Special Report: '79 NAB Review

MAY 1979/$3.00

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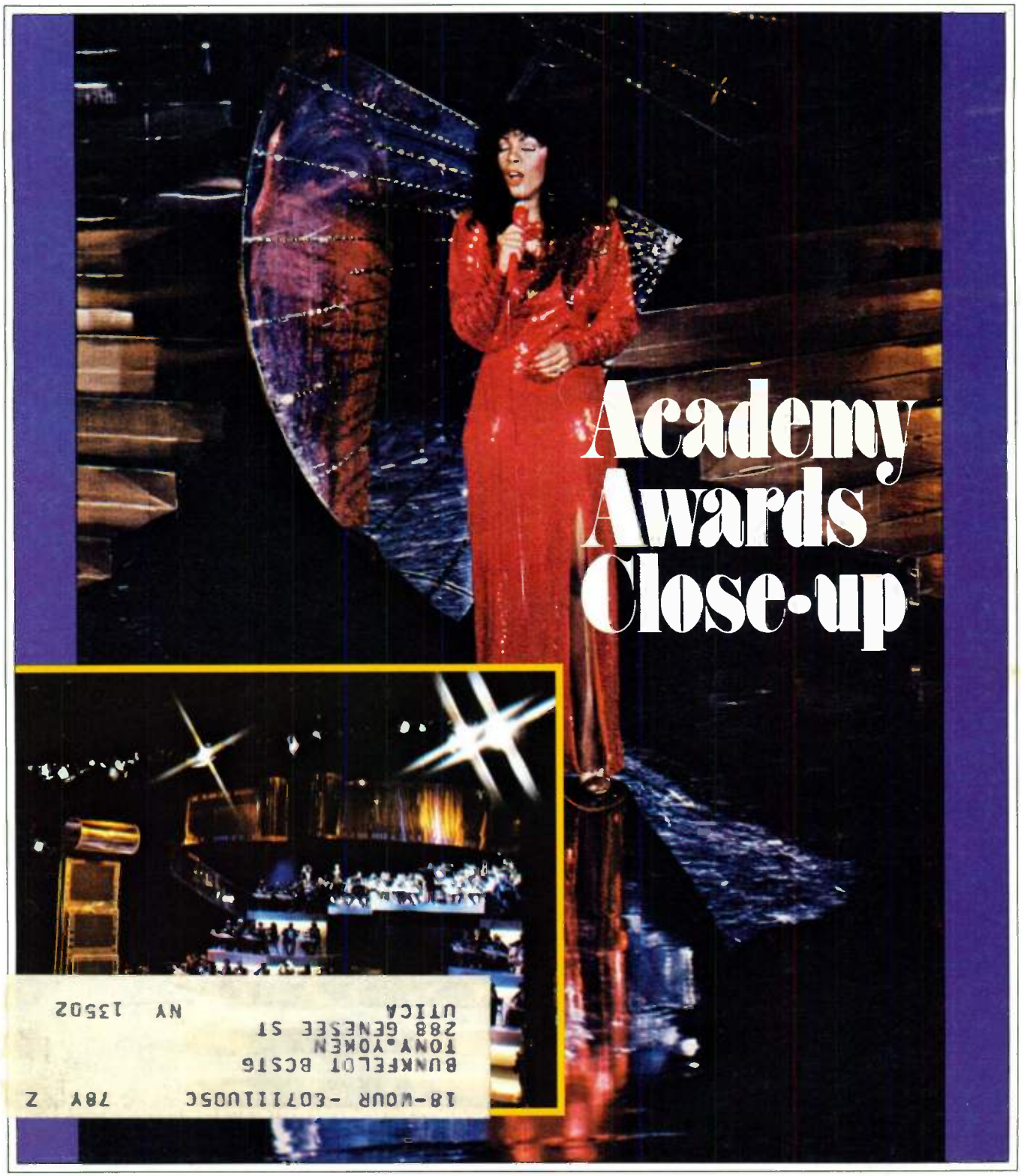

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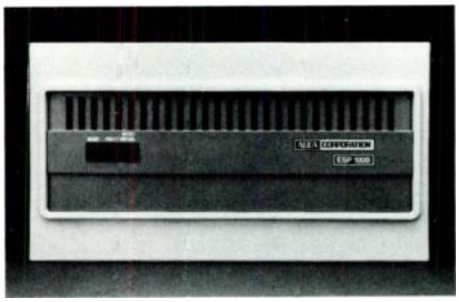

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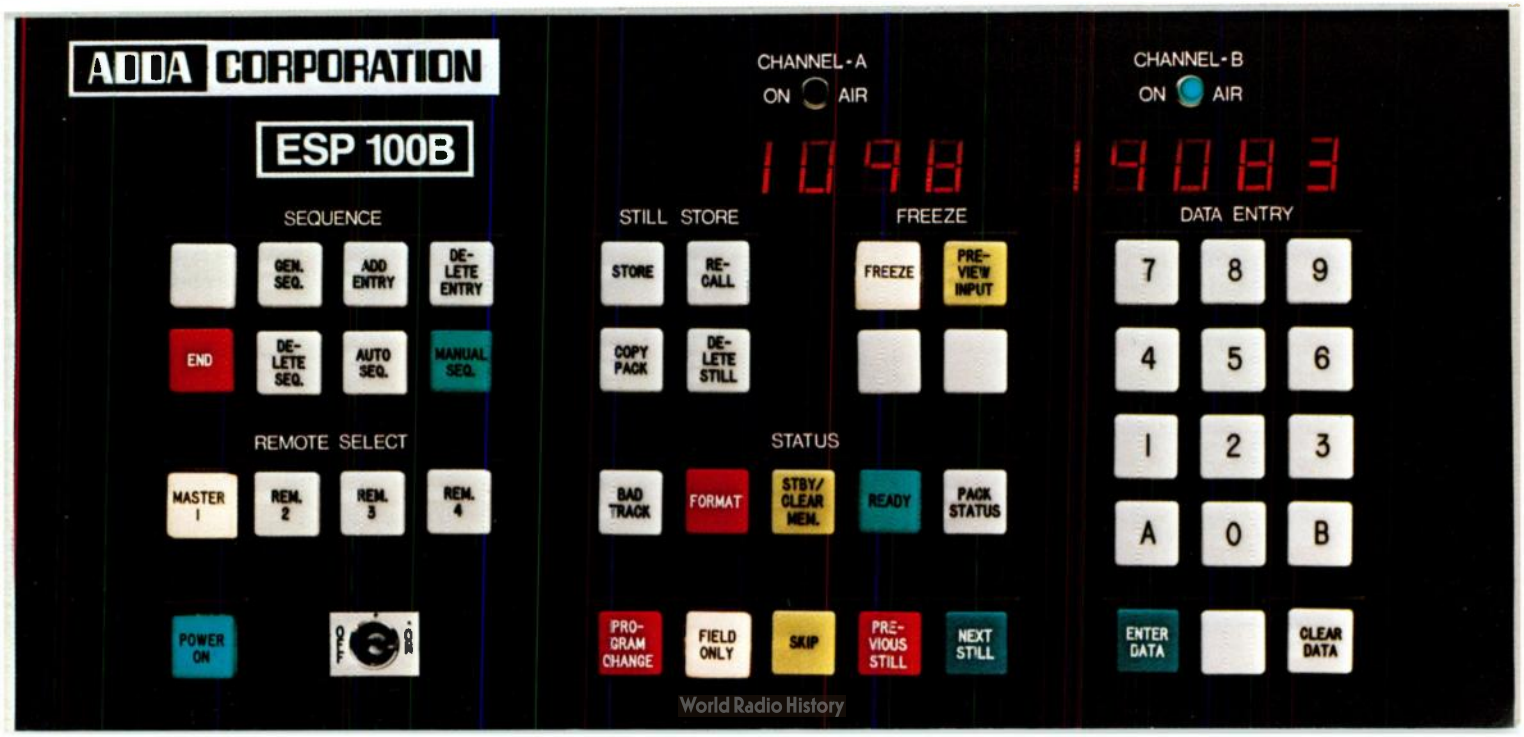

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BROADCAST COMMUNICATIONS® THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY



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Cover Photos by Long Photography, courtesy of The Academy of Motion Picture Arts and Sciences.

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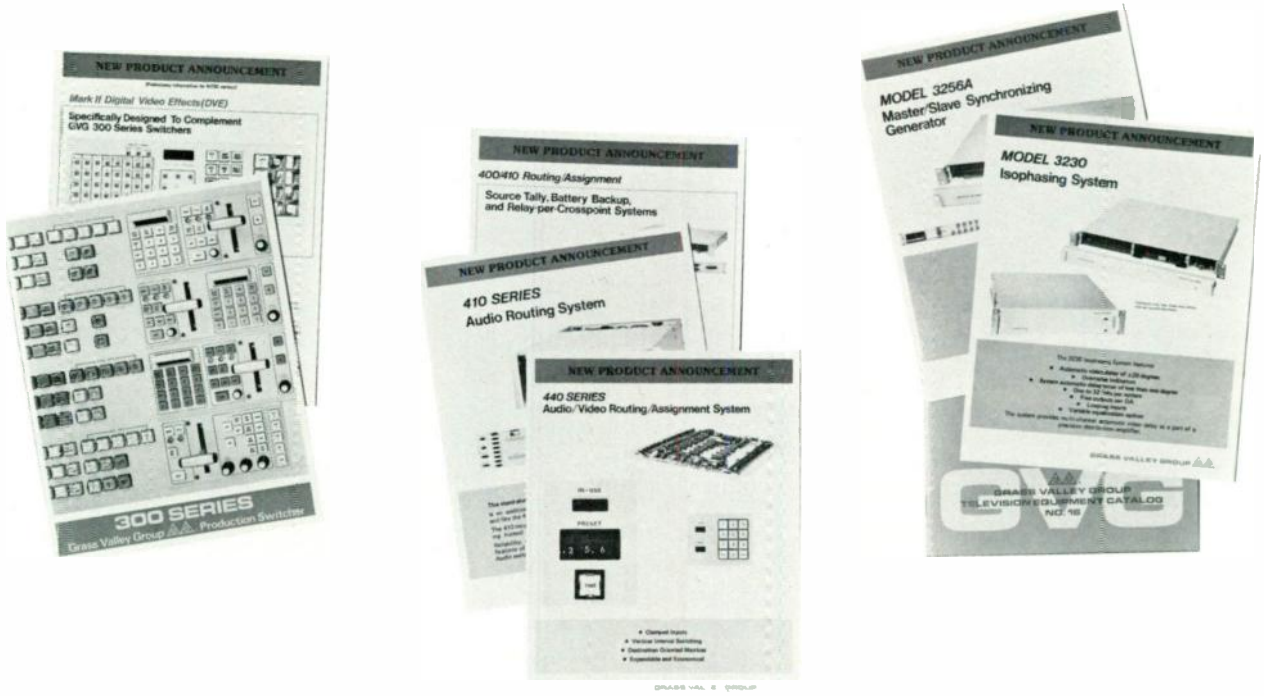


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CANADA

## Support for new technologies

*The federal government initiates two programmes to further develop Telidon and satellite communications.*

Approximately $9 million has been committed by the Department of Communications (DOC) for a four-year, cooperative programme with industry for further development of Telidon, an interactive television system developed in Canada.

A Telidon subscriber would be able to use a slightly modified television receiver for the display of graphics or information which could be retrieved from any number of data banks merely by the subscriber's making a telephone call and pushing a few buttons on a key pad device (similar to a pocket calculator). A number of system configurations and various capabilities could be built into the system depending upon the user's needs.

