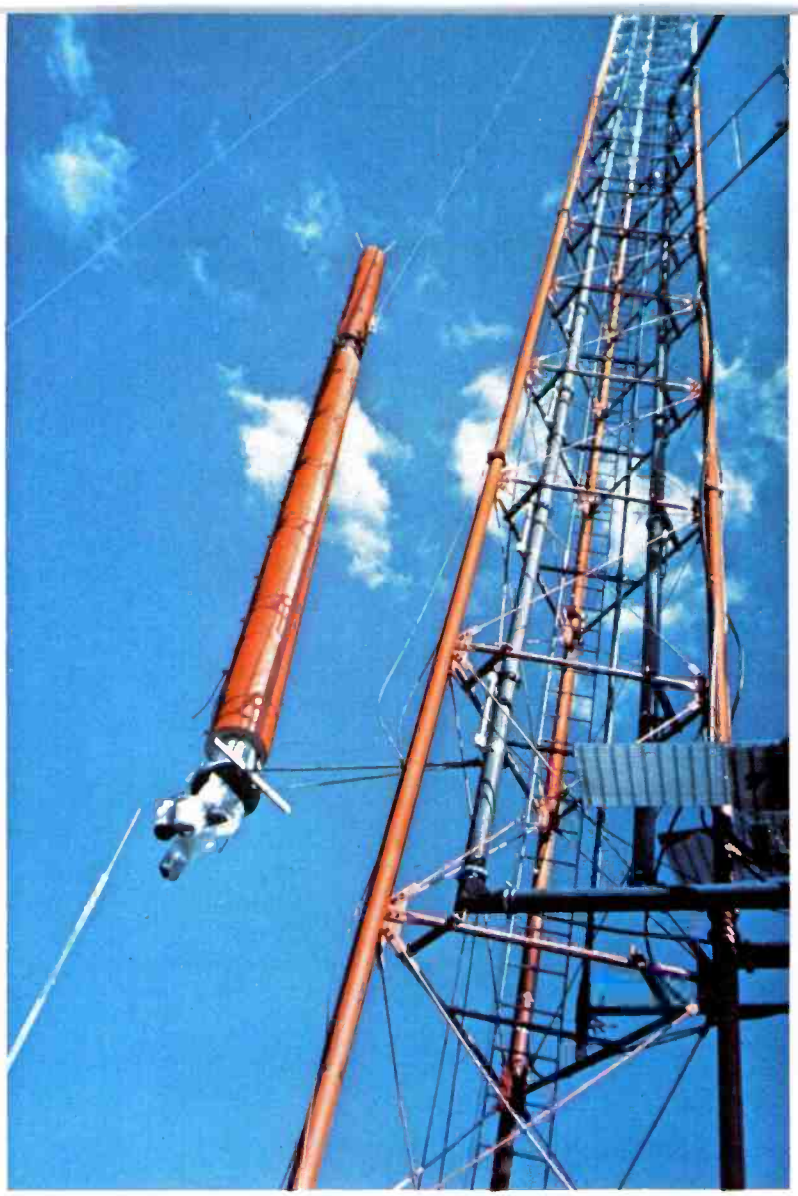
Stronger Signal

For the close-in area 4-6 miles from the antenna, there is a 3 to 4 dB pickup in signal strength, while in the 6-20 mile radius the signal is up 6 dB from the previous level. Beyond 20 miles, the main beam is holding to within ½ dB of the old antenna signal, Mr. Sawicki said.

Last winter's extreme icing conditions caused many television stations in the northeast to operate at reduced power, with a resultant decrease in coverage, Mr. Sawicki noted. Electrical deicers were not sufficient to deal with the severe weather conditions. The radome protection of the new antenna eliminates the need for electrical deicers. According to Mr. Sawicki, it takes 36 kW of power to heat TV-16's antenna pole—which translates into a utility bill of $2,000 per month when the deicers are operated.

Deicer failures are costly, Mr. Sawicki adds, because winter weather conditions which cause the problems make it difficult for riggers to make repairs. And, if the signal is degraded or the station must operate at reduced power levels, this can have an adverse effect on ratings for the period.

The TFU-28G is an 80 foot pole, top-mounted on the tower. The TV-16 tower (Stainless) is relatively new, having been erected in 1974. At that time, it was deliberately overdesigned to accommodate the heaviest antenna available. Consequently, minimum modifications were required to install the new antenna. In fact, the most difficult part of the antenna changeover was getting the new antenna up the mountain. This required tricky maneuvering on the part of the tractor-trailer driver. A work crew with chain saws cut trees in the path to provide clearance for the trailer.



Another first. New radomed UHF Pylon antenna rides to the top of WNEP's tower. This omnidirectional TFU-28G is the first RCA antenna of its type to be radom-covered.

No End in Sight

With its new radomed antenna and its expanded ENG/EFP operation in full swing, TV-16 is moving forward with new cameras and a new split-market news format to further expand and localize area news coverage.

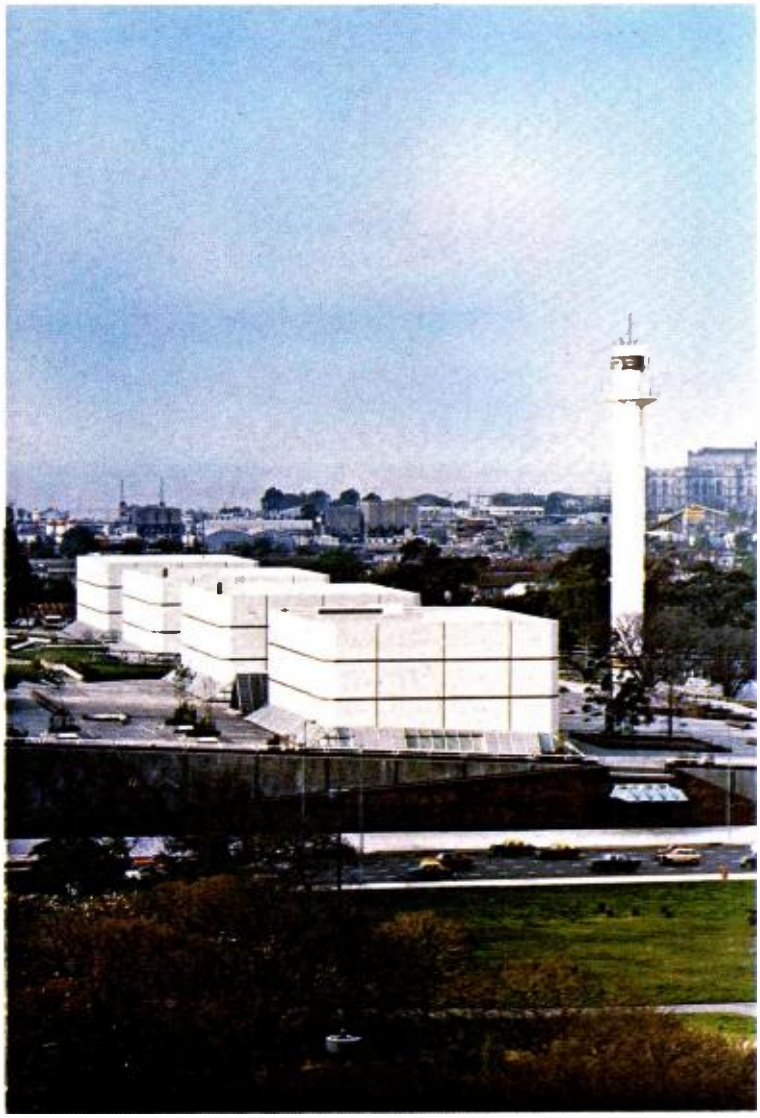
In addition to its main studio, which is located adjacent to the Wilkes Barre-Scranton Airport, WNEP-TV operates satellite studios at Wilkes Barre and Scranton. New TK-760 cameras have been installed at each of these studios to enhance the new news format.

What's next for WNEP? "Whatever it takes to keep TV-16 technically advanced and profitable," is Chester Sawicki's quick response. □

WORLD CUP AFTERMATH . . .

ARGENTINA REGROUPS TELEVISION FACILITIES

National ecstasy follows Argentina's dramatic victory in the 1978 World Cup soccer matches.



The magnificent new Broadcast Center in Buenos Aires includes an extensive complement of telecine and video tape equipment, with sophisticated editing facilities.

Years of planning and massive expenditures preceded the 1978 World Cup Soccer matches held in Argentina, and which culminated in a dramatic victory for the host team.

A considerable part of the technical planning for television broadcast operations involved utilization of the facilities *after* the games were concluded. The World Cup win produced instant ecstasy for Argentine soccer fans, while the extensive investment in television equipment has provided that nation with a major, up-to-date broadcasting capability.

RCA Broadcast Systems provided a complement of video tape and telecine systems for the Games, After their conclusion, a Project Implementation team from RCA moved on site, relocating equipment at the Broadcast Center studios in Buenos Aires.

The RCA equipment installed included sixteen TR-600A quadruplex video tape recorders, with AE-600 editing facilities; six complete TK-28 telecine systems with separate magnetic sound capability, and two TK-76 cameras. The $3.3 million order for RCA equipment was placed by "Argentina 78 Televisora", the organization responsible for TV coverage and transmission of the matches around the world.

At the main Color Center in Buenos Aires were eight TR-600A's; two TK-28 telecine systems; three PM-86SL magnetic sound dubbers; a custom-built AE-600 time code editing system, and the TK-76 portable cameras.

The balance of the equipment was located at the outlying stadiums at Mendoza, Cordoba, Rosario, and Mar Del Plata. Two TR-600A VTR's and a TK-28 telecine system were installed at each of these locations. These tape machines were equipped with either SE-1 or AE-600 Editors to facilitate on-site editing of recorded material.

The editing system at the main Broadcast Center was far more versatile. It was designed to provide synchronous operation between all of the TR-600A tape machines. These could be located in any of the six studios or VTR centers and could be controlled from either of two special editing control suites.

A custom system, designated ASL-600, was used to interface the sprocketed and non-sprocketed machines in the

system for precise interlock operation. This system proved to be particularly valuable at the World Cup Games because of the number of languages involved in dubbing sound.

Throughout the games, the RCA equipment was utilized on a 24-hour basis for programming to all parts of the globe, reaching an audience estimated at over 800 million viewers.

On completion of the RCA Implementation Project, the technical management of Argentina 78 Televisora noted that "the operation of the VTR's and Telecine Islands during the World Football Cup fulfilled our expectations. There was no fault in the programming that could be attributed to the equipment provided by RCA—even though at times we were obliged to work 24 hours running."

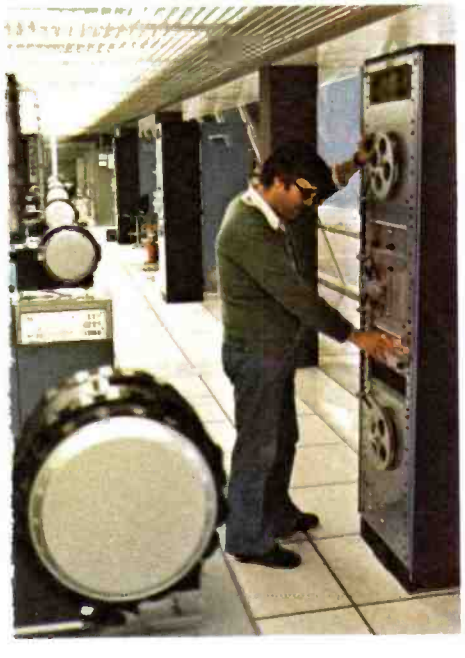
Now all of the RCA equipment has been positioned in the main Color Broadcast Center, an impressive, generously equipped facility—and a lasting monument to commemorate the 11th World Cup Soccer Games.

RCA is proud to have shared in the "Argentina 78 Televisora" project, and to be an integral part of the new Buenos Aires production center. ☐

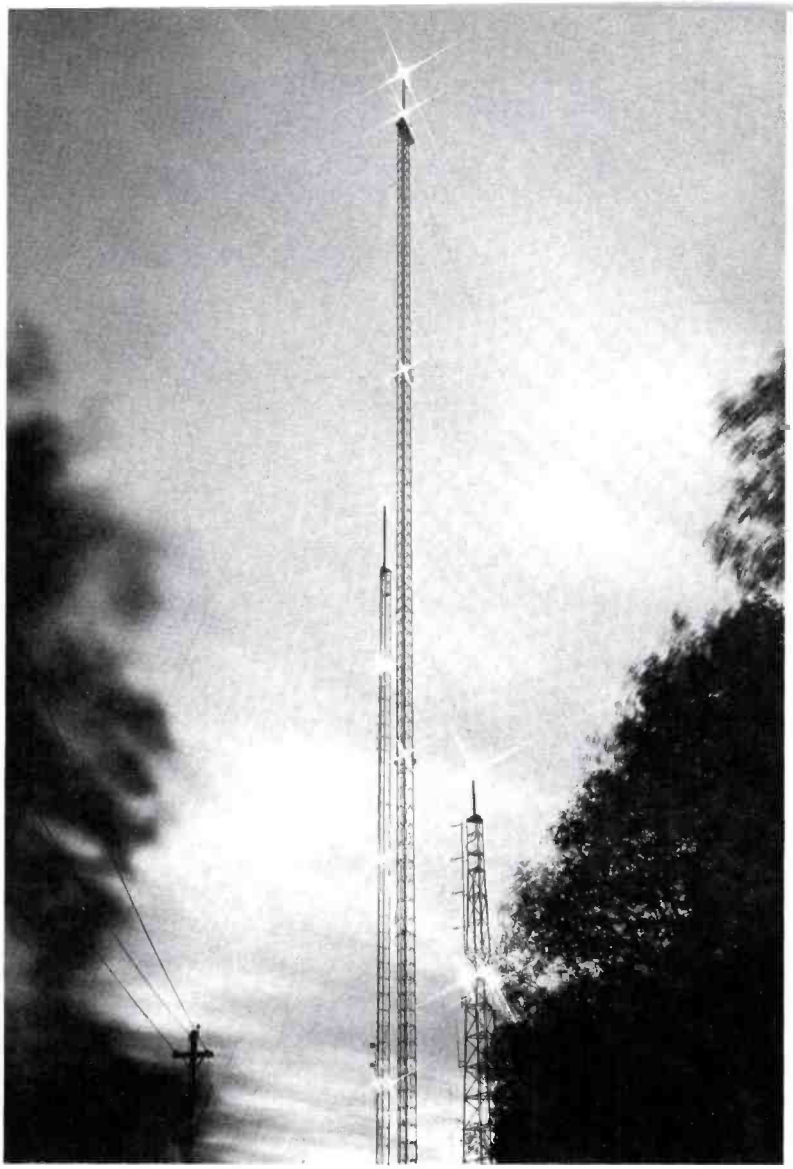
View of video tape area through the window, with tape editing console in foreground.

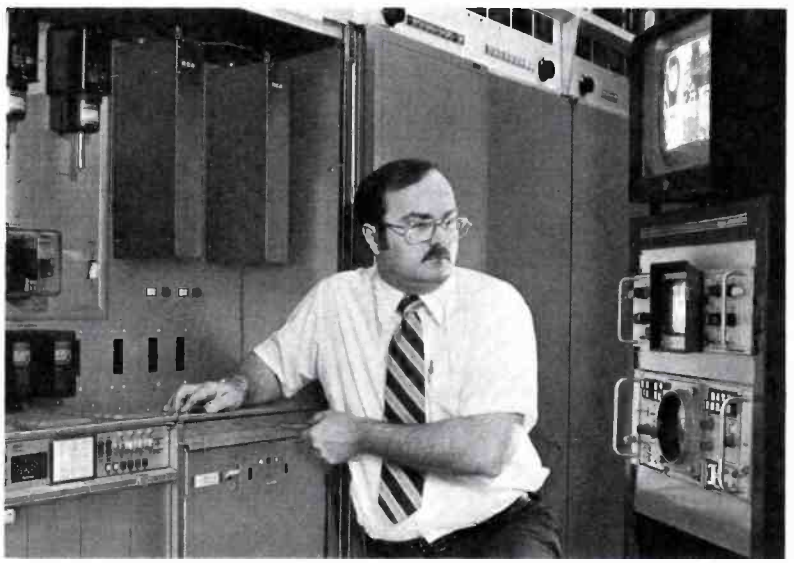
Video tape operators at Broadcast Center wear blue and white ribbons in support of their favorite team.

PM-86SL Magnetic Reproducers provide Sep-sound facilities for the telecine operation.



The line of TK-28 Telecine Systems stretches on and on.





Director of Engineering John Bosak checks set-up adjustments for Mod Anode Pulser. Transmitter operating power cost savings with the pulser have been measured at $1.58 per hour by WITF.

WITF-TV

Rises to New Heights To Improve Service

IN FILLING the dual role of providing service to schools and alternative programming for home viewers, community-supported public television facilities should maintain technical parity with commercial stations in the market. This is the operating philosophy followed by Michael Ziegler, Executive Vice President of WITF-TV, the public television station for South Central Pennsylvania.

When Ch. 33 turned on its second generation transmitting plant on October 2, 1977, it was a gratifying expression of that philosophy. For John Bosak, Director of Engineering, firing up the new system marked the culmination of a long period of planning and preparation, capped by a summer of hard work at the antenna/transmitter site atop Blue Mountain near Harrisburg.

The new facility includes a TTU-60, 60 kW Transmitter; new transmission line; a new 720 foot tower; a refurbished TFU-30J Pylon UHF Antenna, and two television translators (a new Ch. 51, Reading and an existing Ch. 73, Chambersburg).

1.4 Million Watts ERP

After more than a year of operation, the station is extremely pleased with the transmitting system, which is a 100% remote controlled operation. The system is providing better coverage, delivering a strong signal throughout the area served by WITF, Mr. Bosak says. The ERP of the new system is 1.4 million watts.

Pulser Produces Power Savings

The TTU-60 Transmitter is equipped with a TTUE-4 Exciter; Mod Anode

Pulser, and high efficiency klystrons. The Pulser reduces input power requirements of RCA UHF Transmitters by increasing the efficiency of the visual power amplifier. At WITF, the transmitter operating power cost reduction with the Mod Anode Pulser have been measured at $1.58 per hour, which projects to savings of over $10,000 per year.

The Pulser permits the klystrons to operate at reduced beam current during the video portion of the TV signal and at a high beam current only during the sync interval. This results in a reduction of beam power input of approximately 32 kW in a TTU-60C Transmitter such as that operated by WITF-TV.

Area Growth Spurs Need to Upgrade

WITF covers heartland Pennsylvania, including ten counties and portions of four others as well as three Maryland counties. The area is unusual in that it is not a concentrated metropolitan zone, but separate pockets of population, including the state capital, Harrisburg; Lancaster; Lebanon; York and Reading. Together, these include more than 500,000 households. Hershey, where the station's studios and administrative offices are located, is a cultural center for the surrounding area. CH. 33 went on-air in November, 1964 with a TTU-30, 30 kW transmitter, and a TFU-30J Pylon Antenna mounted on a 150 foot tower. In 1971, the FM station, 89.5 MHz, was added.

In recent years, the population growth in South Central Pennsylvania coupled with the expanding utilization of WITF's varied programming schedule pointed to the need for improving signal strength and reliability throughout the area. A new TV transmission system became a reality when an HEW grant was awarded to WITF for improving coverage of the market. Matching funding came from more than 1900 individual, business and industry donors in the area.

Planning and Installing The New System

Planning the new transmitting system involved extensive contour studies of the coverage area; an analysis of the demographics, population distribution, and cable systems serving the area.

From these studies, a number of options for improving coverage were developed by station technical personnel and consultant Julius Cohen (Cohen & Dippell.) The recommendation for a higher-power transmitter; a taller tower and a high power translator for covering the Reading population center evolved from the studies.

Installing the new transmitting system without losing air time was a challenge faced by Mr. Bosak and his technical staff. A major problem involved fitting the 60 kW transmitter and its system components into an extremely limited area. WITF shares the transmitter site atop Blue Mountain with Harrisburg commercial station WHP-TV (CH. 21). The 20 by 40 foot space available to CH. 33 was cramped enough for housing the transmitter and its related equipment. However, the relocation problem was even more critical, since an adequate throughway space had to be provided for moving equipment in and out of the WHP transmitter area. The 10 kW WITF-FM transmitter also had to be squeezed in. Cost considerations made it unfeasible to expand the transmitter building.

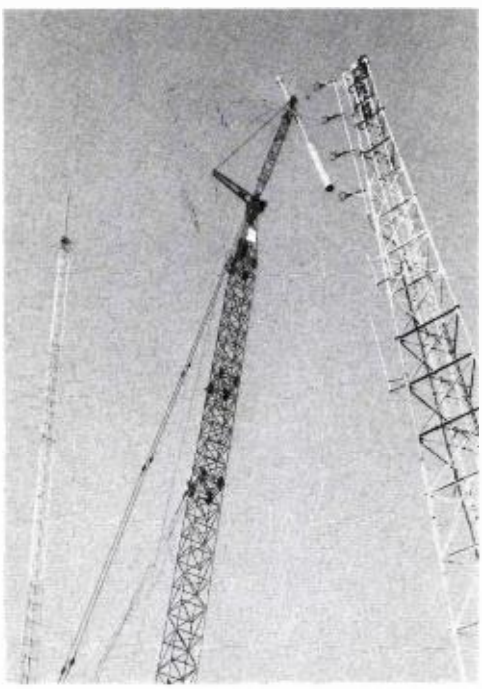
Changeover Procedure

The logistics of building the new transmitting system without losing air continuity involved a mass of detail, careful planning, and supplier support notes John Bosak.

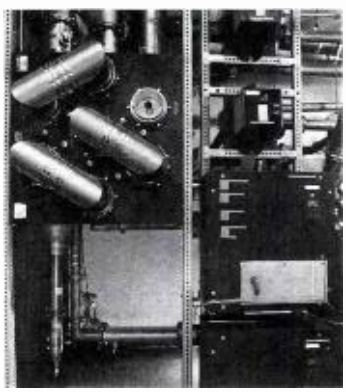
It was decided to use a standby antenna and a low-power transmitter during the installation period. The station purchased an EMCEE 1,000 watt translator and had it tuned with a modulator to Ch. 33. (This translator was ultimately re-tuned to Ch. 51 and is used to cover Reading.) The standby 10-gain antenna was installed atop the old tower after the TFU-30J had been removed. This low-power system was operated with FCC permission until the new transmitter was operational. With the cooperation of over 40 cable companies in the area, WITF estimates that the station's programs were available to over 60 per cent of its regular users during the changeover operation.

At this point, work commenced on dismantling the 30 kW transmitter and its components and re-arranging the area to accommodate the new TTU-60. New transmission line, coaxial switch-

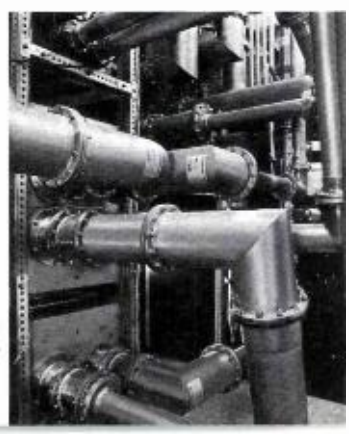
Readings from TTU-60 are logged by staff engineer Terry Snyder.



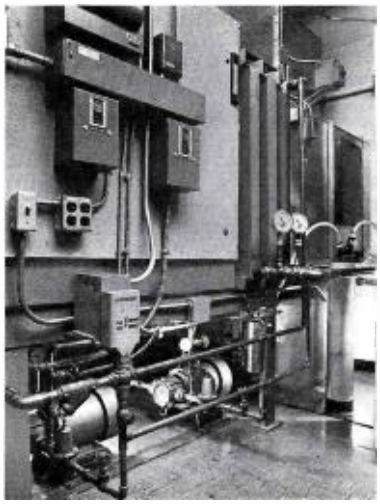
TFU Antenna comes down from old tower for return to RCA for refurbishing and modification.



Transfer panel at WITF-TV. Manual patch panel at left; motorized coaxial switches on right.



Transmission line layout shows the tight space restrictions in the transmitter room.



Compact heat exchanger for TTU-60 is raised off the floor to permit access to water storage pumps beneath.

ing system and heat exchanger were also installed, and the 10 kW FM transmitter was relocated, as was the monitoring and microwave rack equipment.

While the new tower was being erected, the TFU-30J Antenna was returned to the RCA Antenna facility at Gibbsboro, New Jersey, for a complete refurbishing and changing beam tilt. The 1° beam tilt provides improved coverage for close-in areas from the new taller tower.

The new RF switching system was installed by the WITF technical staff, supplemented by RCA Project Implementation and field service engineers.

As a result of careful planning and extra effort, WITF was able to make the changeover to its new transmitting system in a period of just eight weeks without any loss of air time.

Because of the space restrictions, the heat exchanger is a custom design, more compact and raised off the floor to permit ready access to the water storage tank pumps underneath. A filter and de-ionizer are used for the heat exchanger water supply, serving as an "electronic filter".

To provide necessary clearance space, the klystron carriage also had to be shortened.

Also, as a part of the renovation, a heavy decking was added to the top of the transmitter building to protect against ice damage, particularly to the high voltage transformers which are located outside the building.

After twelve years of service at WITF, the original TTU-30 Transmitter has been reconditioned and now is in service at KVEW, Kennewick, Washington.

Added Production Versatility

The hectic transmitting system activity on Blue Mountain produced the desired results of improved coverage, reliability and picture quality. Another phase of WITF's upgrading effort provides added versatility for program production. The station has been an active participant in the swing to ENG and to electronic field production, and is presently using two TK-76 cameras with ¾-inch videocassette VTR's for location production.

WITF Executive Vice President Mike Ziegler in studio as TK-76's are set up for an inside production shoot. Cameras are more frequently used as portables for on-location "road shows".

Production activities are supported by three EFP units, with sophisticated quad and small format tape post-production facilities as well as versatile audio mixdown equipment. Production activity ranges from local magazine-format location-produced programs in both television and radio to major documentaries on subjects of social concern for national audiences.

Mr. Ziegler is a proponent of outside productions because these provide the station with more opportunities to relate to the many communities that it serves. "The only way for a local public TV station to be viable is to provide a strong local service," he states.

Both WITF-TV and WITF-FM have won numerous national awards, including two Emmy nominations, six Ohio State Awards; three NET awards, and two Major Armstrong Awards.

New Pattern Optimized FM Antenna

With the completion of the new TV transmission plant, WITF upgraded its FM facility in 1978, with the addition of a new BFC circularly polarized antenna. This two-bay radomed antenna is mounted high on the new tower. To take fullest advantage of the increased height, the WITF antenna was pattern optimized by RCA for optimum radiation pattern. This pattern optimization service is performed at RCA's Gibbsboro antenna facility, and involves using a scale model of the specific tower and the specified antenna—together with tower detail; primary and secondary coverage areas, etc. supplied by the user—to develop a range of radiation patterns from which the most desirable pattern is selected. The antenna height and mounting configuration on the tower are determined by the optimization study in advance of installation.

Quality Service Fosters Loyal Support

In serving the South Central Pennsylvania market, WITF-TV reaches 170,000 television households, including 26,000 supporting members, Mr. Ziegler notes. This places CH. 33 among the top public stations in the U. S. in the percentage of viewers who are also supporters.

The new transmitting system and field production facilities are helping WITF to fulfill its commitment of providing quality service to a growing number of home viewers and supporters as well as to schools and other institutions. □

TK-760's

NEW YORK

Capture Yankee Stadium Series Action for over 200,000,000 Viewers

THE FINAL weeks of the baseball season saw fans and media alike scrambling to second guess each other as to which two teams would end up grappling for the coveted title. To each team's fans it was a matter of hometown pride, to NBC it became a logistical holding pattern as to where the contest would ultimately be held.