The involvement of the federal government in the development of Telidon will end after this four-year period. It is hoped that industry will then continue efforts to make the system marketable. The federal contribution is expected to be more than matched by industry expenditures during the programme.

The $9 million will be spent largely in assisting Canadian industry to develop the necessary range of products and in assisting Canadian organisations sponsoring field trials to pay the extra cost of the trials incurred through using Telidon prior to its reaching full production status. About $3 million is to be spent in the 1979-80 fiscal year.

The government has also initiated a two-year programme designed to examine and promote the social applications of satellite communications. The first phase of the programme, which went into operation last month, is a three-month tele-education pilot project by the Ontario Educational Communications Authority (OECA).

OECA is the first of a series of governmental, educational, and other groups or agencies taking advantage of DOC-leased capacity on the Anik-B satellite. These groups will carry out a series of communications pilot projects in fields including health care, education, community communications, TV programme distribution, provision of government services, and data communications.

Using Canadian-built earth stations, OECA (which operates TV Ontario) is extending educational TV programming services for three months to the communities of Marathon, Geraldton, Manitouwadge, and Owen Sound.

The OECA pilot project will enable people in these communities to participate in a new educational television concept called "Teleacademy." Four interactive television courses (in parenting, the arts, earth sciences, and communications technology) will be offered through special satellite receivers feeding local cable TV systems.

The government is also refining plans for a major demonstration of both direct-to-community and direct-to-individual home TV transmission, to refine system concepts for operational delivery of such a service and stimulate Canadian industry to develop a domestic production capability for home satellite TV receivers.

SWEDEN

## New dimension to local radio

*Non-profit groups will be able to broadcast own programmes under new experiment.*

Under the guidelines of a new three-experiment in local radio, non-profit

*Continued on page 10*

## Business Hotline

DICTAPHONE CORPORATION has announced plans to end operations of its California-based Audio/Electronics Division by transferring production of voice communications logging systems to a plant in Florida and selling its professional recording business. Dictaphone will move its logging systems to the company's main manufacturing facility in Melbourne, Florida, in July. In addition, the company has agreed in principle to sell its line of Scully professional recorders for the broadcast and studio recording industries to Ram Management Corporation, which also operates Ampro Broadcasting. The Audio/Electronics Division was created through the acquisition in 1967 of Scully Recording Instruments Corporation of Bridgeport, Connecticut, followed by the acquisition of the California-based Metrotech Corporation and its line of loggers in 1969. In 1972, the units were combined in the present facility in Mountain View, California.

HARRIS CORPORATION, Broadcast Products Division, announced the sale of radio transmitters totaling $1 million to Group W (Westinghouse Broadcasting Company). The order includes five MW-50A, 50 kW transmitters; three FM-20, 20 kW FM transmitters; and one MW-5A, 5 kW AM transmitter and related accessories. The transmitters will be installed at stations in Pittsburgh, Philadelphia, Los Angeles, New York, and Fort Wayne, Indiana.

SCIENTIFIC-ATLANTA has been awarded an order by WGN Continental Broadcasting for a 10-meter receive-only video earth station. It will consist of a 10-meter parabolic antenna with automatic motor drives, and redundant receiving electronics required for both television and radio programming. The satellite earth station will be installed at the WGN Continental Broadcast Center in Chicago.

INTERNATIONAL TAPETRONICS CORPORATION has been selected as the 1978-79 Industrial Marketer of the Year by the Central Illinois Chapter of the American Marketing Association.

NEVE ELECTRONICS INTERNATIONAL LTD. is supplying a 32-channel console complete with the Necam computer-assisted mixdown system to Granada Television in Manchester, England. The new console will be used on a full range of music recording projects ranging from popular right through to classical music. It is being installed in a specially accoustically designed control room along with Studer multitrack equipment.

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We demonstrated our Four-Channel Video Processor at the 1974 NAB Convention – five years ago! At this year's Dallas NAB, a number of other manufacturers showed prototypes of similar multiple channel mix amplifiers. So, while they're playing catch-up to American Data Technology, we'll be expanding the versatility of our 558 Series Video Production Systems.

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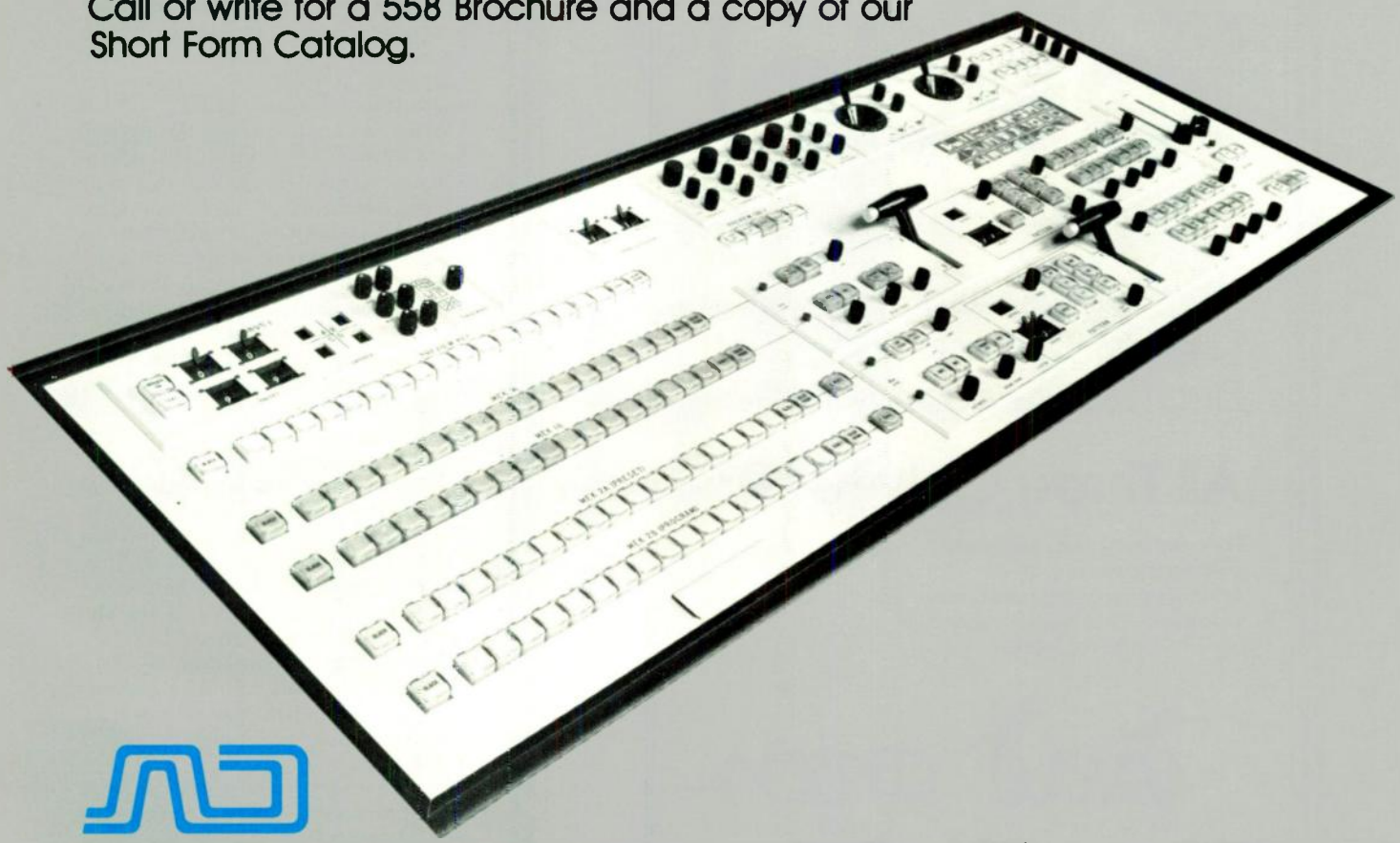

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groups will now have the opportunity to broadcast their own programmes within their neighborhood (or an area approximately 2½ square miles).

The experiment in "nar" radio comes just four years after Parliament voted to create 24 local radio stations throughout the country. Although "nar" doesn't have an equivalent in English, it basically means "neighborhood" or "community."

"Nar" radio will be launched in 15 communities, ranging from densely-populated urban areas to suburbs and rural areas. Organisations will be able to use available transmitters provided by the national telecommunication authority; or they may build their own. Studio facilities will have to be built by these groups, although some local authorities have indicated they will provide a studio.

While government restrictions are not as strict on "nar" radio as on other programmes, organisations participating in the experiment must provide accurate information and correct any errors. They must also broadcast at least once a week and retain programmes for at least six months.

The reaction to the "nar" experiment has been overwhelming. Nearly 540 organisations have already applied to participate. They range from trade unions, political parties, and religious organisations, to colleges and consumer groups.



AUSTRALIA

## ABC chairman seeks funding

*Continued cuts in appropriations are hurting the ABC's ability to maintain quality programming.*

The federal government's decision to cut funding to the Australian Broadcasting Commission (ABC) is seriously threatening the commission's ability to carry out "its basic statutory responsibility."

That's the view of J. D. Norgard, ABC chairman, in a letter sent to A. A. Staley, Minister for Post and Telecommunications.

According to Norgard, the cuts in appropriations will mean less money for the replacement of obsolescent radio equipment, and virtually no money for construction of new facilities.

While not arguing about the right of the government to control ABC appropriations, Norgard pointed out that while funding has been cut each year since 1974, the commission's obligations as outlined in the Broadcasting and Television Act and the Parliamentary Proceedings Broadcasting Act have not been reduced during this same period.

"At the same time [that ABC funds have been cut]," Norgard wrote, "the commission has noted that the government has been able to provide funds to establish a new broadcasting service — the Special Broadcasting Service — and that while the commission is required to take account of the services by this authority in determining what its programme output should be there is no similar requirement placed on the Special Broadcasting Service."

What these reductions mean, Norgard said, is that the ABC can no longer continue to compete with commercial television stations in producing quality programming.

Staley has said that he will not propose any supplemental funding for the remainder of this financial year. However, he will review the present difficulties being faced by the ABC prior to submitting a new appropriations measure for 1979-80.

*Continued on page 12*

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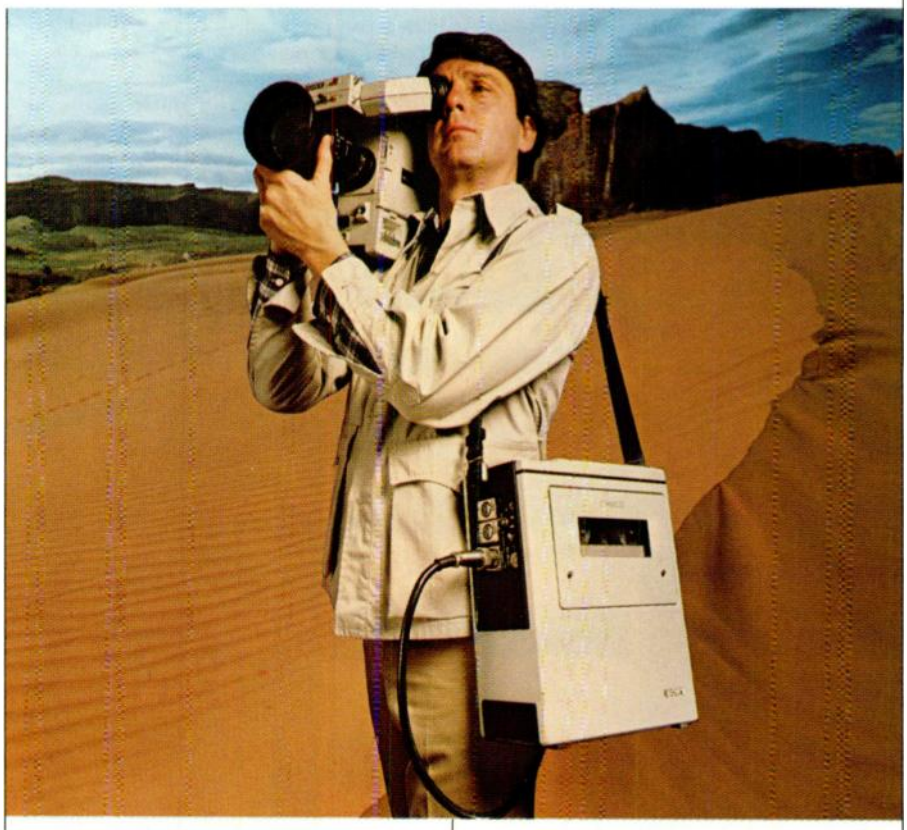

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UNITED STATES

# Sending news via satellite

*UPI and RCA have announced plans to transmit information via satellite to broadcast stations throughout the U.S.*

United Press International (UPI) and RCA American Communications have announced a plan calling for the use of satellites to distribute news, newspictures, and broadcast services directly to newspapers and radio and television stations throughout the United States. The plan is subject to the approval of the FCC.