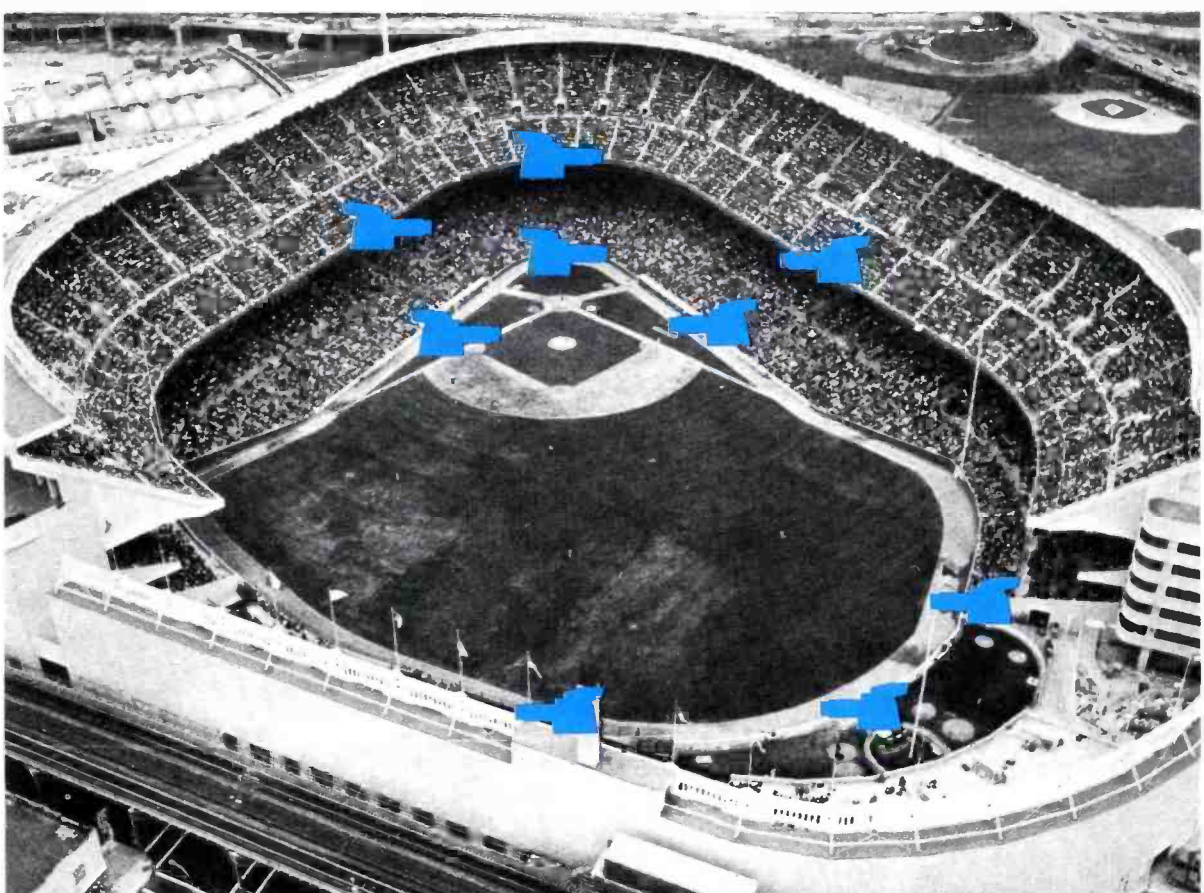
Early on, the decision was made at NBC to commit one of the newly-delivered, TK-760 equipped vans to coverage of at least one of the Series games. As part of a performance shakedown, a van with six TK-760 cameras was deployed to RFK Stadium to televise a match-up between the Washington Redskins and the New York Jets. The program picture results well substantiated NBC's decision to go with the TK-760 camera. The cameras proved to be lightweight, mobile, simple to set up and exhibited an extremely low maintenance-need resulting in efficient personnel and time use. But, most striking of all, were the dramatic close-ups made possible through the use of the Schneider 30X zoom —originally designed for use in the 25mm tube format— on the TK-760, with a ⅔ inch format.

When the New York Yankees clinched their division, the Fairview, New Jersey base for the vans dispatched the assigned van to Yankee Stadium. The Los Angeles games were to be covered by an NBC-Burbank truck.

Yankee Stadium shots create a new level of professional sports coverage

An average of over 68 million viewers per game watched the action from Yankee Stadium captured by nine TK-760's, establishing a new high in World Series ratings and number of viewers. The dynamic long-lens equipped TK-760 cameras brought a new meaning to the close-up. When normalized for comparison to the 30mm format, the Schneider lens equipped TK-760 zoom range is considerably longer than any non-extender supplemented camera currently utilized for sports coverage. One remarkable shot was so tight and sharp that the Series imprinting and seam stitches on the ball were clearly legible on the TV screen. And, not wanting to be outdone by the infield crew, the outfield cameramen utilized the close-in capabilities of the TK-760 to become embroiled in the Reggie Jackson ball deflection controversy. A slow-motion unit—not normally used on a camera at this distance—was linked to a center field camera revealing what really happened, adding new fuel to the fire of whether tape replays should be utilized by game officials.

When all the dust had settled, the New York Yankees had clinched the pennant and the TK-760s had delivered "the tightest shots in professional sports" presently being televised.

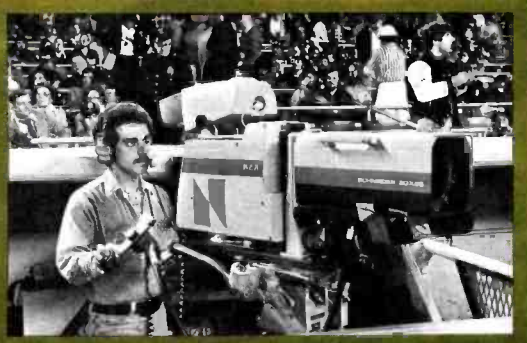


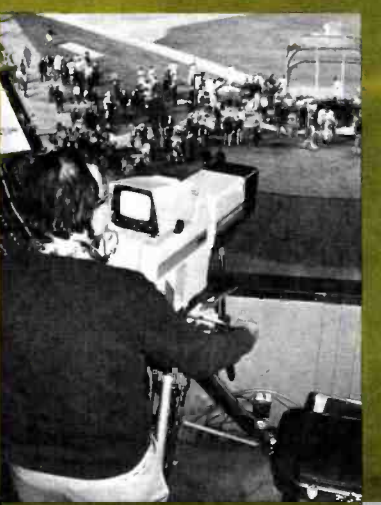
High or low . . . wide or tight . . .

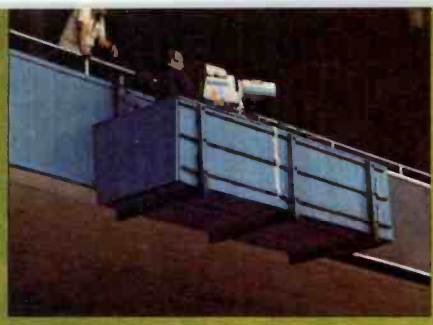
NBC's TK-760 team was deployed to catch

every bit of World Series '78 action

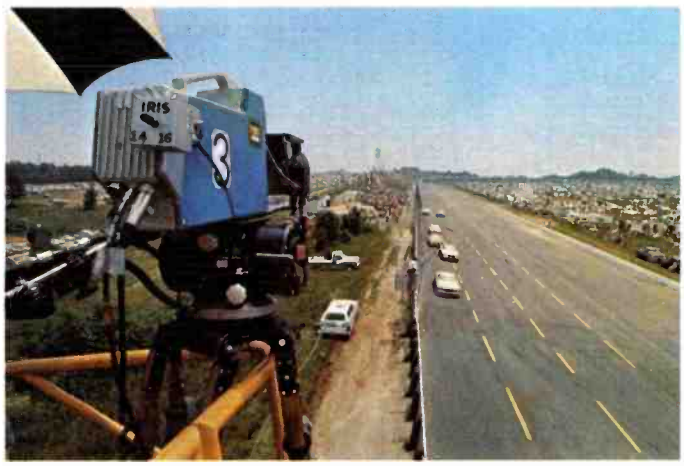
from Yankee Stadium.







TK-76 ROUNDUP



While one TK-76 rode in Race Car #27, this one covered the track from a sun-drenched "cherry picker" platform.

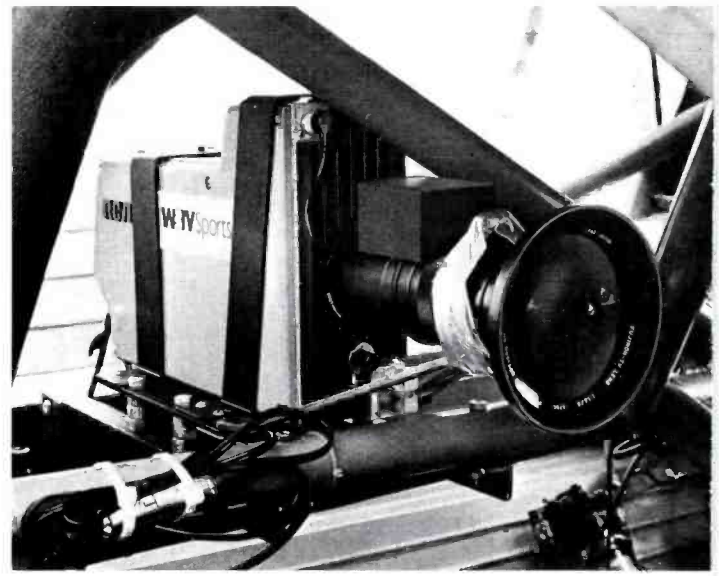
TK-76 RIDES RACE CAR AT WORLD "600" GRAND NATIONAL

In hundreds of situations, the TK-76 has proved its ability to take punishment—but this camera went through an extraordinary ordeal during the World 600 Grand National car race held earlier this year.

WBTV, Charlotte, N. C. mounted a TK-76 in one of the race cars to provide more exciting coverage of the event! The camera endured the extreme vibrations and heat to make "live" pictures from the vantage point of the car's driver, Buddy Baker.

Ron Harrington, Assistant News Manager for WBTV who conceived the idea for this innovative race coverage, reported that the TK-76 "worked and held up extremely well with almost perfect registration after the 600 miles."

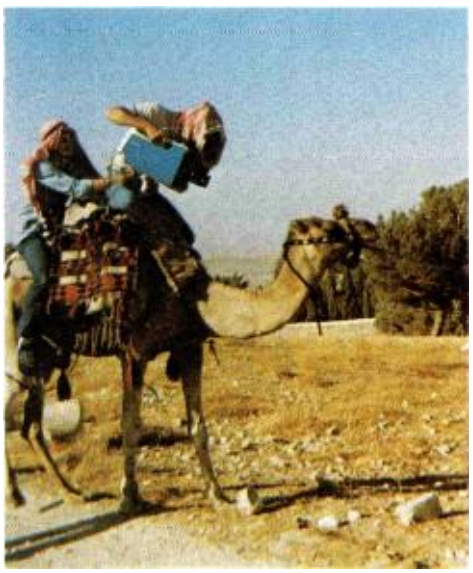
The TV signal was transmitted by a portable microwave unit in the vehicle to a receiver in the center of the infield for "live" pickup, and also recorded for later broadcast.



MEANWHILE . . . IN BRAZIL, the shore-line apartments and green hills of Rio de Janeiro form an attractive backdrop for this ENG crew from REDE TUPI as it covers the action of a speedboat race in the harbor. And, typically, the TK-76 camera is attracting an interested audience of its own.

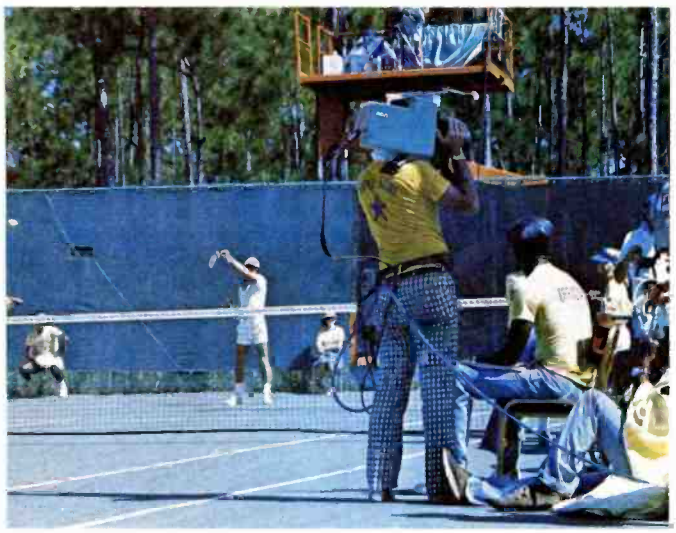
ONE OF RAI's FIFTY

Cameras abound in historic St. Peters Square in Rome, and the TK-76 is not an uncommon sight there. Throughout Italy, this camera is frequently in view, since RAI has fifty strategically located TK-76's in operation for comprehensive ENG coverage of news and for on-location production of documentaries and programs.



ONE HUMP OR TWO?

Either way, a bouncy-jouncy camel ride is shared by the TK-76 and its two-man crew from Oral Roberts University. Photo was supplied by Chris Miller, Associate Producer at ORU, and was taken on-location in Israel. Camera, crew and camel came through the production shoot nicely.



WITH THE SUPER STARS

A crew from Wometco Productions, Miami, uses a TK-76B with Remote Control as a pickup camera for taping ABC's Super Stars competition. This segment originated from the Bahamas and featured tennis and swimming matches. It was the first production use of the TK-76B Remote Control System. Hip-pack worn by the cameraman provides the interface with the remote Camera Control Unit.

TK-76 PROFILE LOOKS GOOD TO GMTV PRODUCTIONS, QUEBEC CITY

While many TK-76 cameras are in operation throughout Canada, GM(TV) Productions is the first independent producer in the Province of Quebec using the camera. Located at Jardin Merici in Quebec City, the company produces documentaries, sports and drama telecasts, but specializes in television commercials.

Gaston Morin, President of GM(TV) Productions, who has been in the film business for the past eighteen years, said that the TK-76 quality enables the company to offer better service to clients producing television commercials.

Equipped with a 14:1 lens, the TK-76 is used with a mobile van and 3/4-inch videocassette recorders for on-location production. The van is easily identified on its travels by the GMTV logo, which is outlined by the familiar profile of the TK-76.

KIDNAPPED TK-76 HELD FOR RANSOM

KYW, Philadelphia, operates ten ENG cameras for Eyewitness News coverage of the Delaware Valley. One of their TK-76 cameras made news when it was stolen and held hostage. According to news accounts, the camera-napper offered to release his "hostage" in exchange for $100 ransom money. He was apprehended during the transaction, and the TK-76 went back to work covering the news instead of making it.

FOR WCSH-TV
A Short Move Makes A World of Difference

Re-modeled building at One Congress Square in downtown Portland houses WCSH-TV; WCSH-AM and corporate offices for Maine Radio and Television Co.

PORTLAND

WHEN WCSH-TV, Ch. 6, Portland, Maine, moved to a new broadcast center, the distance covered was short—less than a quarter of a mile. But, in terms of change and accomplishment, the move made a world of difference.

The new WCSH-TV occupies a modern four-level building which offers attractive surroundings, an efficient layout, ample floor space, and isolation of functions.

"The multi-floor layout has turned out to be an operating advantage," says Bruce McGorrill, Station Manager, "in that people and functions are in closer proximity and more accessible than would be the case in a sprawling one-floor layout. We are close, yet the functions are separated."

Hotel Broadcast Center

With most television stations today moving to single story structures in suburbia, WCSH ran counter to the trend. The station had been located in the heart of Portland for more than 50 years: first, as a radio station which was housed on the top floor of the Congress Square Hotel. (Hence the call letters WCSH). The radio station, WCSH-AM, has been an NBC network affiliate since 1926.

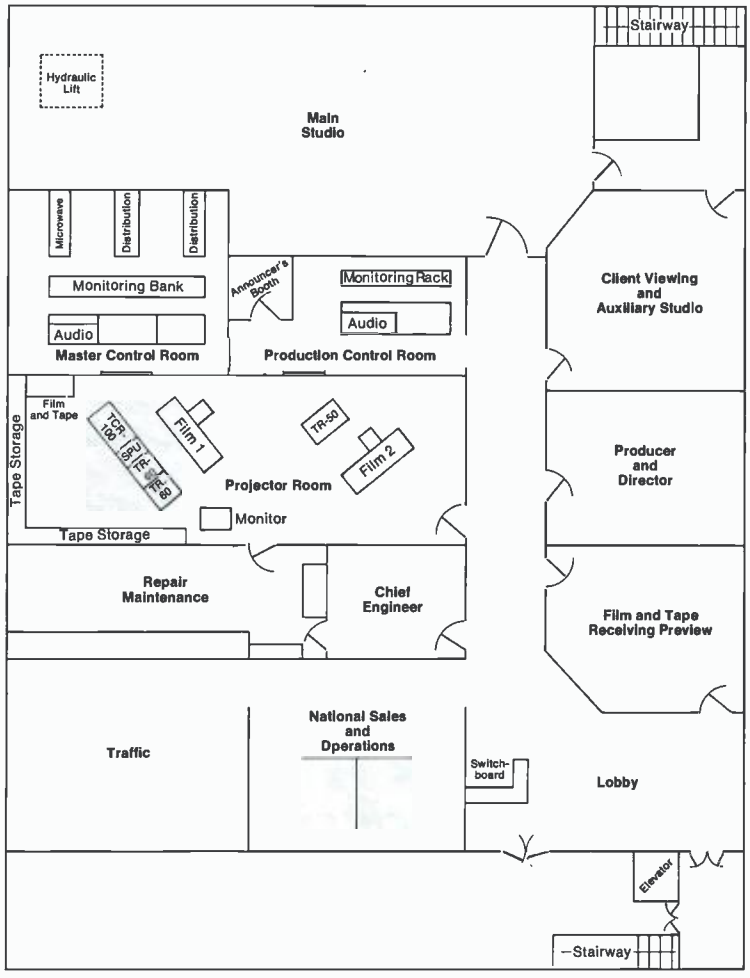
In 1953, WCSH-TV went on air, also as an NBC affiliate, broadcasting from the Congress Square Hotel. Television and radio shared cramped space in what had been an elegant hotel dining hall.

By the early 1970's, it was recognized that the hotel facilities were inadequate and could not be upgraded sufficiently to warrant the investment. With its long association with downtown Portland, station management preferred to remain a part of that environment. A search for suitable new facilities began, ending when the telephone company vacated the nearby four-story building which it had been using as a district business office.

Multi-Level Layout

With the availability of a suitable building, planning for the new broadcast center became a priority item. From initial discussions with department heads listing space requirements and general location preferences, a working layout of the floors evolved.

The First Floor is designated as the Operations and Technical area. The Second Floor houses the Station Manager, Sales, Administration and News operations. On the Third Floor are additional offices and audio-visual facilities for Community Services; Promotion; Art; Copy; and Photography. Corporate offices are on the Fourth Floor. (WCSH-TV is owned by Maine Radio & Television Co., which also owns WCSH-AM; WLBZ-TV and WLBZ-AM, Bangor.)



Technical facilities occupy most of the first floor.

RCA Systems Engineering

In developing the technical layout and systems design, it was decided to utilize the services of RCA Systems Engineering, a group of specialists on the Broadcast Systems staff. With extensive experience in system design, layout and implementation, this group is uniquely qualified to satisfy virtually any technical television system requirement.

RCA Systems Engineering participated with WCSH management in developing a technical system layout which provided for the utilization of much of WCSH-TV's existing complement of video equipment, and at the same time provided flexibility to accommodate future changes in equipment complement or location.

Pre-Planning Simplifies Move

Chief Engineer Clem Payeur reports that moving technical operations to the new location was not unusually difficult because of the extensive pre-planning and site preparation. The architect and contractors had been supplied with complete details on cable-tray runs; walls; power panels, hole locations for equipment, air conditioning requirements, etc.

Two complete control rooms—Master Control and Production Control—were pre-wired and a new pulse generator and distribution system were installed. Much of the material was accumulated and assembled at RCA's CRAE (Custom Repair And Engineering) shop near Camden, New Jersey. Pre-wiring, rack assemblies and most of the system timing was completed at the CRAE facility. Racks were wired in and assembled, with "holes" left for the equipment being utilized from the old system. Equipment locations were set, with cabling running in cable trays under the floor.

The Production Switcher is a Grass Valley 1600-7K, with quad split, three mixed effect banks, and a full range of special effects. A BC-8 dual channel console handles audio.

Production Control—clean, functional, attractive.

Closc-up, Production Control Switcher, with custom Machine Control panel in foreground.

Master Control can also be used for Production when needed. Complete functional diagrams for technical system are framed on wall at right for ready reference.

Layout of Tape and Projection area at WCSH-TV includes ample space for expansion or re-arrangement.

The Master Control Switcher, was purchased in 1975, with the future move in mind. During the Changeover period, the Production Switcher was used for handling on-air operations until the MC switcher was connected. Now the 1600-7 is delegated for production, and any video source not in use for air operations can be assigned for production.

The Master Control room also includes the pulse and distribution system rack equipment. Camera shading controls for the two TK-44B cameras and the TK-27 film cameras are mounted in the MC console, along with tape and film machine controls, and an auxiliary switcher which can be used for production if needed. Transmitter remote control and monitoring studio outputs are also rack-mounted at the Master Control position. The BC-8 audio console from the old facility was re-located in the Master Control area.

Tape and Film Complement

The Tape and Film room includes ample space for future expansion and re-arrangement. The current equipment complement includes a TCR-100A "cart" machine; two TK-27 film islands; two TR-60's, and a TR-50—all relocated from the old facility. The first equipment change has already been scheduled, with two TK-28's replacing the 27's.

Studio Added To Building

The studio is as the rear of the building, and was the only portion of new construction for the new facility. The 50 x 35 foot studio includes the permanent NewsCenter 6 set which is on-air seven times a day.

Two TK-44B cameras with TVQ attachments are used for live programming and production.

When WCSH took over the phone building, there was an underground parking area, and another open-air parking area behind the building. This latter space was used for adding the studio.

In building the studio, TV-6 added another convenience—a hydraulic lift elevator in the basement which permits bringin heavy props directly into the studio. For overhead production shots, a camera can be mounted on the top of the lift which serves as a platform while the camera is raised to any desired height in the studio.

The underground space is utilized for parking the news and film vehicles, for prop storage, and for film processing. Film crews can drive in and deliver film for processing without leaving the garage.

Distribution, monitoring and microwave racks are housed in the Master Control Room.

Main Studio with News set, is also used for production. Hydraulic lift covered by rug permits bringing up props from basement storage area.

Don Powers, Executive Vice President, Maine Radio & Television Co., and WCSH-TV General Manager Bruce McGorrill confer in Client Viewing room adjoining the Main Studio. Room is lighted to serve as an auxiliary studio set.

The large room adjoining the studio is equipped with a picture window looking into the studio. This permits its use as another set as well as for a client viewing area. The room is lighted for television and wired for audio.

Multiple Air Conditioning Systems

Each floor in the building has its own air conditioning system. In addition, there are three individual air conditioning systems for the technical area. The clean air environment in the Tape area has had a dramatic effect on headwheel life, which has increased from 200 hours to an average of 1400 hours, according to Mr. Payeur.

For added protection, fire alarm sensors are located on each floor of the building, with readout and alarm indicators in the technical area.

TCR-100 and Film System Relocated First

Re-locating was done in easy stages, without serious problems, Mr. Payeur notes. One of the film systems and the "cart" machine were moved first, while the three reel-to-reel VTR's and the second TK-27 film system handled both programming and commercial requirements.

The toughest part of the move was trying to operate without the "cart" machine. "The TCR-100 has been a lifesaver for us," Mr. Payeur says "and we work it all day long."

At TV-6, everything but news and special films are dubbed to the "cart"—film and tape commercials; PSA's; ID; station promos. The TCR-100 is averaging well over 200 plays per day, Mr. Payeur notes. Some of the dubbing is done during the day if time permits. During rush periods, it is handled after sign-off. The station has 1500 carts on hand, which are located along with walls in the tape area for ready access.

The changeover was accomplished without fanfare, with the sign-on at the new building at One Congress Square coming on April 19, 1977, using the new control rooms and the key equipment which had been relocated earlier. The balance of the equipment was transferred during the week while maintaining the normal 20-hour broadcast schedule.

In handling broadcast and production technical operations, Mr. Payeur has his staff of fourteen working a four day week of ten-hour shifts. To break up the routine of a longer workday, half of each shift is spent in Master Control and half in Production operations, Mr. Payeur notes.

TCR-100 and tape machines were moved from the old facility. Everything but news and special films is dubbed to "cart" for playback. TCR is used for production as well as for airing commercials.

Operations Manager Lew Colby and Chief Engineer Clem Payeur in studio with TK-44B equipped with cueing system.

Complete In-House Production Facility

For Operations Manager Lou Colby, the pleasant environment of the new WCSH-TV facility is merely icing on the cake. "It has helped our overall efficiency substantially, and has significantly increased our production capability," he says. "In fact," he adds, "we now have the most modern and complete television production facility in Northern New England."

While much of his production work involves film, Mr. Colby also makes effective use of the TCR-100. "The 'cart' machine is a very useful production aid, and we make frequent use of it for handling simple edits and for building segments of commercials. And it is ideally suited for assembling basic commercials built from slides, graphics and audio."

Future-Compatible Technical System

The decision to use the services of RCA Systems Engineering was made during the early planning stages, after technical requirements for the new facility were defined. "A job like this doesn't come along often in station operation," Mr. Payeur explains, "and it takes a full-time effort which is not possible when you also have the day-to-day tasks to handle. At that time, I had my hands full running the technical operation at the old facility; planning for the new one; ordering equipment, etc."

"With the on-going workload, it was just impossible to devote the required time for designing and installing a new facility. RCA Systems Engineering gave us a system that works fine now, and can accommodate future needs. They provided the usual thorough documentation, diagrams, wiring plans and complete labelling of individual system connections."

One measure of the success of an installation is how it stands up to the clear light of hindsight. In the case of WCSH-TV, the technical system has worked out so well that the usual "If I had it to do over" comments have been noticeably absent.

"The new facility has been successful becausc of management's willingness to go along with changes," concludes Clem Payeur.

Emphasis On News And Community Affairs

What distinguishes WCSH-TV in its coverage of the Southern Maine market? "Greater emphasis on news, and in community affairs programming," rcsponds Bruce McGorrill, Gencral Manager.

TV-6 news starts from the NewsCenter 6 set at 6:45 A.M. with a 15-minute segment, then follows with 5-minute inserts in the TODAY show. There is a half-hour NOON NEWS, and a half-hour of local news at 6:00-6:30 P.M. which precedes the NBC Evening News. At 11 P.M., there is the customary late news—from which a taped news wrap-up is assembled for airing at 2:00 A.M. before sign-off.

Microwave System Connects Bangor

TV-6 in Portland also feeds its sister station, WLBZ-TV (TV-2) in Bangor with news at 6:45 A.M. and at noon. A five-hop, 150 mile microwave system connects the stations. The same distinctive "NewsCenter" set design is used at both locations. The Bangor station inserts local news and sports during weekend news programs which are microwaved from Portland. WLBZ-TV provides news coverage for the northern part of Maine, while WCSH-TV handles the southern tier, including Eastern New Hampshire.

"Summer Arts Festival"

Long recognized for its active participation in community affairs, the station is a recipient of many awards for public service programs and campaigns. Each August, for example, the station sponsors the "Summer Arts Festival", a carefully organized and well-promoted Sidewalk Art show which attracts over 40,000 visitors to the city for the one-day event, and provides an opportunity for hundreds of artists to display their works (over 350 artists participated in the 1978 Festival).

As a part of its Community Affairs function, Mr. McGorrill notes that TV-6 regularly uses station resources to develop and produce public service commercials for local charity organizations, as well as airing them.

"Silver Season" Celebration

1978 is the 25th Anniversary for WCSH in television, and the station is actively promoting its "Silver Season" with excellent success. According to Mr. McGorrill, Ch. 6 has consistently placed #1 in local ratings by producing a strong lead in both evening and daytime program periods.