Roderick W. Beaton, UPI president, called the proposal "a dramatic demonstration of a news company and a communications company working to improve service to the nation's news media."

"This new technology," Beaton said, "will increase the quality and reliability of broadcast distribution to the general public. I hope the FCC will give speedy approval to the RCA Americom filing."

RCA Americom plans to use one of its two communications satellites (Satcom I or Satcom II) in the planned service. Under the proposal, RCA will install, maintain, and provide satellite transmission service to more than 600 receive-only earth stations, each with 10-foot dishes. The proposed end-to-end satellite service will be offered to radio networks and radio programme distributors, wire services, and others with appropriate communications network requirements.

UPI has ordered a full-time 15 kHz satellite channel on one of the Satcom satellites, including an uplink to the spacecraft from RCA's Vernon Valley, N.J., earth station. UPI's broadcast service facilities in the New York Daily News Building will feed audio programming and teleprinter news circuits to RCA Americom's New York City operations centre, which is linked to Vernon Valley by microwave.

UPI's plans call for multiplexing the 15 kHz channel into one 8 kHz programme audio circuit plus two 3 kHz voice-grade circuits. The narrow band circuits will be used to distribute UPI's state newswire (teleprinter) services throughout the continental United States.

UPI presently delivers its newswire services to approximately 3,700 radio and television stations throughout the U.S. More than 900 of these also receive UPI Audio (voice) service, 606 of which now are on a UPI-leased nationwide telephone-grade network, with the service extended to others by private, regional networks.

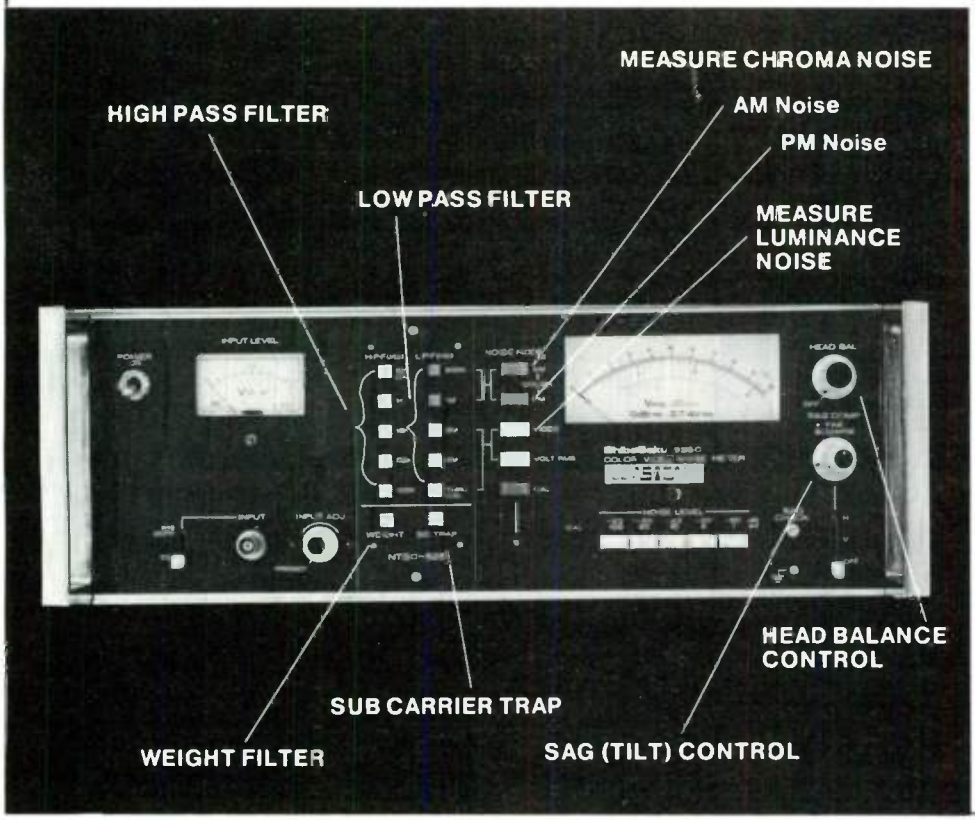
James Darr, UPI vice president for systems development, said, "This UPI-RCA plan is the most effective method to begin satellite delivery to a large number of UPI subscribers. A satellite system provides the one-way, multipoint delivery capability and the technical flexibility which is essential to the most economic delivery of UPI's many services.

"I see this as a first step in a gradual conversion of all of UPI's services to satellite," Darr continued.

UPI, at the same time, is working on a satellite network demonstration using smaller earth stations, in order to test feasibility of six- to eight-foot diameter dish antennas.

UPI currently uses RCA Americom's satellite services to distribute UPI NEWSTIME, a picture with voice-over news service, to cable TV systems throughout the United States. BC

# MEASURES CHROMA NOISE AND LUMINANCE NOISE

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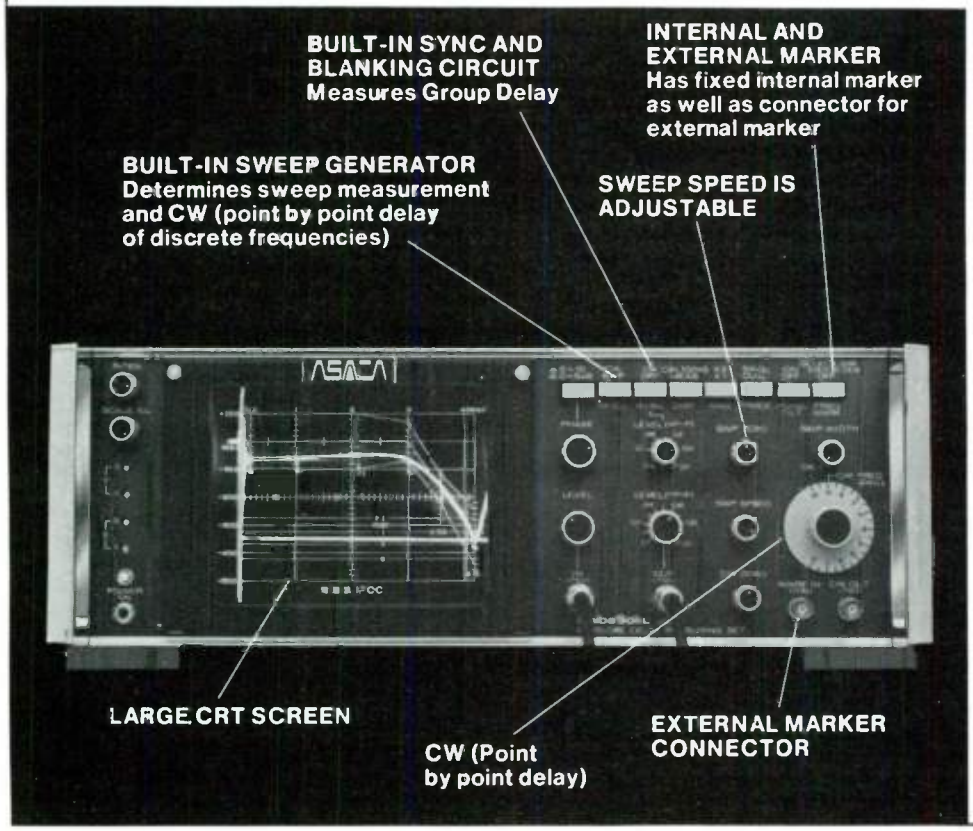


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# NEWSMAKERS

**David Horowitz** has been named director of audio/video engineering at CBS Television. Horowitz, who joined the engineering and development department in 1965, has been associate director in the audio/video section since 1973. As the associate director, he directed his group through many large and advanced projects, including the CTS New Technology Station projects and CTS/CND Electronic News Gathering projects. Horowitz holds both a BSEE and a MSEE degree from Drexel University.

At the BBC, **Anthony Powell** has taken over as chief assistant, liaison, radio, working directly with Aubrey Singer, managing director, and his deputy, Douglas Muggeridge. Powell left his position as special assistant to controller, international relations. As chief assistant, he will be responsible for the coordination of all aspects of international rela-

## Moving Up

JOE EWANSKY and JIM SMITH were recently appointed regional sales managers at RF Technology Inc. Ewansky will take over the eastern region, while Smith will work the western region.

PAUL KENDRICK becomes chief engineer at Micro Consultants Inc. (MCI/Quantel). Kendrick, formerly senior system engineer for Commercial Electronics, will report to J. Brian Matley, engineering vice president.

ALBERTO PAZ, formerly digital TBC product manager for CVS, is now the marketing manager for Cezar International. His responsibilities will include sales and product planning activities.

ROBERT BENNETT has been named manager, digital communications market development, for the Satellite Communications Division of Scientific-Atlanta Inc. Prior to joining Scientific-Atlanta, Bennett was director of marketing at ITT Communications Systems in Hartford, Connecticut.

DONALD J. POWER left Ampex to become vice president and general manager of E & O Systems Ltd., the U.S. operation for Electro & Optical Systems Ltd. of Toronto, Canada. Power brings with him almost 30 years of experience in the electronics field, of which half has been occupied in operation and administration at an international level.

STEVE KRAMPF, named national sales manager at Otari Corporation, assumes direct responsibility for the management of the company's growing number of dealers and sales representatives handling their line of professional recorders and duplicators.

JOHN DELISSIO recently rejoined the Broadcast Products Division of Harris Corporation to become vice president of international sales. Delissio left the division in 1977 to work in Harris' Satellite Com-

tions for BBC Radio, particularly those directly related to the European Broadcasting Union (EBU).

The appointment of **Don Dunbar** as director of national marketing for Cinema Products was made recently by Ed DiGiulio, company president. Dunbar assumes overall responsibility for marketing Cinema Products' expanding video equipment line of MNC-71CP ENG/EFP portable cameras, one-inch VTRs and related accessories, as well as CP's line of professional 35mm and 16mm motion picture equipment (including the Oscar-winning Steadicam film/video camera stabilising system). Prior to joining Cinema Products, Dunbar was Ikegami's western regional manager. Prior to that he spent 13 years with NBC, Los Angeles, where he was involved in all phases

*Continued on page 16*

munications Division. Currently responsible for management of the division's international marketing activity, Delissio's duties include direction of all international equipment, training programmes, and equipment installation sales efforts of the Broadcast Products Division.