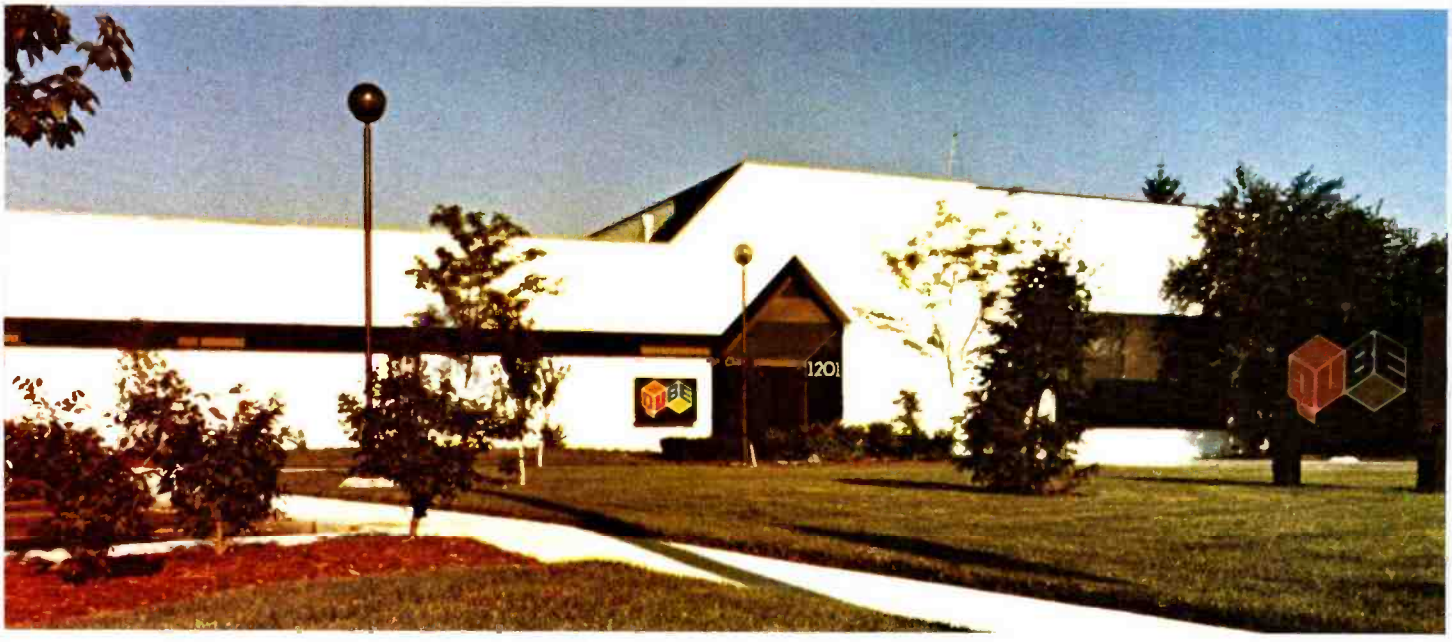
A Smart Move

WCSH-TV's new broadcast center provides:

- an uncluttered, pleasant working environment
- a convenient in-town location for the station and Corporate Offices
- added production capability
- a modern technical center designed for present and future needs

Smart move. □

A TURNKEY OPERATION
That Has Opened New Doors In Two-Way Television



The contemporary QUBE broadcast facility at 1201 Olentangy River Road.

Two TKP-45 cameras and a TK-76 cover live action at the Ohio State Fair.

COLUMBUS

"ENTER . . . the infinite, unfolding, never-ending worlds of entertainment and knowledge."

The first impression that a visitor to the QUBE studios gets is the lack of dejá-vu. At one moment there is the feeling of stepping back into the days of live television, then just around the corner the humming of computers brings back reality while an impressive tape replay room conveys that atmosphere indicative of a modern cablecasting system. QUBE is all of this and more, but most of all QUBE is unique . . . it's two-way cable television.

Largest Studio Facility in Central Ohio

The Olentangy River Road broadcast headquarters is a modern, attractive and meticulously neat facility sporting the multi-color QUBE logo. Here are

housed administrative offices, master control, computer control, transmission equipment, editing facilities and three unique studios. Each studio varies in size depending on the programming done there: Studio A—2530 square feet, Studio B—910 square feet, and Studio C—594 square feet.

The innovators at Warner Cable Corporation turned to RCA when they determined that a way was required to achieve project coordination and to get compatibility of equipment without involving a large number of vendors. After consultation on equipment and facility need patterns, RCA was contracted to handle the turnkey operation of studio and control operations set-up plus the construction of a mobile van.

Jim Fisher, QUBE Vice-President of Engineering, states, "Systems back-up was most important in the selection of RCA to coordinate this first-time-ever project." From the very beginning, RCA sales and project implementation specialists had been in touch with QUBE management to mutually determine the growth pattern to be fulfilled. The end result is a well-planned and efficiently functioning facility.

Each of the three Olentangy studios is similarly equipped: Three TKP-45 System II Minipak cameras, RCA audio equipment, and Grass Valley Series 1600-1A switchers. BC-50 audio boards help maintain consistent audio levels and quality among all 30 channels. In addition, RCA Project Implementation Division designed and supplied custom equipment housings. Mobile operations include two minicam units equipped with TK-76 cameras, RCA BC-50 audio boards, and telescoping Nurad "golden rod" microwave antennas. A production van constructed by RCA's CRAE (Custom Repair and Engineering) shop is built around an International Harvester frame and engine, and is equipped to carry four cameras: two System I cameras (TKP-45), one System II camera (TKP-45 Minipak) and one TK-76. Again, audio control in the van is through the BC-50.

One of the many amazing sights at QUBE is in master control where all video tape operations are located. A pair of TR-600 Video Tape Recorders are used for syndication, and for higher quality images when editing needs demand. Extending the length of master control are seemingly endless rows of ¾" cassette recorders . . . 80 in all, making it the nation's largest video tape replay center. The mixture of quad and ¾" works well at QUBE. The computer controlled cassette decks handle movies and other pre-recorded shows. The TR-600's are used in the super high band mode. At one-half speed, a two-hour tape airs for four hours giving QUBE flexibility in dubbing movies when the cassette machines are in use. Both TR-600 VTR's and the cassette units play continuously.

All of this equipment is put to good use with three studios, two vans, one truck, and a remote studio in operation throughout the day with live television. Produced are a multitude of programming choices for QUBE's Columbus viewers.

Used in high-band mode at 2X speed, a TR-600 rolls with a pre-recorded movie.

QUBE Master Control houses all video monitors. Also, note computers in background.

"Live from the Ohio State Fair!" . . . a TK-76 crew catches a quick interview between show segments.

Flippo's Magic Circus, originating from Studio B, brings the excitement of live, two-way TV to Columbus children.

"Pinwheel" is an innovative, violence- and commercial-free program for 2-4 year olds. Again done live, the show airs from 7 a.m. to 9 p.m. daily and is produced in segments that are an entity unto themselves so children can tune in and out at their leisure.

"Mr. Qubesumer", featuring Jon Steinberg, appears on QUBE's 24-hour Consumer Information Channel.

"Flippo's Magic Circus" utilizes the two-way capabilities to allow home viewers to score points for two teams of children in the studio.

"QUBE Campus" offers such programming as The Business of Writing, Beginning Guitar, courses for academic credit and other educational interests. Sports coverage includes local high school games and, beginning this year, coverage of all non-network aired Ohio State University football games.

Specials range from extravaganzas to a live local night club presentation that was covered by the TKP-45's using available stage-type lighting. Plus, the Tomorrow Show with Tom Snyder originated from Columbus and QUBE earlier this year.

All of these local presentations plus the numerous broadcast pick-ups present quite a programming challenge to the QUBE staff, but the show that probably best exemplifies the potential, challenges, versatility and need for two-way live television is "Columbus Alive".

A glimpse through the window in Studio C catches a heated debate during "Columbus Alive".

The Glow From Studio C

"Columbus Alive", originating weekdays from Studio C, has made Columbus the stage and all its residents the players. The two-way format is a vital part of this multi-faceted program. The first thing one notices upon entering Studio C—or from the outside front of the building—is the huge picture window. An actual open-to-the-city picture window that is an integral part of a studio blueprinted after NBC's original 49th Street-windowed *Today* set. All the problems imaginable with light balance, reflections, and staging have been met and overcome by the QUBE staff and RCA consultants. At first, the solution was to balance the indoor light to outdoor levels with a large number of 5000 watt lights, but the Winter of 1978 energy crisis quickly made that impractical. The final solution was a cleverly designed and implemented set of color gels (yellow and blue) on motorized tracks that can be lowered and raised to achieve the proper color balance. Light levels are handled so well by the TKP-45 Auto Iris that "for most shows there isn't anyone controlling 'level'".

But why the window at all? The programming staff and talent, Ron Giles and Susan Goldwater, wanted a versatile, open format. They felt it necessary to be able to show Columbus exactly what was going on the moment it happened and that could not be done in an isolated studio. That's one reason why the RCA TKP-45 cameras were selected for studio use. Roy Boylan, QUBE maintenance supervisor, remarks, "We went to RCA for a good camera that would maintain its registration, was portable, lightweight and could be removed from the pedestal and carried anywhere . . . the TKP fit perfectly." In utilizing the TKP-45 System II cameras in all studio operations (plus in the mobile van), QUBE utilizes a unique modification in that the Minipaks are rack-mounted in master control with the white and black balance controls remoted to the camera control units in studio control. With this arrangement and mobility it isn't unusual during "Columbus Alive" to see the cameraperson literally lift the camera from its pedestal, place it on a shoulder mount, walk out the back door, meet a crew member with a white card, hit the White Balance Button, and go on the air with a traffic jam on nearby Route 315.

Warner QUBE is a very organic situation . . . constantly moving, changing

and adjusting with production needs. Unlike affiliate or independent studios that are timed once and left that way, QUBE's timing problems are handled by the Minipaks, with a separate sync generator in each unit. Thumbwheel switches enable cameras to set phase, giving camera mobility from the studio without having to change the entire station's timing.

The cameras are used in the Auto Color mode so that these rapid location transitions can be accomplished smoothly. Color balance during "Columbus Alive" is also aided by shooting through the appropriate window gel depending on whether the shot is from indoors out or vice versa.

Even though the energy crunch of '78 caused some production problems, it introduced a new look to QUBE that is rarely seen in professional television and could best be referred to as "TV verite". Because there was new snow on the ground often, the outside-facing window provided so much reflected light to Studio C that no ancilliary lighting was needed. Jim Fischer remembers, "During that period the pictures had a natural quality that I thought was superb." Roy Boylan adds, "The pictures looked great."

So that glow coming from Studio C wasn't just QUBE solving its lighting problem, it was the birth of a new kind of television. Many of the topics and formats seen on "Columbus Alive" have been directly selected by the viewers in home polls by hosts Giles and Goldwater. QUBE viewers have been given the opportunity to listen and respond to such notables as John Dean, Mrs. Anwar Sadat, Joan Rivers, and Columbus Mayor Tom Moody.

In addition to Studio C and a remote mall studio pickup, much of "Columbus Alive" and extensive QUBE programming is done on-location.

QUBE on the Move

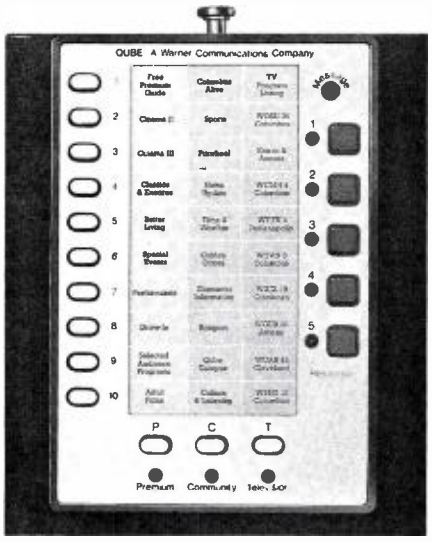
Each segment of "Columbus Alive" contains remote glimpses at what is going on in Columbus—weather, traffic, news and emergencies. The immediacy of QUBE TV created by an alert staff can easily be seen from a tape produced with a TKP-45 as it was rushed outside to dramatically show an ominous thunderstorm rolling into Columbus. In this case a picture was worth more than a thousand words as the storm's imminence and strength were immediately apparent.

Equipped with Angeniuex studio lenses for most of the work, but also utilizing wide angle, power-zoom equipped Canons, the QUBE cameras bring Columbus to the viewers. In one recent instance, the mobile van went to nearby Grove City High School to cover a regional basketball game under 32 footcandles of house lighting. Paul Brenneman, QUBE Maintenance Engineer, reveals that even though cameras undergo only routine maintenance, they are constantly called upon to meet the demands of not only field use but also of live TV . . . there's literally no room for breakdown. Adds Brenneman, "The cameras are really stable. Of the three cameras (TK-76), there has been only one component failure in a year's time. RCA is really doing a great job of quality control."

The Warner QUBE van goes through a thorough check-out prior to assignment.

ENG unit, TK-76, and cameraman unload for a local, live pick-up. The telescoping Nurad antenna allows quick signal alignment.

Talking Back To The Tube



QUBE Console gives subscribers a variety of viewing options plus talk back ability.

It all came to pass on December 1, 1977 when Warner Cable Corporation, a wholly-owned subsidiary of Warner Communications, Inc., began QUBE transmission to Columbus, Ohio subscribers. At that moment Columbus became the first city in the world to participate in two-way cable television. Achieving new "firsts" became a way of life for the energetic and innovative staff at QUBE. Under development since 1973, QUBE became an integral part of Warner Cable's Columbus operation—one of 138 Warner-owned cable systems in the United States. Presently, QUBE is one of four cable systems in Columbus and has a market potential of 100,000 viewers.

Through the use of a cleverly designed, hand-held unit, QUBE has given subscribers the opportunity to select from thirty channels of programming. This little box (about the size of a large paperback book) also enables viewers to answer questions presented on air, quiz pollsters, and express advertising preferences. Viewers can also participate in game shows, predict sports plays, give thumbs-up or thumbs-down to amateur and professional programs, and even take part in political meetings. Recently subscribers in Arlington, Ohio became the first participants in an electronic, two-way town meeting. By immediately responding to issues and proposals presented by the town leaders, the viewing public was able to directly influence how tax dollars were going to be spent.

In the adoption of the two-way format, Warner felt the need for a medium that many have long since considered obsolete and expensive . . . live television.

With the combination of two-way capabilities and live programming, QUBE presents more than seven live shows per day on over ten channels. Viewers can watch and participate in live programming that originates from remote locations, a mini-studio in a local mall, or one of the three production studios located in QUBE's Olentangy River Road facility.

Miklos B. Korodi, Vice President and General Manager, demonstrates the QUBE console.

One of the three TK-45's used for Flippo's Magic Circus moves into position for a tight shot.

That same quality control is apparent in QUBE's programming. The very nature of the Warner operation necessitates first class video and audio throughout programming. First, as Bob Cheesman, Manager of Studio Operations, points out, cablecasters must provides a superior S/N ration because cable has an infinite number of electronics along the line and a multitude of amplifiers. QUBE has all the inherent problems of the UHF, VRF and cablecaster, plus it faces the added necessity of keeping computer data that is coming up the cable in reverse out of the television signal. Probably the most apparent need for broadcast quality is created by the QUBE home unit. Viewers are able to literally jump from channel to channel throughout the entire thirty channels and view local programming, network pickups, taped programs, live shows and motion pictures as fast as they can push the

buttons. Comparison viewing is instantaneous. And, as Jim Fischer aptly puts it, "Our pictures *have* to be better than those broadcasted because subscribers are paying for them on premium channels."

QUBE and Beyond

Warner QUBE has received nationwide press, both trade and consumer. Each has its own separate views as to what influence two-way television will have on the television industry and the public, but one thing *is* for sure, QUBE has broadened the base of television beyond both broadcasting and cable television. Watching the credits on most live programming reveals the name of the computer operator who is as much an integral part of a show as any other person on staff. QUBE has opened up the first realistic "narrowcasting" system that enables the sending of a program to a limited number of pre-notified viewers. Because the QUBE signal does not network down to a single air feed, and because three studios can be hot simultaneously, each studio requires a separate set of equipment and transmission control. This means revamping some patterns for thinking in both broadcasting and cablecasting. In essence, the QUBE "transmitter" is actually 30 miniature TV transmitters utilizing RCA modulators and heterodyne processors. Even when the studios are down, they are handling 20 channels of information, plus the 10 channels of the conventional cable arrangement of picking up distant signals.

Future use of QUBE appears to be unlimited. Miklos B. Korodi, Operating Vice President and General Manager, sees expansion of system capabilities and the format itself as inevitable. An impressive security/safety system will soon be available to QUBE subscribers. With it they will be able to summon police, fire, and medical teams at the touch of a button or through automatically activated alarms. All at minimal cost. In the near future, Korodi plans for a total home environment control system. All to be monitored and controlled by the QUBE computer. Unlike some systems, extensive backup and redundancy has allowed for power loss, tampering, and human and equipment errors.

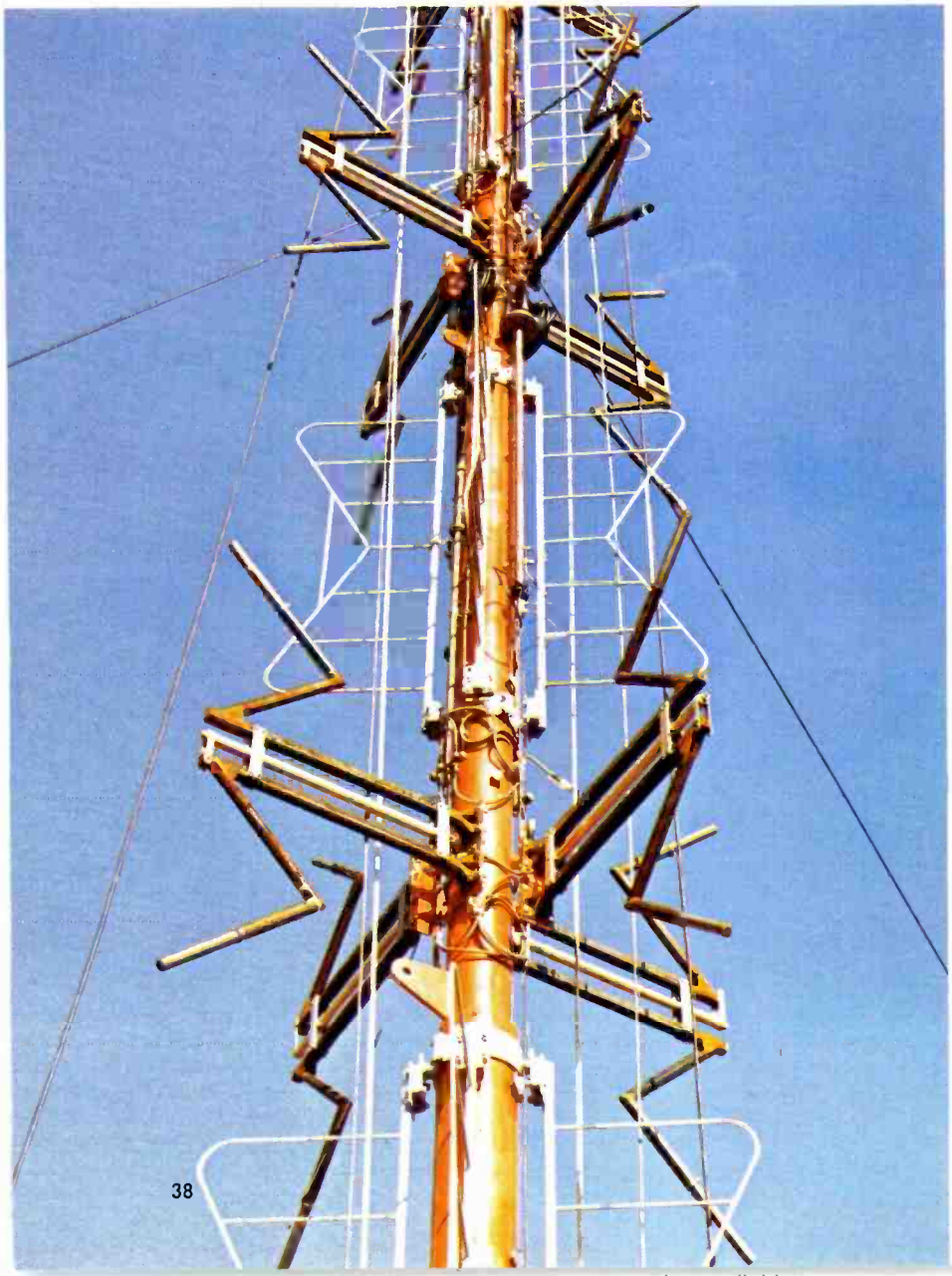
Somewhere back in time an entertainer posed the question that with today's commercial television system sums up the bottom line of any communications enterprise . . . "Is everybody happy?" Probably, no one will ever reach that level, but if the letters pouring into Warner QUBE after less than one year of service voice the opinion of the Columbus subscribers, then Warner QUBE is a winner.

As one viewer summed up the opinions of many: "QUBE effectively demonstrates new standards of excellence for an industry on the verge of realizing far more of its true potential." □

Audio quality control between the 30 QUBE channels is aided by BC-50 audio boards.

Roy Boylan, Maintenance Supervisor makes a minor adjustment to assure QUBE picture consistency and quality.

WTTV COMES ON STRONG With its New CP Operation



INDEPENDENT WTTV serves the Bloomington/Indianapolis market with an attractive blend of sports, movies, specials and popular syndicated programs.

This program mix, coupled with effective public affairs and community involvement have elevated TV-4 to the top tier of independent U.S. broadcasters.

In 1978, the station made a major investment to improve services to the market, with the installation of a complete new transmitting plant, including a circularly polarized antenna.

Why CP Now?

Why did WTTV opt for CP operation at this time? Chief Engineer, Donald Morgan, cites several reasons:

First, of course, as an independent, TV-4 must deliver a signal equivalent or better than that of the local network stations.

Second, since the station serves both the Bloomington and Indianapolis metropolitan areas, its transmitter is located south of Indianapolis, and it was desirable to get stronger signal into the northern side of the city which has a concentration of high rise apartments.

Third, it was determined that there was a high proportion of "rabbit ear" antennas in use in the market, and TV-4 wanted to improve the reception on these sets.

Another reason for an early start in CP operation, Mr. Morgan adds, was a continuation of a pioneering tradition. The station has not been afraid to move with new ideas, being one of the first to operate a mobile unit, and an early starter in remote TV transmitter operation. The station went on-air in 1949 and was a Sarkes Tarzian operation until July, 1978 when it was sold to Teleco Indiana, Inc.

New Fan Vee CP Antenna Replaces Superturnstile

TV-4 began actively considering CP operation when the initial test installation was made by WLS-TV, Chicago. At this time the station was operating with an omni-directional TF-12AM Superturnstile Antenna and a 15 kW GE transmitter.

As circularly polarized antennas became commercially available, it was found that the RCA TFV (Fan Vee) series of top-mount CP antennas for lowband broadcast closely approximated the Superturnstile in mechanical considerations—weight, over-turn, etc. A careful check by mechanical engineering consultants confirmed that this CP antenna could replace the Superturnstile without requiring costly modifications to the tower.

Early in April the new TT-25FL, 25 kW Transmitter began on-air operation, with a temporary side-mount antenna, as work began on dismantling the Superturnstile and replacing it with the new TFV-7A4 circularly polarized antenna. Severe weather conditions delayed completion of the changeover.

Favorable Viewer Response

The air date for the new transmitting plant was April 28, and, as Mr. Morgan expected, the audience reaction to the new system was overwhelmingly favorable. The volume of calls and letters increased as TV-4 placed newspaper ads announcing the new circularly polarized broadcast service and soliciting viewer response.

Before changing to CP operation, the station took readings at selected coordinates throughout the coverage area. A cluster of readings were made at each location using a dipole antenna and field intensity meter.

Solid Signal, Better Coverage

Follow-up readings were made after the CP antenna system was operational. Mr. Morgan said the results indicated a significant improvement in signal strength. More importantly, it was observed that the orientation of a receiving antenna (a monopole) used to make readings was much less critical with circularly polarized operation.

The signal is much more solid in the CP mode. Nulls and "holes" in coverage have been filled and with CP operation it is easier for home viewers to tune in the channel.

Fan Vee Antenna Installation

The TFV-7A4 circularly polarized antenna incorporates seven layers of dual interlaced turnstile radiators. Each layer is made up of one bay of a turnstile type antenna for radiation of the horizontally polarized field and one bay of four double V-shaped dipoles for radiation of the vertically polarized field. The antenna employs a rotating phase feed used in the Superturnstile antennas. A branch feed system provides a separate feed to each radiator.

WTTV's antenna was fully assembled and tested at the RCA Antenna Engineering and Production facility at Gibbsboro, N. J. The 119 foot antenna was shipped in three pieces, with two of the seven layers removed for shipment and re-assembled on site. Installation of the new antenna was relatively routine, since it was not necessary to change the guying of the 1050 foot tower.

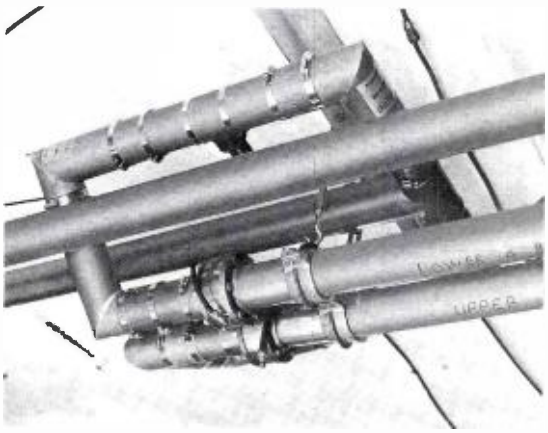
Along with the antenna, TV-4 also replaced its transmission line, electing to operate with dual transmission line to the antenna, with one line handling the upper four layers of the antenna and the other the lower three layers. This arrangement provides flexibility and a built-in standby capability, Mr. Morgan notes, since either section can be operated at lower power if necessary, and can accept up to 30 kW of input power.

A notch diplexer at the transmitter output combines and phases the aural and visual signals into a single line. The combined aural and visual signal is then split by means of a power dividing tee for separate transmission line runs to the upper and lower sections of the antenna. TV-4's power dividing tee is located inside the transmitter building.

Optimized RF System

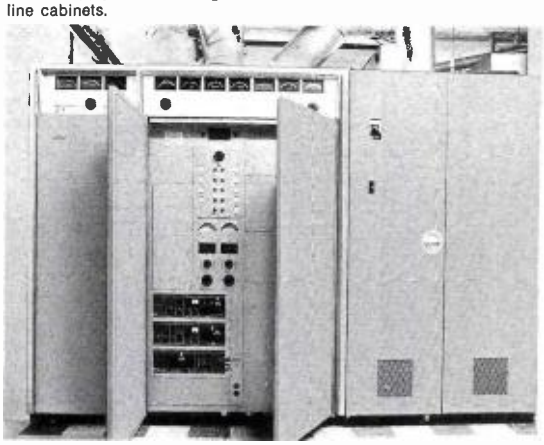
The new TT-25FL transmitter occupies the space which was used by an early low powered Sarkes Tarzian transmitter. It is set up with the RF power supply cabinet located beside the transmitter front line cabinet, a convenient arrangement which was dictated by the available space. The transmitter is remote controlled, using the same custom system that was developed by TV-4 engineers for the GE transmitter — which is being kept operational as a back-up. The TT-25FL is delivering the quality, stable performance expected. Easy tuning is a feature that the transmitter supervisor and technicians like most about the new system. After installation, the RF output system was optimized on site for optimum VSWR across the channels by an RCA service engineer.

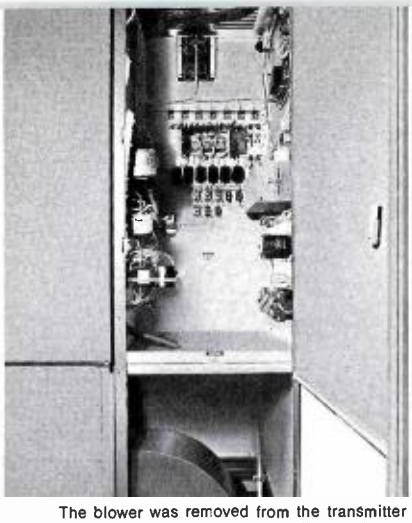
Separate diplexers are used for the RCA and the standby transmitter. The system is set up so that either transmitter can be switched on by remote control, with one going to dummy load while the other is on-air.