DONALD MEREEN, a registered professional engineer, is the new marketing director of Telex Communications' broadcast and professional audio products group. With Telex since 1974, Mereen is a member of the National Association of Professional Engineers and the Audio Engineering Society.

MIKE FLOOD replaced Larry Cutchens as technical service coordinator for International Tapetronics Corporation. Flood has extensive experience in the broadcast industry, having worked as an announcer, chief engineer for a television station, as a customer service specialist at Gates Radio and SonoMag, and as a manufacturing project engineer at ITC. LARRY CUTCHENS became sales manager at ITC.

ROBERT D. BURROWS has been elected to the office of president of EMS Inc., succeeding Lee Marvin, founder of EMS. Burrows, a lawyer, brings to his new position ten years of experience in video. He was a founder of TRI, and has held various executive positions with that video editing company. LEE MARVIN has assumed full responsibility for EMS operations as executive vice president.

LAWRENCE KAPLAN, previously network account manager for Tektronix Television Products, has been named to head the overall marketing effort for that group. HARRY GLASS is the new network account manager for Television Products.

DICK LAWRENCE has been promoted to general manager at Lenco Inc., Electronics Division, it has been announced by Andrew Perrin, president. Lawrence had been sales manager. Also at Lenco, RUSS THALACKER moved to customer service engineer, a new position.

of engineering. He has also worked with ABC-TV as West Coast business manager.

**Wayne Baruch** is the new vice president of programming for the Robert Wold Company, a satellite distribution firm based in Los Angeles. Baruch joined the company in December 1976 after working with Syndicast Inc., where he had been responsible for the distribution arrangements for the Nixon-Frost interviews. In his new position he will concentrate on production and distribution activities for the Wold Company.

The National Sportscasters and Sportswriters Association has named **Vin Scully**, CBS Sports broadcaster, "Sportscaster of the Year." Scully, long-time voice of the Brooklyn and Los Angeles Dodgers, joined CBS Sports in January 1975. At CBS he does play-by-play commentary for National Football League broadcasts and golf tournaments; he also handles a variety of special assignments.

**William A. Leonard** has assumed the office of president at CBS News, succeeding Richard Salant who retired after 27 years of service with CBS. Leonard brings to his new position more than 30 years of experience at CBS as a news correspondent, broadcast personality, producer, writer, and executive. Beginning his career at CBS as an on-the-air roving reporter in 1945, he moved his way through CBS News, where he was executive vice president and chief operating officer before his recent appointment. BC

**Benjamin B. Bauer,** former vice president and general manager of the CBS Technology Center, died of a heart attack on Saturday, March 31. He was 65 years old. A towering figure in the audio and acoustics fields, he had remained a consultant to CBS following his retirement in July 1978 after 21 years of service.

Bauer's first invention came shortly after his graduation from college in 1937. It was the single-transducer cardioid dynamic, or directional, microphone whose acoustical phase-shift principle is, to this day, used almost universally in commercial microphones for broadcasting and public address systems. At that time a novice development engineer for Shure Brothers Inc., he was to become Shure's director of engineering and vice president before joining CBS Inc. in 1957 where he assumed responsibility for audio technology development at the then CBS Laboratores in Stamford, Connecticut.

He authored nearly 100 technical papers, lectured widely in the U.S. and abroad, contributed to textbooks on acoustical subjects, was technical editor and publisher of a textbook, *Acquisition, Reduction, and Analysis of Acoustical Data*, for the U.S. Navy. He was also visiting professor of engineering acoustics at Pennsylvania State University.

He was a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), of the Acoustical Society of America (ASA), and of the Audio Engineering Society (AES). In 1977, the ASA presented Bauer with its Silver Medal in Acoustics, only the third scientist so honoured, "for his contributions to engineering acoustics, particularly in the development of techniques and devices used to pick up, record, and reproduce sound."

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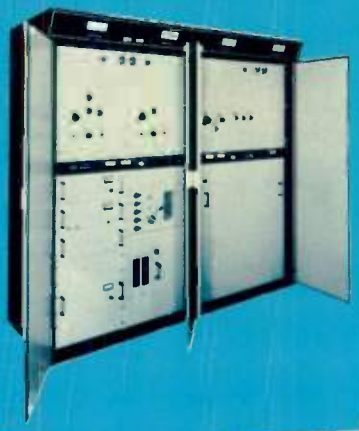

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# 1st CIRTEF

**SENEGAL** — Dakar will be the site of the first conference of CIRTEF, a new broadcasting association which includes French-language broadcast groups in Africa, Europe, the Indian Ocean, and the West Indies. CIRTEF (Le Conseil international des radio-televisions d'expression francaise) will meet in June to promote better cooperation among broadcast organisations throughout the world which use the French language. CIRTEF is headquartered in Geneva within the Societe Suisse de Radiodiffusion et Television.

**EGYPT** — A comprehensive modernisation programme of the country's shortwave broadcasting system has been undertaken by the Egyptian Radio and Television Federation (ERTV). Thirty-one high-power three- and four-band dipole arrays, high-gain periodic antennas, and quadrant antennas are being installed at two sites, Abis and Abu-Zaabal. The antennas will cover the entire shortwave spectrum.

**IRELAND** — The government recently approved a proposal by Radio Telefis Eireann (RTE) calling for the establishment of a second national radio channel. RTE began operating the country's second TV channel last fall. Programming on the new TV channel consists primarily of programmes purchased from the BBC and ITV, and includes several entertainment shows.

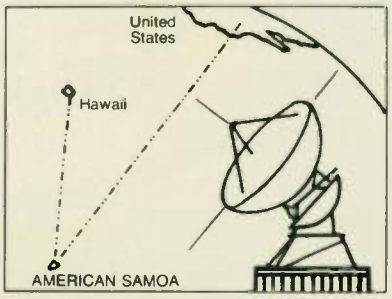
**MALAYSIA** — Radio Television Malaysia (RTM) will initiate a second national colour television network this month, upon completion of new studio facilities. The first colour television service was begun last December, broadcasting from an existing studio which had been converted for colour operation. To handle the colour broadcasts, each studio is equipped with telecine machines, colour slide scanners, VTRs, slow-motion videotape machines, ENG equipment, and colour film processing units. RTM also purchased two colour OB vans completely equipped with studio-type colour cameras, VTRs, and microwave links. When colour service began there were only 5,000 colour TV receivers in the country, but that number is rising dramatically with the introduction of a second colour network.

**QATAR** — Now under construction is a new TV production studio complex for the National Radio and Television Service of Qatar (QTV/QBS). Qatar began broadcasting regular monochrome programmes in 1970, with colour transmissions beginning in 1974 following completion of a studio complex at Doha. The new complex, to be finished by 1980, will enable QTV to produce programmes on a commercial basis.

**KOREA** — Regional programmes are now being broadcast by eight local television stations located in each of the country's provincial capitals. Prior to the opening of these stations, the only local telecasting was offered by the KBS Pusan Station. The production of local television is helping the overall development of the regional areas, while at the same time helping to preserve local traditions.

**UNITED STATES** — The National Telecommunications and Information Administration (NTIA) has issued a Special Publication which discusses technical and economic aspects related to the fixed-satellite and broadcasting-satellite services. The publication focuses on the technical and economic issues associated with the spectrum-use and orbit-use planning for services in the 2500-2960 MHz band and in the bands between 11.7 and 14.5 GHz. Spectrum sharing concepts, economic factors, hybrid satellites, and orbit-spectrum utilisation factors are reviewed. Specific recommendations on frequency usage and allocations are also included. The report, NTIA Special Publication 78-2, is available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. The price is $6.50; the accession number is PB 288-795/AS.

**KENYA** — A seminar on communications policy, held recently in Nairobi, has recommended that every African nation set up a 1979 WARC study group to prepare for the conference. The purpose of these groups would be to review national plans for spectrum use, consider technical bases for the conference, review other countries' proposals, and prepare national policies. Fifteen countries attended the seminar, which was organised by the UN Economic Commission for Africa, the Konrad Adenauer Foundation, the Union of National Radio and Television Organisations in Africa, and the IIC. The seminar also stressed the importance of African countries establishing a national communications policy, beginning with the creation of a national coordinating authority for communications.




**AMERICAN SOMOA** — Construction of the first commercial satellite communications facility in American Somoa will be completed later this year. The facility, being built by COMSAT, will provide satellite communications services to connect the islands with the U.S. mainland and Hawaii through the Intelsat satellite system. The station will have a 13-meter dish antenna, a control building, and related electronic equipment to process satellite communications messages. This will be the eighth U.S. earth station in the Intelsat network.

# GLOBALVIEW

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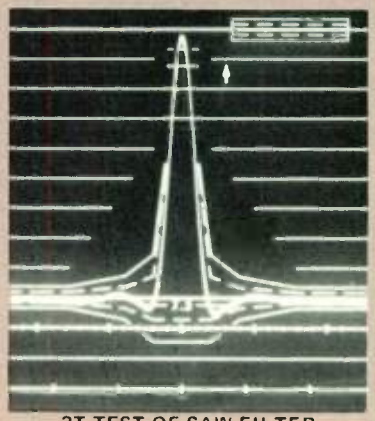

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Andersen's family of Surface Acoustic Wave vestigial sideband filters are readily available for the following international television standards; B/G, M/N, D/K and I. Limited quantities of filters are available for delivery from stock. Larger production quantity shipments will commence within 30 to 90 days.

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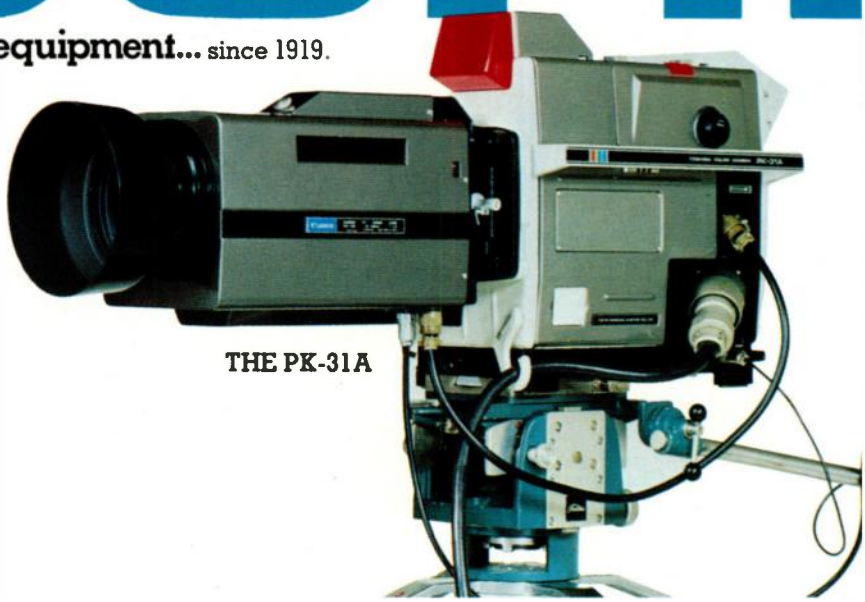

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**THE PK-39**—Perhaps the most versatile, flexible, portable ENG/EFP broadcast camera ever designed. Self-contained or two-piece. Auto beam control, auto white balance, and auto iris. Choice of Plumbicon* or Saticon** tubes.

**THE PK-31A**—A computerized studio color camera featuring automatic setup and 30 mm Plumbicon tube format.

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NATPE/United States

# Future shock hits NATPE '79

By Ron Whittaker

*Television programme executives meeting in Las Vegas focus their discussions on the effect of the new technology on programming.*

You got the impression that the ground was starting to crumble. The 45-year-old rules of the broadcast game were being rewritten, the basic electronic web which has been relied upon for programme distribution for decades was suddenly being changed, and TV programme origination was shifting from TV studios to communities. And from a West Coast station came the flat statement that in television "film is dead."