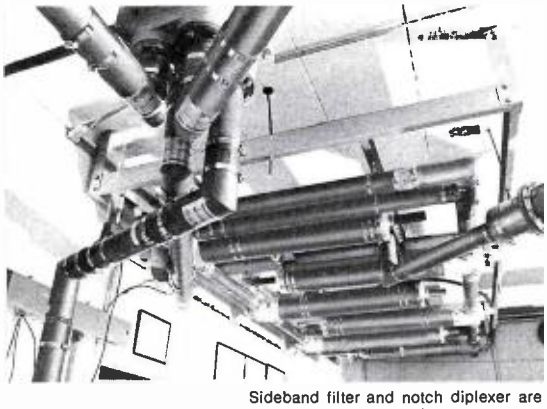
Power dividing tee for WTTV transmission system is located inside the transmitter building.

TV-4's TT-25FL Transmitter is set up with the Power Supply cabinet alongside the front line cabinets.





The blower was removed from the transmitter and located in a "clean air" room in the basement, with the output ducted to the bottom of transmitter for cool, quiet operation.



Sideband filter and notch diplexer are ceiling mounted to save space.

"Clean Air Room"

The TV-4 tower stands tall in the middle of a working farm at Trafalgar, Indiana. The transmitter building is not air conditioned, but is equipped with an effective air cooling system. The basement of the building has a "clean air" room with a Precipitron. Outside air passes through this room and is blown through the transmitter. The blower from the TT-25FL Amplifier Cabinet was removed and relocated in the "clean air" room, with the output ducted to the bottom of the transmitter. This arrangements provides clean air for the transmitter and reduces the noise level.

The air is ducted from the top of the transmitter into a plenum which is set up to recirculate the hot air in the winter to heat the room.

The sideband filter and the notch diplexer are ceiling mounted.

Remote Control System

The remote control system telemetry data is carried on the second subcarrier of the microwave STL system, and back-up is provided by a Telco line with Touch Tone phones. Touch Tone permits dialing into the cards in the remote control unit at the transmitter. Once this is accessed, the Touch Tone is used to make the required adjustments. The remote control system is calibrated twice a week.

For redundancy, two separate systems —both aural and video—are used, one for each transmitter. A Tektronix 1440 video corrector is used to maintain desired video output levels.

The GM Comments on Operating an Independent

How does the new circularly polarized transmission system fit the overall operating philosophy of WTTV? Elmer Snow, General Manager of the station, affirms that is is directly related in that a non-network station must be more responsive to new developments and must be ready to move ahead with technology to provide improved service.

"With the new CP operation, TV-4 is delivering a better quality color signal throughout our market area, and that's why we made the investment.

"It is expensive for an independent to compete with the networks, but we've had a lot of experience at it. We rely on counter-programming, offering extensive sports coverage, movies and specials to attract audience. For example, with our four-camera mobile production unit, we cover nearly 200 sports events a year — professional, college and high school."

WTTV is consistently one of the top-rated independent TV stations in the country, according to Mr. Snow. The station operates a 20-hour broadcast day during the week, with a 24-hour schedule for Friday and Saturday. Movies are an important element of alternative programming, and TV-4's weekly schedule includes 26 movies.

Emphasis on Public Affairs

Public Affairs programming is emphasized. The weekly "Report From the Statehouse" program, usually featuring commentary by the Governor, is produced by TV-4 and syndicated to eleven Indiana TV stations and 31 radio outlets as a public service. Similarly, the "Indiana Outdoors" show is produced by WTTV and made available to eight state TV stations.

An example of alternative and public affairs programming is the TV-4 coverage of the Indiana State Fair in August. Sixty-five hours of live programming were presented, including harness racing, farm event competition, and the State Fair Queen contest. The station's morning farm show and children's programs also originated from the Fair Grounds.

A nitely half-hour Special Variety Show was also produced from the Fair, featuring popular entertainers and performers. This ten day "special" had strong audience appeal.

News Room Doubles as News Set

The News Department is an active operation, with three mobile units on the road, and a fourth scheduled to be added. Except for Public Affairs and special events which are handled by the mobile production truck, most of the outside news coverage is on film.
The News Room is located next to the main studio, and is lighted for TV, with a Chroma-Key blue background. In handling the news, the cameras are rolled out of the main studio and into

General Manager Elmer Snow notes "A non-network station must be ready to move ahead with technology, such as CP operation".

the News Room which includes a special anchor desk along the back wall. The Chroma-Key facility permits bringing in the Bloomington news room for coverage of that area.

Technical Operations

Mr. Morgan has been with TV-4 since 1956, starting as a Studio Engineer and moving up to Chief Engineer in 1968. His staff of fourteen is responsible for installation and maintenance of technical facilities; for shading cameras and for operating Master Control during prime time. Two engineers go with the mobile unit on routine remotes, with another assigned when required.

The Tape area at TV-4 houses a blend of durable, well-utilized RCA quad tape machines; two high-banded TR-4's; a TR-22; a TR-70; a TCR-100, and two high-banded TR-3's.

The TCR-100 has been in service for three years and has logged a half-million cycles. In Mr. Morgan's words, "We're running the wheels off it." The heavy usage of the cart is typical of non-network stations. Film commercials are not transferred to the "cart", but all tape commercials are dubbed to cart, with tags and audio inserts made as needed during dubbing.

The Master Control Switcher is a Sarkes Tarzian automated board which can be pre-programmed to handle up to 100 events. Switching is automatic, although manual control can be exercised when desired.

Active Mobile Unit

The present TV-4 mobile production unit has been in operation for three years, and is seldom parked at the station. Between sports and special events, the unit covered about 200 remote productions in 1977 and is maintaining that pace in 1978.

Three TK-44 cameras and a TK-76 portable are carried with the mobile unit. The TK-76 fits in well, operating as a stand-alone for handling ENG coverage, or as a complementary camera to the TK-44's.

The truck is equipped for self-support operation, with TR-4 VTR; Slo-Mo VTR; video and audio controls. Most of the remotes are handled as live productions, microwaved back to the studio for recording. To accommodate the microwave transmissions, TV-4 uses a special telescoping 100 foot tower which is mounted on a separate trailer.

Sports coverage for the mobile unit includes the Indiana Pacer's basketball; Indiana University basketball; Purdue University basketball and Notre Dame football. In addition, there is comprehensive coverage of area high school sports—football, basketball, volley ball, swimming, track and field. The ultimate in state sports coverage comes in February when five championship sports events are covered live on the same day, with feeds going to various stations on the state network. On occasion, Mr. Morgan notes, Production Control has had as many as nine different program feeds going out simultaneously. Fortunately for the sanity of the engineering department, he adds, such conditions are exceptional.

"Looking Better Than Ever"

After several months of operation, the newness of CP is gone, but its positive effect in the TV-4 market is lasting and growing.

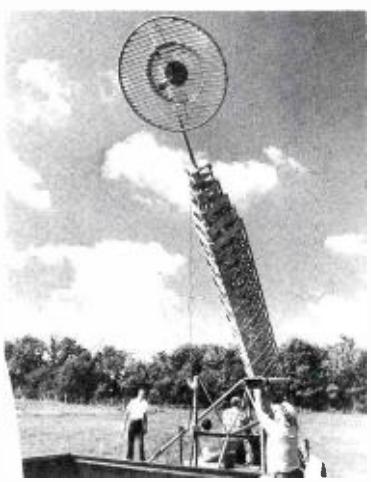
The headline of the WTTV ad announcing their new circularly polarized operation also provides an excellent summary of the results expected—and achieved:

> "Hey, Indiana —
> Channel 4 is looking better
> than ever!"

□

TV-4 Tape Room is compact and well-utilized.

TK-76 supplements TK-44 cameras in active WTTV mobile unit which covers 200 events per year.



Telescoping 100 foot tower carried on separate trailer is used for remote microwave transmission.

A Wealth of Customer Support Services that Provide Help When it's Needed Most

Every day RCA receives calls for help from customers in teleproduction, broadcast, corporate, educational and government communications organizations. Requests are varied, ranging from an emergency situation half way around the world that needs immediate action to an inquiry from across town for technical information for use in future planning. But, whatever the request, response is quick and efficient because RCA has built a network of services to handle nearly every possible customer request and has staffed them with highly trained and knowledgeable people who are dedicated to helping RCA customers get the best from their investment.

Choosing To Be More Than A Supplier

Service is an attitude. Whereas some manufacturers see their role as strictly the suppliers of goods, RCA chose a deeper involvement with its customers. From the very beginning RCA listened closely and learned a lot. For example, it became apparent through sales consultations that some customers did not have the technical staff to plan and install their own broadcast or production facilities—that was the seed for the growth of the RCA Project Implementation Group.

The Training and Tech Alert groups evolved as a response to customer requirements in those areas of after-the-sale service. And the forerunner of them all—emergency parts service—has been traditional with RCA radio and television products from their inception. Some of the numerous customer services and facilities available from RCA may be less familiar than those noted above, but can be equally useful when a need for them exists. To be sure that all RCA customers know about these services, all are highlighted in this article.

Technical Training Center in Camden utilizes current equipment for "hands-on" training.

Training — When Knowing More Pays Off

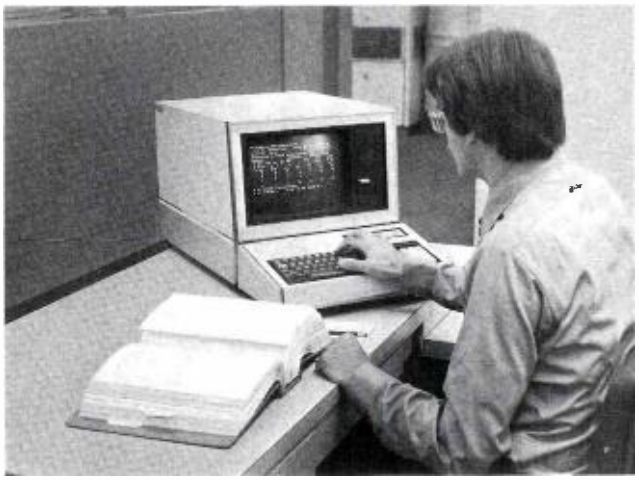
Even the world's finest broadcast and teleproduction equipment needs routine care. Proper maintenance assures that the equipment will deliver consistent quality and reliability throughout its life. To help technicians and engineers of RCA customers understand the "care and feeding" of their RCA equipment, a series of technical seminars have been created, each centered around a major product — cameras, video tape equipment and RF systems.

A staff of professional instructors hold more than 30 seminars each year at training centers in Camden, N. J., Meadow Lands, Pa., and Burbank, Ca. Internationally seminars have taken place in Australia, Singapore, the People's Republic of China, Iran, the Jersey Isle, Brazil and Argentina. More than 500 engineers from broadcast, teleproduction and CCTV facilities are trained annually.

Seminars emphasize hands-on training and cover both practical set-up procedures and enough circuitry theory to train maintenance people to do effective trouble shooting.

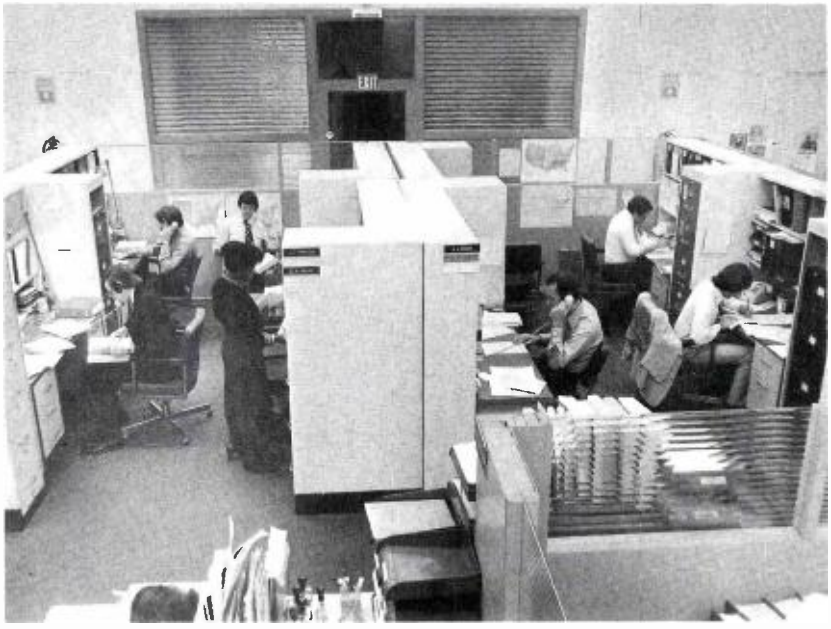
For customers who prefer training on their own premises a number of audio-visual training packages have been developed. Programs covering set-up procedures for TK-44B, TK-45, TK-76 and TK-28 cameras, plus mechanical aspects of the TCR-100 "cart" machine are now available. A special "hands-on", home study course in microcomputer principles is now under preparation to help customers learn the important new concepts involved in computer-controlled RCA equipment.

Purchasers of major products qualify for RCA seminars. Tuition fees are waived for up to two participants per major item purchases, providing registration takes place within a year. Training packages, on-site seminars and other custom-tailored services are available on a billable basis. The training center can provide information on any of these educational services.



Immediate access to needed product data is provided via Tech Alert's video terminal.

To maintain technical proficiency, Tech Alert staff specialists rotate on field and home office assignments.



A full staff of Tech Alert specialists is available to handle customer requirements.

Tech Alert —
A Helping Hand Around-The-Clock

Whether purchasing a single unit or an entire complement of equipment, RCA knows that its customers rightly deserve personalized, efficient technical service —both during and after the warranty period and they get it around-the-clock with Tech Alert.

Tech Alert has a full staff of technically trained specialists that can handle queries concerning electronic recording equipment, RF and audio products, or camera and video equipment. Among the technical services they provide are: free technical advice; new equipment checkout; warranty support and replacement parts (during warranty period); preventive maintenance, and training programs. There is also a special projects group to assist with long-term or large-scale complex requirements. A high level of proficiency is maintained by rotating office and field personnel periodically.

Tech Alert serves customers in other ways, too. It is the RCA group that disseminates sustaining engineering information to both customers and RCA field representatives. And, technical feedback from Tech Alert customer contacts has helped to enrich new product developments.

Tech Alert specialists are on duty during normal business hours to handle customer requests. After hours and on weekends, phone messages are recorded for action the next work day. An emergency phone number is provided for urgent requirements. Telephone and telex numbers for Tech Alert offices around the world as well as other RCA services are listed at the end of this article.

Comprehensive computerized inventory management system enables the Parts operation to provide efficient service on routine and emergency orders.

Extensive electronic parts depot at Deptford, N. J. stocks more than 48,000 different broadcast equipment parts.

Parts —
Fast, Fast Relief

Traditionally, RCA Distributor and Special Products Division (more commonly referred to in the industry as "RCA Parts") has striven to improve its ability to speed replacement part orders. This effort is based on the knowledge that even good products will needs a new part sooner or later. And when that day comes, the faster the response, the happier the customer.

In order to supply this type of service, adequate parts had to be stocked for a growing number of products. This led to the construction in Deptford, N. J., of the largest commercial electronics parts depot in the world. More than seven football fields in size, the depot is stocked with more than 48,000 different parts for Broadcast Systems equipment alone . . . enough parts to support virtually all RCA camera, tape and RF equipment in use today.

With minor exceptions, RCA stocks replacement parts for a minimum of 10 years. However, some part are stocked up to 25 years depending upon product line activity.

Having parts in stock is necessary but getting them to customers quickly and efficiently is important, too. A system of computerized inventory management keeps tabs on parts, recording movement, thus minimizing "stock-outs". Customer order information stored within the computer speeds order processing, reducing average delivery time and permitting fast response to customer inquiries.

Special computer programs record and maintain a record of every equipment in which any given part is used, and the total number of that part in the field. The computer edit capability provides easy access to a host of detail on parts. For example, the computer will cross reference generic numbers to stock numbers, as well as RCA drawing numbers to stock numbers. A computerized electrical characteristics file enables RCA to standardize electrical components to avoid duplicating parts inventories. These standardized files often make it possible to locate a substitute part when the original part is no longer available.

The convenient location of the Deptford operation to highways, railways, airports and port facilities in the Philadelphia/Camden metropolitan area provides easy access to the quickest and most economical shipping services. The Post Office and other carriers make regularly scheduled pickups at the depot. Every day shipments leave the doors of the Deptford plant for destinations all over the world.

Emergency parts service is available around the clock. Specially trained personnel man emergency telephone lines day and night to provide that special attention that urgent customer requests require. Once an emergency order is received, the individual who receives the call takes responsibility for the shipment of the needed part. That person physically locates the part (sometimes this means riding a bicycle through the 26-acre plant), carries it through packaging and weighing, arranges for shipment on the first available flight from nearby Philadelphia Airport, and notifies the customer concerning expected arrival. Within a few hours after the order is received the part is on its way and the customer knows when he can expect to get it.

This foot-powered vehicle is useful for covering the 26-acre warehouse to expedite emergency parts shipments.

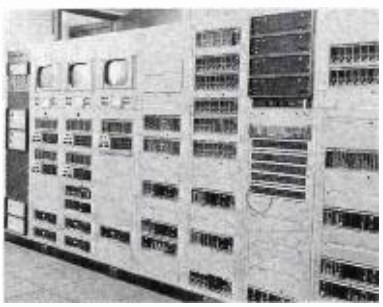
Systems Engineering — Customized TV Facilities

For the past 25 years, the Systems Engineering group has been helping RCA customers in broadcasting, teleproduction, corporations and government organizations by providing them with TV system facilities that "fit-like-a-glove".

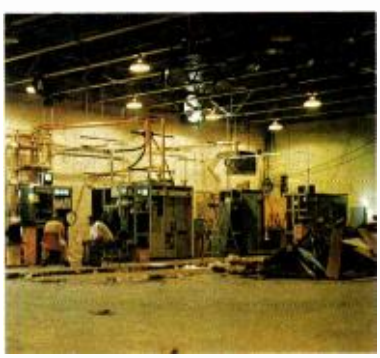
System Engineering's staff of highly qualified engineers handle every step in the planning and implementation process of custom design TV facilities. First, they meet with the customer to determine specific needs. After they are thoroughly familiar with the customer's requirement, they design a system ideally suited to the customer's operational and investment plans. The layout of the technical area is included in this process to provide convenience and efficiency in operation. RCA Systems Engineers also work with the customer's architects and contractors in determining AC power distribution, air conditioning requirements, cable trays and duct work and equipment locations.

At the completion of the installation, customers are provided with full system documentation and drawings.

The new technical center for WREG-TV, Memphis, Tenn. is a major customized installation by RCA Systems Engineering (BROADCAST NEWS, Vol. 157).



By contract, during installation, system engineers may take complete responsibility for on site installation and thoroughly check out the system before handing it over to the customer. Training of the customer's staff in maintenance of the system may also be included in the package to assure long life and consistently high performance of equipment.



Project Implementation — Getting Equipment Operational

As the name suggests, the major services of Project Implementation relate to the installation of broadcast equipment and systems. They vary in scope from guidance in the installation and use of equipment to total contract responsibility for complete installations of transmitters, studio facilities and fabrication of TV mobile vans.

The contract arrangement provides the customer with a central point of contact at RCA for all details involved in planning, scheduling and completing the installation. Project managers monitor timely delivery of installation goods and the presence of required personnel and subcontractor support. They supervise the installation, operational checkout and final completion of the system. In transmitter installations, FCC Proof of Performance tests are also the responsibility of project managers.

On major contracts Implementation assigns a full time representative to assure a smooth flow of activity throughout the life of the contract. In cases where the customer has installation expertise and manpower, Project Implementation supplies a field specialist to be on-site during the critical phases of installation, wiring, power-up and operational checkout and coordinate with other RCA supporting activities.

Project Implementation's full range of services support the RCA philosophy of "service before, during and after the sale".

Some Project Implementation projects require spontaneous reaction—as in this case when WOAY-TV, Oak Hill, W. Va. was destroyed by fire. The station was back on-air in ten days (BROADCAST NEWS, Vol. 163).

Space is available in the CRAE Shop for wiring, assembly and test of complete systems before shipment to customer installation site.

OB vans of all types and sizes are custom-fabricated and tested at CRAE for use throughout the world.

Refurbishing of older RCA equipment is an on-going activity at CRAE.

Our Sophisticated CRAE Shop — Custom Repair and Engineering

The RCA Custom Repair and Engineering (CRAE) Shop, located near the Camden, N. J., manufacturing, engineering and support facilities, is equipped and staffed to handle a variety of repair, refurbishing and special assembly projects (such as TV studio system design, pre-assembly, wire and test).

There are many cases where customers' older equipment can gain new utility from a visit to CRAE.

Older RCA cameras, projectors, VTR's and multiplexers can be brought back to "good as new" condition for a fraction of the cost of new equipment.

Hundreds of pieces of broadcast equipment have been restored to provide customers with added years of service. Microphones are returned to users in like-new condition—certified to meet their original specs.

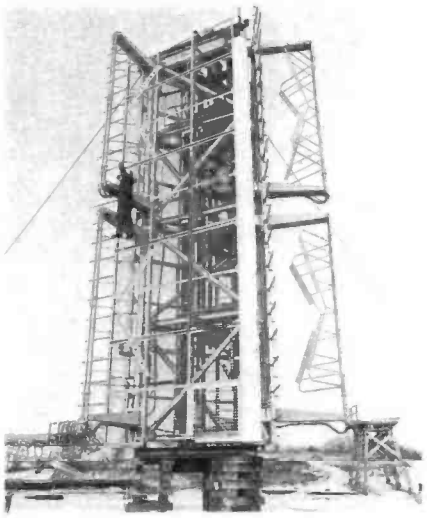
Whatever the equipment needs—systems modification and updating, complete overhauls, "electronic washing", testing, refurbishing or optimizing—RCA's CRAE shop has the facilities and the people with the know-how to put new life into older equipment.

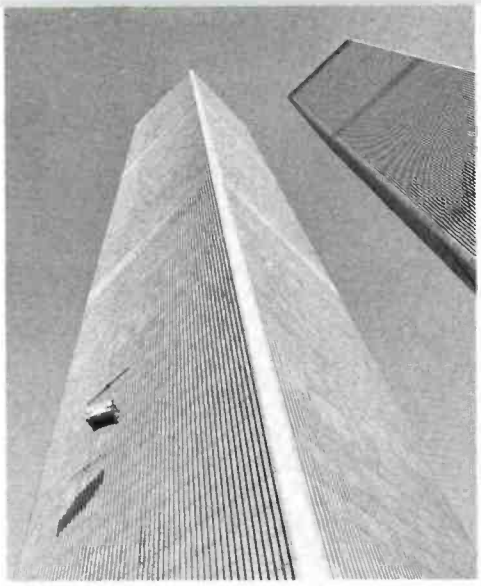
One of the on-going activities at the CRAE shop is the fabrication of all types of mobile OB vans. RCA provides complete OB van support from the selection of the body and chassis, layout of interior, installation and checkout of TV and audio equipment, air conditioning and power distribution systems to painting the exterior and delivering the finished product ready for service.

Vans are built to customer requirements and range in size from compact one- or two-camera ENG vans to large semi-trailers containing complete "studios on wheels" with multiple cameras, VTR's, telecine and master control facilities.

In addition to numerous U. S. installations, RCA-built OB vans are in service in Algeria, Bahamas, Brazil, Dominican Republic, England, France, Greece, Iran, Korea, Nigeria, Venezuela, Yugoslavia and Zaire.

CRAE Shop and Mobile Van specialists can be reached by phone to answer questions or quote on a specific project.



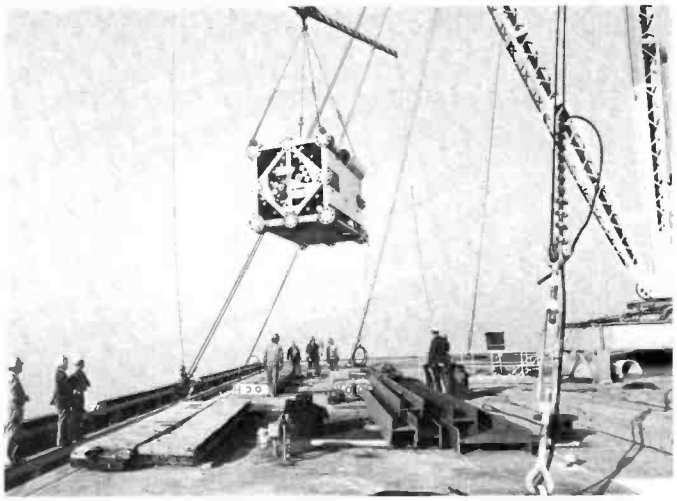


The World Trade Center Antenna array is a current major assignment for RCA Project Management.

Project Management — No Job Too Large

RCA project management is staffed to assume full administrative and managerial responsibility for complex, ongoing customer projects that require a broad range of products and services. The competence of this group is evidenced by a listing of some of the major projects it has managed.

- World Trade Center Antenna Array
- San Francisco Mt. Sutro Antenna Installation
- Northwest State of Nigeria
- Argentina A-78-TV
- ORF (Osterreichischer Rundfunk)



Service . . . An Attitude That Pervades

The belief that a company's most valuable asset is its relationship with its customers is maintained throughout the RCA organization. The various services capsuled here are an expression of our adherence to this basic tenet.

A listing of key support service telephone numbers is included for your convenience in calling for assistance. Also, please remember that the first line of contact for assistance and service remains your RCA representative.

Tech Alert
United States
Telephone: 609-338-3434
(24-hours-a-day)
Telex: 83-4450
Australia, Sydney
Telephone: 231-4699
Telex: AA-26611
France, Paris
Telephone: 504-4692
Great Britain, Sunbury
Telephone: 85511
Telex: 24246
Great Britain, Jersey Isle
Telephone: Central 35355
Telex: 41277

Parts
United States
Telephone: 609-541-3636
609-848-5900
(24-hours-a-day)
TWX: 510-686-8982
Australia, Sydney
Telephone: 231-4699
Telex: AA-26611
Great Britain, Jersey Isle
Telephone: Central 35355
Telex: 41277

Training
United States
Telephone: 609-338-4645
Telex: 83-4450
Great Britain, Jersey Isle
Telephone: Central 35355
Telex: 41277

CRAE
United States
Telephone: 609-338-5779

Project Implementation
United States
Telephone: 609-338-3250

Mobile Vans
United States
Telephone: 609-429-2902

Systems Engineering
United States
Telephone: 609-338-6035

Project Management
United States
Telephone: 609-338-3489

When one camera does the work of three- and costs surprisingly little- that's video freedom.

The TK-760 with advanced solid state technology is one TV camera that does the work of three. It goes from studio to field to ENG. And it performs with outstanding stability and consistent picture quality, at a price that's welcome news indeed.

In the studio, it's hefty enough for firm, smooth movement on a tripod or pedestal.

What's more, it has the quality that's a necessity in the studio. Yet it's compact and mobile.

You can control it at the camera head, or through an ultra-small CCU. The TK-760 is filled with state-of-the-art automatics, even automatic cable equalization. But it also has the manual controls you need to be creative.

In the field, it's light enough for easy setup.

At 42 pounds, the TK-760 is easy to move. And it's ready to shoot in seconds, without a lot of tweaking. Stays stable, too, even with rough treatment. Its remote control panel makes multiple camera systems an easy matter, even in a mobile van.

For ENG, it uncovers to become the TK-76B.

In 15 minutes, you can remove the TK-760 studio-field configuration. Underneath, there's a self-contained, backpack-free, one-person ENG camera. Today, over 1000 TK-76 portable cameras are gathering news, shooting documentaries, and performing other assignments that call for utmost mobility, reliability and uncompromising picture quality.

In the studio, on location, or for ENG, video freedom is the TK-760.

Video freedom is, in fact, a complete array of broadcast equipment including cameras, VTRs, telecine systems, antennas, transmitters, even mobile vans. For all the video freedom facts, see your RCA Representative, or write us. RCA Broadcast Systems, Building 2-2, Front & Cooper Sts., Camden, NJ 08102.

RCA

TK-760. Part of the new video freedom.

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