And if all this change was not enough, the very structure and approach of NATPE, itself, was under serious review.

The evidence for "a watershed year" was everywhere, and so was the evidence of success. The size and attendance for the 16th annual National Association of Television Program Executives six-day convention set yet another record: the number of exhibitors was up 27%, registration was up 22%, and the total attendance was up 20%.

Many of the topics which were central to this year's NATPE Las Vegas convention were continued at the Dallas NAB convention; topics such as the Communication's Act Rewrite, superstations, attacks on children's programming, etc. And, it appeared that discussions at NAB benefitted from the groundwork laid weeks before at NATPE. (See the discussions of these NAB topics elsewhere in this issue.)

And, it was interesting to find that at NATPE a surprising amount of interest was directed at new technology; and at NAB, a convention which is typically very technology oriented, most of the workshops and discussion sessions were devoted to such topics as broadcast regulation, programme distribution, and the social effects of programming.

It seemed that the lines of distinction between the medium and the message were becoming harder to view as separate and distinct; technology was creating its own programme content and McLuhan's concept that the medium is the message suddenly seemed to deserve more than limited academic interest. This was probably best brought into focus at a Tuesday morning NATPE workshop that attracted a standing-room-only crowd. It was entitled "From ENG to ELP: the Minicam Comes to Local Programming." At the beginning of the workshop another set of initials was introduced into the already "over-acronymed" broadcast technology — ELP for Electronic Local Production.

Four panelists with experience in the use of minicam/EFP, in local programming, along with moderator Jeanne Findlater of WXYZ, Detroit, discussed the success of minicam technology in boosting local programming interest (and profits). The panelists were: John Edgerton, WBY(TV), Charlotte, N.C.;

Continued on page 24

*Ron Whittaker, video production editor, is the coordinator of television and film at Pepperdine University, Malibu, California.*

**Ever get the feeling that someone is laughing behind your back? The NATPE conventioneers look unconcerned as they gaze around the elaborate circus setting of the Gold Key/Vidtronics programming exhibit during the 16th annual convention in Las Vegas.** ***(Photo by Ron Whittaker)***

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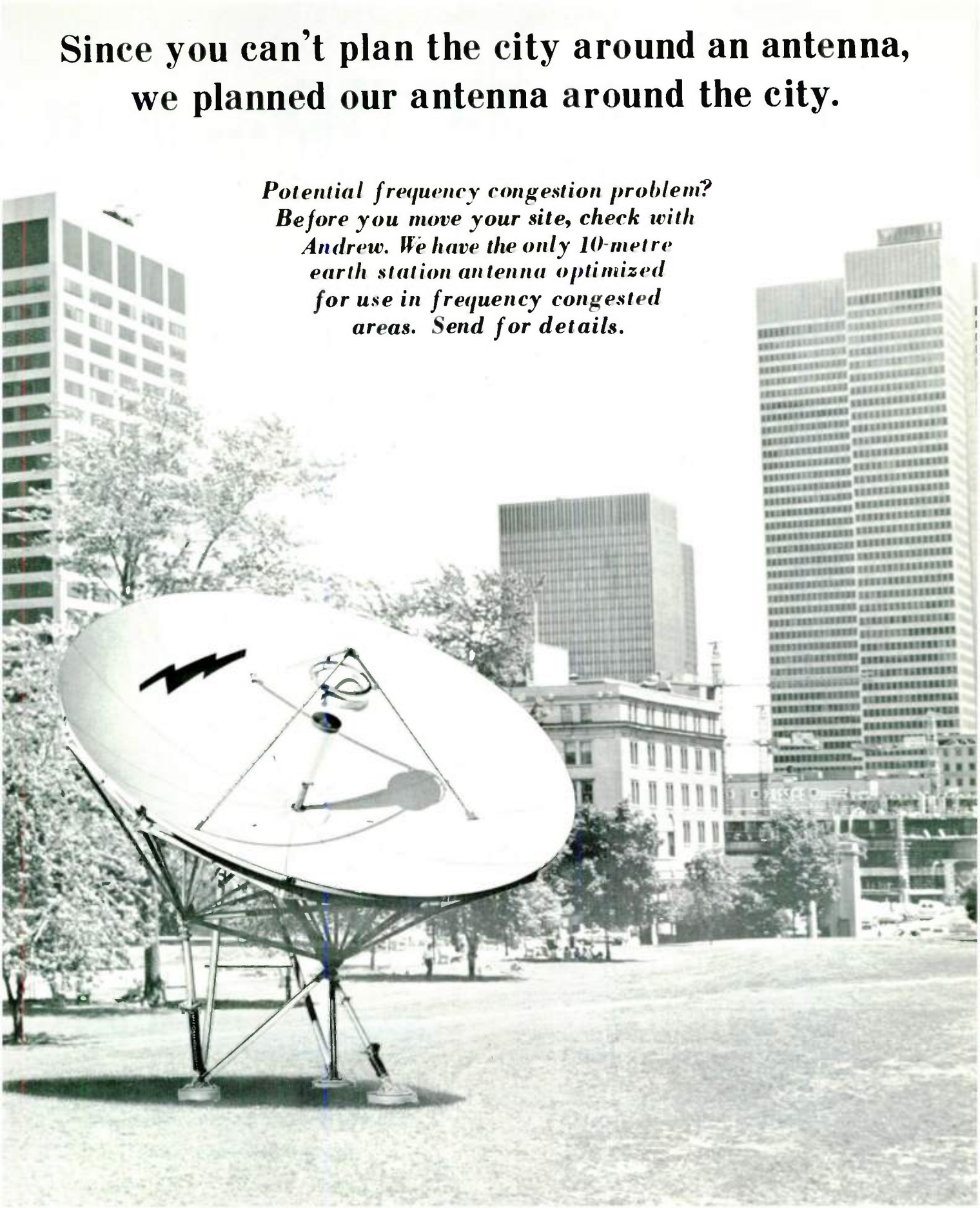

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**The cost? $15,880.**

The Jet Propulsion Laboratory, who managed Voyager's Jupiter Fly-By for NASA, used three EFS-1s to record on-line and playback those remarkable animated color sequences the whole world witnessed. It was a trip few will forget.

**Our EFS-1 is also a sports nut.**

Courtesy of the networks and many others, we've had front seats at the Kentucky Derby, Super Bowl, Indianapolis 500, the Olympics and many, many sports specials.

**The EFS-1 is also used widely as another creative camera source.**

We've reported the Academy Awards, Emmys, National election coverage and other heavy TV specials. It's Merv Griffin's favorite camera. Now Rona Barrett has her very own Frame-Stor. It's even used in production for animation effects.

**With the EFS-1, weather reporting is at a new high (or low).**

Our EFS-1 and TEL-WEATHER™ Systems have created vast new reporting opportunities for meteorologists. Animated color weather graphics, developed by our equipment, fed from radar or satellite sources, have brought accurate and timely information to those whose lives or businesses depend on it.

Weather journalism as we know it now would not be possible without these systems.

**SLO/MO is now within the reach of everyone...**

**The cost? $47,750.**

There is no comparable slow motion device anywhere near that price...or capability. And when you consider its portability...you can take us anywhere...in the field and the studio.

You should know something about its features;

■ Portable ■ Rugged—impervious to shock and bounce ■ Forward or reverse play at any speed ■ Time lapse recording ■ Digital comb filter ■ Freeze frame ■ Edit capability ■ Animation ■ and many other features.

In other words, SLO/MO does it all.

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Arvin/Echo has, over the years, built a reputation for tough, rugged, high technology recorders that really go anywhere...on land, sea and in space...anywhere.

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# can take us anywhere.

**January 29, 1979...**
**the amazing Jupiter Fly-By.**

*Millions of people the world over traveled with the Voyager as it visited Jupiter and its moons. Three Arvin/Echo EFS-1s helped document this eventful trip. Two units were used to record on-line color images and a third was used to create the animated sequences. You can take us anywhere.*

**EFS-1 Frame-Stor System.**

*This system is the heart of most freeze frame effects for televising sports, special events, and production programming. Key to the efficiency of the system is the flexible Discassette® and the ruggedly simple Arvin/Echo record and playback technology. Shown is the basic system and the remote controller.*

Alan Frank, WDIV-TV Detroit; Ralph Hodges, KFMB-TV San Diego; and Bruce Marson, WCVB-TV Boston.

Alan Frank, programme director of WDIV-TV, started off the discussion by saying that if the use of the minicam technology is properly thought through, and the proper amount of creative thinking is used, "it will open up a whole new world of possibilities for local production." Frank then gave examples of how minicam technology was being used at WDIV-TV. Included were "PM Magazine," a five-day-a-week programme where Frank said that the new technology gives the programme a whole new look, feeling and immediacy, "and the quality can be excellent."

"Another area for the use of the minicam is in remotes," according to Frank. "Today, with a Chevy van you can have an efficient mobile unit. [Our] station has been doing a zoo show with the big truck, and just by using the minicam truck, we can significantly cut the set-up and strike time. We will save a tremendous amount of money just through saving time. And, [we] add flexibility with the minicam.

"With the announcement of satellite stations being put in at a number of stations, I think we'll see it become practical very soon for local stations to do interconnects on follow-ups on public affairs, new programmes and morning shows," according to Frank. "It will become economically feasible, and it will add a great amount of excitement to local programming."

In the area of commercial production, Frank said, "I think the minican van has added a whole new look without tying up our studios. Whatever initials [to] designate the process we're talking about, it is making our community our studios; the thing we have envisioned for many years. It is practical and economical with the use of minicams."

John Edgerton, vice president and managing director of WBTV, said that *to him* ELP stands for Electronic Local Programming, rather than Electronic Local Production, with the emphasis on the "local" rather than "electronic." "I think the new generation of electronics is a tool, not an end in itself. Sometimes we are in danger of treating it as an end in itself." ELP is just a new tool that has all kinds of possibilities when used in the right place at the right time.

"We used it to re-enter church programming, [and] we are using it for promos. It helps us think in simpler terms for doing the larger tasks; tasks that were just getting unmanageable because of the costs."

An example of ELP at WBTV was shown to the audience by videocassette — a show called "Top 'o the Day." "We consolidated really three shows into one," according to Edgerton. "It involves live remotes and live news segments. Three days a week we do live features in the show. The thing that has set it apart is the fact that we can add the demensions of immediacy and localization. We do this by getting into the field, *where* things are happening, *when* they're happening."

**Alex Haley** addressed the Tuesday luncheon of the 16th annual NATPE convention. Haley, whose book, *Roots*, was responsible for the highest-rated programme series in television history, told the programme executives present to concentrate on the humanity potential in television programming. Also honoured at the banquet was David Wolper, who brought both *Roots* series to television.

Edgerton then noted, "It might surprise you that 'live' is probably much more economical than tape. If you plan carefully and do it live, you don't tie up manpower and facilities and [have] all the temptations to get fancy in post-editing. You do the best job you can with all the immediacy it gives you, and you're through; it's done."

Ralph Hodges, the director of client services for KFMB in San Diego, has had considerable experience with the use of the minicam technology in commercial work. He outlined his own situation at KFMB: "We turn out about 1,000 commercial projects every year; those are [both] new commercials and revised commercials." Hodges said that they work four hours a day, four days a week and average a commercial every 45 minutes. Studio time is booked solid, six weeks in advance throughout the year.

So with the studio constantly booked, they looked in another direction: minicam equipment. "[This] gave us another outlet, another way to go. So now we are normally booked two weeks in advance for the minicam crew," according to Hodges.

"We charge more for the minicam crew than we do for the full studio facilities. So, financially, that's something to consider." After showing several of their EFP commercials to those in attendance, Hodges discussed KFMB's experience with the new one-inch equipment.

"I want to emphasise from this point forward the 1-inch equipment and what can be done with it. In the ¾-inch, we just weren't able to maintain the quality level when we had to go into multiple generations. But now, all of a sudden, we have this compatible arrangement for the more expensive 1-inch equipment. I'm personally thrilled with the potential of where this can go. We were one of the first stations to have 1-inch equipment. I think that's one of the reasons that we are as dominant in the commercial production area as we are; having that quality."

Hodges went on: "I would like to run down some of the reasons that 1-inch has been so perfect for this. First, improved video, but, beyond that, 1-inch allows you to edit in the field; even edit in live shots from a camera with one machine. The editing situation is really fantastic on 1-inch; it has clean edits, far cleaner than with the ¾-inch. And once you set the edit point, you really have precise control over the editing. The other [advantage] is the hands-on, reel-to-reel capability.

"In the field we use a shot list as we're shooting our commercial. [The] tape is played back for the client while the crew is wrapping. We go through each tape and select the best. We know exactly from the footage counter and the shot sheet what things we want.

"I find the minicam fantastic under all sorts of strange mixed light conditions — daylight, tungsten and flourescent. All you have to do is balance on the white. I find you could never achieve the kind of [colour] balance in film. You can see it right there, on the spot."

According to Hodges, the 1-inch machine has had a great deal to do with their success in commercial production: a 23% increase in dollar business in the last year and a 200% increase over the last five years. "The 1-inch machine is

*Continued on page 26*

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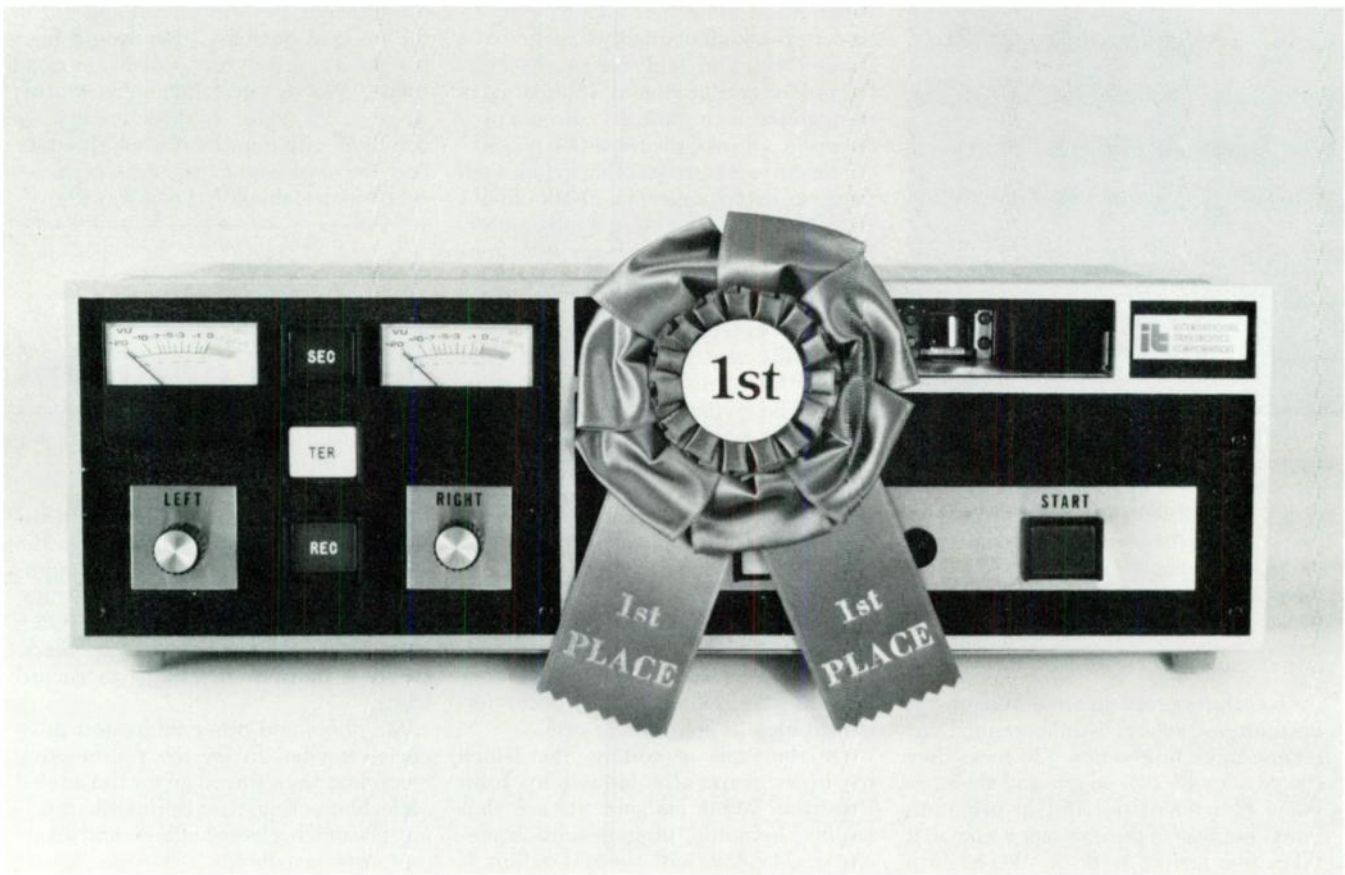




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definitely here to stay in our world of commercial production. Film is dead. I hate to say that because I came from a film background. But it is. In my world, anything scheduled for the tube should be done on videotape."

Although there wasn't total consensus on the death of film, Bruce Marson, the programme director of WCVB-TV, Boston, took over to explain the evolution of field production at his station. "In 1972, we began regular use of a portable minicam; but it wasn't too portable in those days. It was a PCP-90, and we had a portable 2-inch Ampex 3000 recorder and microwave. We used it everyday with a three-man technical crew to do inserts into our morning show. In the afternoons we used it for promos and other local programmes. In 1973, we added another microwave. I thought it was wonderful. Unbeknownst to me, what was really going on at that time, was that the news director and the chief engineer were allowing us to experiment and work out the kinks before *they* jumped into ENG!"

**Joel Chasman's keynote address was hailed by many as one of the most important messages at the convention. Caseman, president of the Post-Newsweek stations, urged greater concern for First Amendment freedom, curbs on superstations, an end to cable's "free ride," a decreased reliance on the conventional television networks, and an open arms attitude toward the new video technologies.**

One of the problem areas Marson has encountered relates to union regulations on non-news production. "In news they can go out with two people and shoot, as many film teams do. But in programming, because of the contract we have, it takes five people to do it. We have to have a director because of a guild, we have to have an AD, we have to have a video photographer, a recorder, and, since it's hooked up to a CCU, we need a video-audio man.

"We have all this equipment, but the real problem is converting video technicians into the kind of people that are oriented to film. Because it's video the [union] people operate on the basis that if you're a technician you can do every single job, and everyone is interchangeable. So during the course of a production you might have one guy as a cameraman for a couple of days, then it's his day off and someone else comes in. If you can isolate your video production from your operation, that's the way to go. But you still have a problem with training technicians."

In the film *vs.* tape argument, one problem came up several times: How do you get video technicians to understand and use film's rich heritage of creative and artistic techniques — techniques which have been developed over 75 years of cinema history? It was even questioned whether this was possible, considering that film cameramen (directors of photography) and video cameramen typically come to their jobs from totally different backgrounds.

In commenting on this Marson said, "As we make the transition from film to video, we're going to be asking people to achieve the kind of quality that we have learned with film, and with new and different kinds of equipment. I think that is going to put incredible pressure on producers . . . during the transition phase."

Marson went on to say that in film such things as f-stop control on depth of field and the control of lighting is fully understood, but that there is very little evidence that these things are understood in video. He said that when you really get down to it in terms of cost effectiveness, tape is the way to go. "But," Marson noted, "I have to question what we're going to be giving up, during the transition phase, as we go in that direction."

Later in the session, Ralph Hodges continued to laud 1-inch. "I would like to say that if any of you have worked with ¾-inch and had problems such as I had, you know it's a very temperamental medium. But, I've been amazed how dependable 1-inch is. We have an Ampex VPR-1 at this point and when [something goes wrong] and we point at that machine, nine times out of the ten the problem is somewhere else.

On the issue of editing, the 1-inch machines were also lauded by John Edgerton. Many assignments are shot on film, he noted, often because someone is just in love with the look of film. If the film is meant to go on television, editing with tape is really an excellent way to go. You can just sit in front of a 1-inch tape machine and move the tape back and forth a frame at a time, just like a film editor does on a Movieola. "You're so close to the film medium, I really don't see any [film] editing advantage. Now when I have to do [editing] with film, it's like I'm going back to the horse and buggy days, it's so slow. If you must have the look of film for TV, shoot on film and edit on tape."

With all the discussion about the new 1-inch formats, how about 2-inch, quad? Ralph Hodges: "Well, I think the 2-inch machine days are numbered. I don't think anybody would ever replace a 2-inch machine for what they cost, except for a cassette machine. When the 1-inch ACR equivalent is built, I question the future of [2-inch] cassettes. I think 2-inch is a thing of the past." And, the fate of ¾-inch? Hodges again: "I think since news operations have been built on the ¾-inch, and there are so many of them, that they will be around for some time."

With all the talk about new technology during the NAPTE session, someone from the audience asked, "How do you stay on top of all the new technology?" Ralph Hodges answered the question. "Some wise gentleman said that if the railroads had realised they were in the transportation business, and not in the railroad business, they would have bought an airline and still be in good shape. We've got to understand that we're in the video business, and if we don't get with it and meet our competition, we're not going to be in good shape. And 1-inch technology is the way to go."

SBE/United States

## Robert Jones is new SBE president

*Newly elected officers and directors are installed at national SBE meeting.*

One of the most active booths in the exhibit halls at NAB this year was the SBE booth, with applications going as the hottest item. And it was only fitting, since the interest in SBE has been rising dramatically over the past few years, swelling their membership to record highs.

Members and other interested prospects crowded in for the pre-meeting reception, then stayed on for the annual national meeting. And during the meeting, the newly elected officers and directors were installed.

Jim Hurley handed off the baton to

*Continued on page 28*

# Direct drive made Panasonic Series 9000 a great 3/4" editing system. Here's what makes the new 9000A an even better one.

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Robert A. Jones and introduced him as the new SBE president. Eugene Hill steps into the vice president slot, with James Grinnell working as secretary/treasurer. All are on one-year terms.

Morris Courtright, Steve De Satnick, Howard Immekus, and Doyle Thompson were elected to the board as directors on two-year terms. Together they will be managing an organisation that now numbers 3,454 members in 46 active chapters. However, Pat Satter reports that there is a definite interest from 28 different areas in forming additional chapters.

Meanwhile, industry interest continues in the SBE certification programme, where the total certified has reached 1,561. What's impressive is that of this number, 619 are non-SBE members. Dates for the fall exams have been set for November 17 through December 8. The deadline for applying to take the test is October 8. Anyone wishing to take the exam should request an application and a copy of the Certification Program booklet. You can do this by writing to: SBE Certification Secretary, PO Box 50844, Indianapolis, Indiana 46250.

During the national meeting in Dallas, Robert A. Jones officially became the new president, and immediately he set out to define the importance of the SBE Board. Among other requirements, Jones said a strong board is need because it offers a variety of viewpoints, works out programme details, closes the communications gap between members and officers, and developes new leadership. "In this regard," Jones added, "I note that every president has come from the Board."

And then it was appropriate that Jones presented Bob Wehrman with the Fellow award certificate in recognition of his long service to the SBE. Wehrman steps down as the immediate past president.

On the last day of the convention, representatives from 20 active chapters participated in a special meeting of chapter chairmen. They discussed ways to improve attendance at local chapter meetings, and then opened up a question and answer session with the national officers. Pat Satter reported on the National Office, Bob Wehrman on the Revised Chapter Guide, and Jim Wulliman brought everyone up to date on the Certification Program. The next chapter chairmen's meeting will be held in St. Louis in November. BC

**Robert Jones** presents Bob Wehrman (left) with the SBE Fellow award certificate in recognition of his long service to the Society. Pat Satter looks on. *(Photo by Michael Scheibach)*

**New SBE president,** Robert Jones, discusses the Society's future role at the national meeting. *(Photo by Michael Scheibach)*

## SBE MONTHLY LOG

CHAPTER 5 — Atlanta, Georgia. Jim Godwin, president, ROH Corporation, and Gary Pearcey, sales engineer, ROH Corporation, presented a programme on the design and application of routing switchers for audio and time code distribution. New officers are: chairman, David Thranhardt; vice chairman, Jim Nelson; and Bill Blaine, sec/treas.

CHAPTER 24 — Madison, Wisconsin. Greg Morris of the London Company demonstrated the company's radio broadcasting test equipment, which included a wow and flutter meter and a real-time analyser for maintenance of audio recording equipment, and an automatic distortion analyser for AM stereo.

CHAPTER 33 — Southwestern Ohio. John D. Lowry, president of Digital Video, presented "Digital Video Processing the DPS-1" and Jim Stevens, FCC Cincinnati office, discussed FCC inquiry into interference. New officers for the coming year are: chairman, Ray Pelzel; vice chairman, Len German; sec/treas., Jay Adrick.

CHAPTER 36 — San Diego, Calif. Bill Stevens of KCST-TV gave us a "Transmitter Tour" of his kingdom atop San Miguel Mountain.

CHAPTER 41 — Central Pennsylvania. Tours of the Bell Telephone of Pennsylvania facilities plus the American Telephone & Telegraph facilities in Harrisburg were given.

CHAPTER 43 — Sacramento, Calif. Dane Ericksen and Phil Kane from the FCC Field Operations Bureau in San Francisco presented the programme. Ericksen, well versed on the subject of the so-called "blanking width crisis," presented a short talk on the subject. He and Kane answered many questions on the new rule amendments and policy changes. Election results as follows: Re-elected Bob Nelson as chairman, Bob Venditti as sec/treas, and newly-elected vice chairman, Tom Hughes.

CHAPTER 50 — Ft. Collins, Colorado. James French, Chapter chairman, gave a programme on Time Base Corrector — Why do we need them? What do they do? What don't they do? and How they do what they do.

FORMING CHAPTERS

Organisational meeting held in Memphis, Tennessee with the programme presented by Welton Jetton, president of Auditronics Inc. His subject covered the history of his company and its products, leading up to a description of a new broadcast console, the 110B, which was introduced at the NAB convention in Dallas. For further information contact Winston Tharp, WQOX-TV, 220 N. Montgomery, Memphis, TN 38104; (901) 725-6882

Salt Lake City, Utah. Second meeting held with the programme consisting of a tour of Bonneville Productions, a sound recording and tape duplicating facility of the Mormon Church, plus a tour of KSL Radio/TV. For further information contact Martha Wilmering, Telemation, PO Box 15068, Salt Lake City, UT 84115; (801) 972-8000.

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RON AND SUSAN WHITTAKER

## *The Oscar presentation:*

# A complex challenge for the moment of truth

According to the history books, the most widely-viewed television event was broadcast in 1969, when Neil Armstrong took his first step on the moon. The cumulative television audience for that "remote" was placed between 300 and 500 million people. (Before that they had said a one-camera production didn't have a chance of pulling high ratings!)

On the night of April 9th, director Marty Pasetta may have put the 51st Annual Academy Awards Oscar telecast in second place in the history books with a worldwide audience of close to 350 million, even if he did need 17 cameras, 13 videotape machines, 300 film clips, and $20 million worth of production equipment to do it. (Not to mention about 200 film stars and celebrities.)

By now most of us are familiar with what happened on the night of April 9th — who got awards for what. But, now that it's all over, do you wonder *what went into making* that three hour and 25-minute extravaganza?

Last month we detailed some of the elaborate pre-production work by producer Jack Haley, Jr., associate producer Mike Seligman, and art director Roy Christopher. This month we'll focus on the very elaborate below-the-line elements and the work of director Marty Pasetta.

**Winners** at this year's Awards: Jon Voight, best actor, and Jane Fonda, best actress. Both won for their performances in *Coming Home*.

At a time when hours and days of post-production magic are regularly relied upon to transform reels of tape into impressive, polished productions, it is difficult to appreciate how 40-plus video sources, 200 audio sources, 400 lighting cues, and scores of scenery changes can all be coordinated during a single television programme — *live*. Director Marty Pasetta has, in fact, referred to the electronic hardware involved as a "technical nightmare."

A few days before the show Pasetta took some time out of a hectic pre-production schedule to talk to one of the authors. After thinking about the literally thousands of split-second directing decisions that had to be made (with the outcome being crutinized by scores of self-styled and professional critics), we asked him about the incredible pressure he must feel. Pasetta responded by saying: "I am as calm as I am sitting here with you."

Probably noting our reaction, he went on. "It doesn't come to me as pressure." He then referred to his crew. "I hand-pick everybody. These people are the best; they have been working with me for years. Everyone is a very detail-prone person. We all think alike. I lay it

*Ron Whittaker, video production editor, is the coordinator of television and film at Pepperdine University, Malibu, California. Susan Whittaker is a project development associate for The Triseme Corporation, Hollywood, which works exclusively with ABC Television.*

**Master of Ceremonies** Johnny Carson had the difficult assignment of keeping the show moving, a task that may have sparked his comment about the Oscar telecast being "two hours of sparkling entertainment spread out over a four-hour show."

*(Photos by Long Photography, courtesy of The Academy of Motion Picture Arts and Sciences, except as noted)*

all out and do my job, and expect others to do theirs too."

Pasetta, who grew up with television and has done complex, special-event telecasts for more than 25 years, had directed seven Academy Awards telecasts when we interviewed him. Is it "old hat" by now? "It's never old hat, because no two years are the same. You give the same awards, but my approach is to pick a new way of presenting them [each year]. I try to come up with different ideas on how to dress it, how to doll it up, how to package it to make it interesting and different."

And how did the show evolve? "On this year's show the producer was set first. That was done by Howard Koch, the Academy president. He selected Jack Haley, Jr., to be the line producer. Basically, I'm the only person hired by the network. Everybody else works for the Academy [of Motion Picture Arts and Sciences]. I'm hired by the network to package the Academy event for television. I am responsible to the network for a television show as if it were my own package." (Pasetta has his own production company.)

"Then we [Jack Haley, Jr., and I] meet and talk about the rest of the staff. . . . At that point we come up with writers, musical directors, costume designers [and the ] scenic art director. All of this comes out of Jack and myself.

"After the staff is put together, but before we meet with them, Jack and I will come up with a concept on how we want to make the show different, what we're going to do. We didn't want to follow last year's show which had 36 dancers. How are you going to top that; with 86?

"I wanted to use a lot of clips, so we have close to 300 film clips this year. When we are announcing nominees I wanted to be able to show clips from their work for all the categories. We've never done that before. Instead of

*Continued on page 32*

[there] just being a three-shot while the names were being read, we wanted to show their work. It has more meaning."

Pasetta then talked over possibilities with art director Roy Christopher. While Pasetta says he wasn't turned on by the idea of the filmstrips, he did want something which could, in his words, "come into action." "It is important that it [can] change, because we sit on a close-up for 50 percent of the show. That shot is very important."

Unfortunately, even with the good intentions and apparently thorough testing, the use of the video projector-RP screens at either side of the stage (see photo) appeared to be the major technical weakness of the show. At least, the problems with the brightness and colour temperature of the images were the most obvious to viewers.

One of the writers was present during the first on-camera testing of the rear screen image at the ABC studios in Hollywood. For the test a subject was placed in front of the screen and lit at 200 foot-candles (1,860 lux). Under these test conditions, the RP effect was acceptable. However, the final result on the night of April 9 appears to fit nicely into that often-used post-mortum TV category: "But it looked so good during rehearsal!"

Pasetta anticipated another problem with the RP inserts, a problem which is probably unavoidable considering the lack of control there is over the comments and pace of the presenters. According to Pasetta, "Six of the 21 awards are for people with recognizable faces. [For this] I can just go to close-ups. But that leaves 16 awards where we are using film clips to try to make it interesting. I hope I haven't opened a Pandora's box. If you get behind on one [film clip] it will look terribly embarrassing and be like amateur's night. That's frightening."

The six rear screens were fed by seven VPR-2, 1-inch tape machines in one of the several remote trucks parked outside the Dorothy Chandler Pavilion. Five quad machines located back at the ABC lot provided the principal clips. According to Pasetta, "There is no protection in rolling the tapes. If one machine blows up, I've had it. Out of five rolls, if the second one blows up, I have to know where to go and how to get back into pattern; what the back-up shot will be. I have to make that instant decision and still roll the next tape . . . without blowing all the technicians' cues . . . so that they can understand where I am going and where my head is at."

Two large front projection screens were lowered at the center of the stage for viewing the major film clips within the Pavilion. (The two screens were for the two aspect ratios of film: wide-screen

*Continued on page 34*

**A total of 17 cameras were used for this year's Oscar telecast. Most were Philips LDK-5's equipped with 30:1 zoom lenses. This was the approach to the Los Angeles Dorothy Chandler Pavilion used by arriving celebrities. Segments taped here immediately before the telecast were "hot edited" together for the show's opening.**

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and normal.) To get around a shutter-bar effect with 60-field cameras, the 35mm film clips were converted to a 30 frame per second projection rate. This allowed Pasetta to do matched dissolve between the projected image and the same clip from videotape.

Did you ever wonder how the winning film clips were punched up so fast, almost in sync with the last words from the announcement? Tape machines with all of the nominated films were rolled simultaneously from the ABC lot. At the moment the winner was announced, the machine carrying the corresponding clip was instantly put on line.

Another use of the film clips was to fill what Pasetta called "negative air time," or the time it took people like writers, directors, etc., to get on stage from their seats in the back of the Pavilion. This year Pasetta swung available cameras to the winner when he was announced and cut a series of "walking shots" into a background of the winning clip. These shots were digitally compressed into a small box in the lower right-hand part of the clip. This is the only place that digital frame compression was used, however.

But what about the winners, themselves? They too appeared on the screen almost immediately after they were announced. "I have no advance word [on winners]. But I do a little flow chart on who I think [will] be the winner, and I block my cameras accordingly. But, I'm not always correct and the cameramen know where to go for the second choice, etc."

This, of course, brings up the question of how the cameramen can possibly know all those people and where they are sitting, not to mention how they can get a shot of them so fast.

For this there were shot sheets — some 21 pages of them — containing pictures of each of the nominees, together with the seat assignment which had been carefully figured out by Pasetta. The seats were designated by section, row and seat number. (The nominees generally stay in their assigned seats, but not always.) Seven cameras were used to shoot the audience.

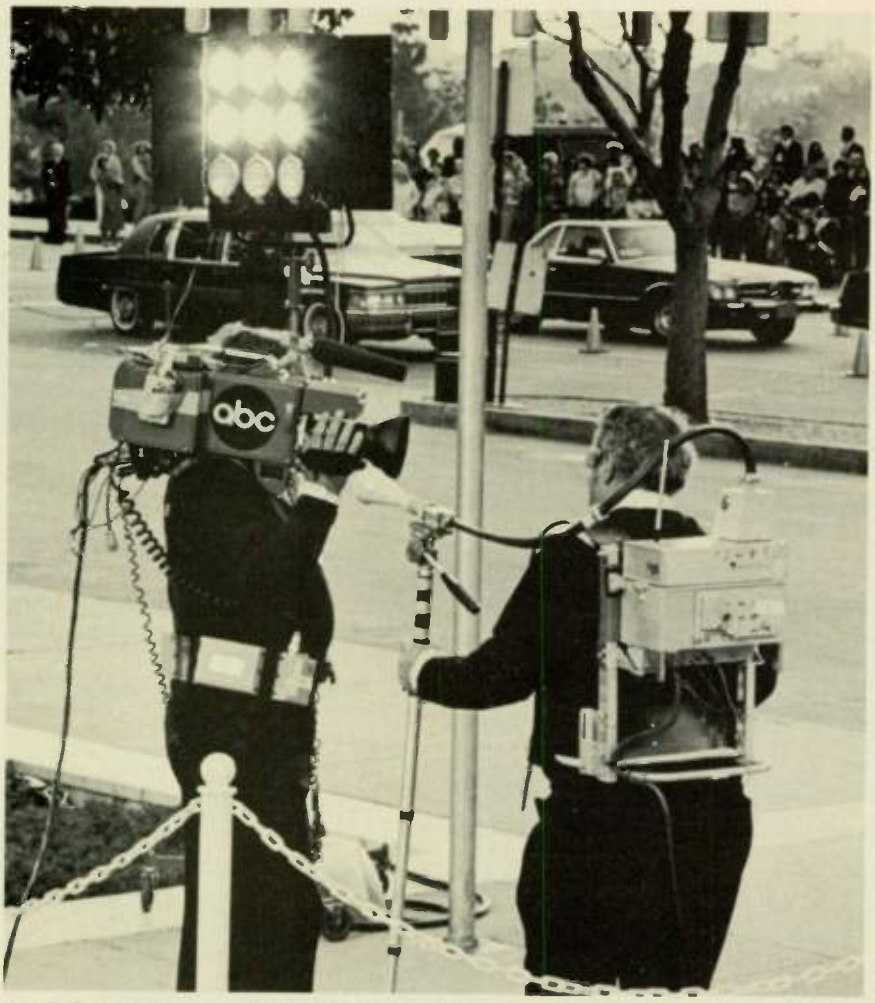
But it's a little difficult to rehearse these scores of shots before the show in an empty auditorium. And you obviously can't get all the people involved to attend a camera rehearsal. So large blow-ups of the pictures of the nominees (the same ones which were on the camera shot sheets) were held in the laps of crew members sitting in the appropriate seats for the camera rehearsal. It then just became a matter of a cameraman matching his shot sheet assignment picture with the life-size photo in the seats.

But what if a nominee doesn't show up on Awards' night? Before the show these basic photos were recorded on one of two Arvin still frame recorders. (Several still frames of nominees had to be used during the broadcast, but this year all the winners were present.)

This brings us to something which was tried for the first time this year: the five-window special effect for the nominees. For this a generator had to be built especially for the Awards. After a nominee was announced and shown full-screen, a second camera then framed the same nominee within the appropriate special effect box visible in the camera viewfinder, and the video was inserted in this window. As each nominee was announced, the effect thus built until all five windows were filled and the background camera had the presenters on stage ready to tear open the envelope.

According to Bud Untiedt, the studio engineering supervisor for the show, the five-box generator was built from plans originally supplied by NBC and modified by ABC's Systems Maintenance and Assembly Group. To accommodate the nearly 40 video sources and be able to build the special effect windows, two Grass Valley 1600 production switchers were tied together, along with a Dynair switcher. The latter, according to Untiedt, worked directly into the special window generator. Added to all this was a Quantel 5000 digital video effects board. Basic switching was done on the "Phase 8" remote unit 1600 switcher with the second 1600 acting as an auxiliary switcher.

Accommodating the five-window special effect and building it "live" as the nominations were announced, was obviously one of the major video concerns. Why did Pasetta try to pull off such a complex special effect feat? "I believe the importance of that moment is incredible. It is the whole name of the game; the moment of truth; the expression of the win and the expression of the loss.




**An ABC camera** crew uses a special Ikegami/ABC RF camera link to get shots of arriving celebrities. These sequences were recorded and "hot edited" together immediately before the show for the opening montage.

Academy Awards producer Jack Haley, Jr., accompanies actress Kim Novak to the Awards ceremony. Haley described his role on Oscar night as one of encouraging and soothing nervous celebrities before their appearances.

But, needless to say, if I stay on the shot(s) too long [after the winner is announced] it becomes cruel. And, besides all the camera considerations, I also make sure that the winner will never have to cross in front of the loser who might be caught in an embarrassing moment. . . . This is a thing that is important to me, personally, because I know the electricity and incredible emotions that are running through the place. They [the losers] do and say things that they regret later, and I try to protect them as much as I can."

Although this brief explanation by no means covers all of the video concerns in the show, possibly it does give a flavor of the awesome complexity of the production. (See related story for a more detailed description of the production equipment.)

But what about audio? "I deal very closely with the audio man on a [separate] headphone. In the orchestra we have a problem keeping them together because they are physically spread out. So we have every musi-

*Continued on page 36*

**The half-century** history of the Oscar presentations has seen major changes in technology. In the press room, where the flashes of power and bulbs have given away to existing light still photography, the presence of 35mm and 16mm motion picture cameras is giving way to electronic cameras. The art of animation has also seen great change, as Walter Lanz, creator of "Woody Woodpecker," (shown with Oscar) knows from his 60 successful years in the business.

cian — all 100 of them — on individual headphones. The conductor has a button he can push and talk to each of them through their headsets. I also have the podiums patched into their headphones so that when the winner is announced they know exactly which theme music to play. They have five music cues laid out in front of them on one sheet of paper. When they hear "Warren Beatty," they know immediately to play the music from *Heaven Can Wait*. When they are playing 'live,' the platforms turn into a triangular form so that they can all see the conductor. When they are turned out the music is on a prerecorded track and they finger sync.

"Each violin is miked separately on the bridge with a clip-on mike. In the orchestra, itself, there must be close to 200 mikes. Then there are performing mikes, podium mikes and audience mikes."

According to Bud Untiedt, the studio engineering supervisor, an elaborate audio fold-back system also had to be devised. For the musicians a monitor mix of the programme line was fed into their earphones. This line could also be interrupted by the conductor or the director. The orchestra also had to be folded-back for the performers. For this there were multiple hotspots, high-energy speakers so they could hear what had been recorded. The placement of the speakers was important. Placed too far away, the sound lag would cause a noticeable lip-sync problem for talent; a problem which most TV producers working in much smaller facilities have never had to confront.

The audience in the Pavilion heard the performance in stereo through the house speakers. Originally the show was to go to Japan in stereo (Japan has a stereo TV system) but, since these plans fell through, the stereo mix was limited to the house speaker system.

The ABC lighting directors were Vaughn Gaddey and Marc Palius. According to Gaddey, the Awards used 680 lights on stage, 78 lights in the auditorium and 11 spots. Extra power sub-stations had to be installed at the Pavilion to handle the million amps of lights.

In terms of a lighting approach, Gaddey said "I lean more toward the 'stage look' than to three-point television lighting. I use area lights. I feel the effect is more dramatic. For example, the 100-piece orchestra is lit in five sections using four different gel colours at various times."

The "Phase 8" production unit was modified to accommodate the lighting needs of the Oscar telecast. The booth, which normally houses the audio board (which was inadequate for the Oscar telecast anyway), was turned over to the lighting director and the Kleigl memory system lighting control unit. Pasetta had the window removed between the control room and the converted audio booth so that the lighting director behind him could clearly see and hear, without having to rely on a PL line, alone. Pasetta typically uses hand motions to indicate the speed of lighting changes, etc.

The first time any of the production elements were checked out with cameras was two days before the telecast. At this time the production numbers were rehearsed and the general technical details checked. The next day the presenters in the various categories rehearsed their parts.

"I take every single person who is a presenter or performer through their paces of how to get on quickly, where to stand, how to pick up the statue, how to make an exit . . . and all the no-nos they shouldn't talk about . . . things which tend to slow down the show, make it boring, or embarrass themselves, the Academy, or the network.

"The acceptance speeches are the real question mark. We contacted every single nominee and asked them to tell us the length of their speech, and as a guide [we suggested] 20 seconds. In the back of our minds we are hoping that in making these calls they will do some homework and try out their speech in front of the mirror or with their wife . . . Unfortunately, as they hear their named called as a winner, they may leave their good intentions in the seat as they come to the stage. But maybe 50 percent will remember . . . more than if we didn't

**Director** Marty Pasetta checks over some special effect sequences prior to the April 9th three and one-half hour "live" telecast. Since nearly 40 sources of incoming video were used in the production, the normal complement of monitors in the ABC "Phase 8" production unit had to be supplemented (note extra row of monitors at bottom of the picture, for example). *(Photo by Ron Whittaker)*

**An elaborate** audio fold-back system had to be devised on stage to accommodate such production numbers as this one by Olivia Newton John. Multiple hotspot, high-energy speakers were used relatively close to the talent so that a sound lag would not result in lip-sync problems. Each of the 100 musicians on stage wore program/interrupt earphones. Miss John, who was reportedly too sick to attend rehearsal, was running a high fever during her "live" production number.

make that call."

In looking over his basic objective for the production, Pasetta summed up: "I feel I have done my job if the person at home understands what's happening and enjoys what he sees. To accomplish this my biggest problem is to make the show move quickly." In fact, Pasetta placed pacing above concerns about technical smoothness. "The key thing is to keep the show moving; to keep it moving smoothly is secondary."

As we were sitting in the seats of the Dorothy Chandler Pavilion discussing these technical details with Pasetta, scores of workmen were around us rushing to pull everything together. We asked: "Do you get any sleep at night?" The answer: "Not too much. They got me an apartment across the street because the last two or three days I get about two or three hours a sleep a day. I can't drive home, there isn't enough time. A few years ago I nearly cracked up my car because I was so tired my eyes twirled. It doesn't bother me not having sleep. I'm one of those people that with a half hour's sleep I'm like a new person. I go to sleep instantly and wake up instantly. I guess I'm a masochist." BC

# Behind-the-scenes facts and figures

"This is the most complex production that has ever been done from a single location," according to a senior video engineer at the site of the 51st Annual Academy Awards telecast. Having had experience at the Olympics, he went on to say, "The Olympics, of course, look more complex, but they really just consist of small, rather simple production units."

It is said that it took $20 million worth of production equipment to do this year's Oscar telecast. Bud Untiedt, the studio engineering supervisor, enabled us to pull together some of the below-the-line facts.

Of the 17 cameras required, four were Ikegami HL-77's. Two of these were wireless and two were on triax. Special ABC/Ikegami RF links were developed for the wireless cameras. They were designed with circularly polarised directional horns to minimise reflections within the building. Receivers were placed on either side of the Pavilion's balcony. The main video transmit was on 13 GHz and the telemetering for the PL, the on-air tally lights, iris control, etc., was on 950 MHz. The main reason that the cameras were on RF links instead of triax was so no fire safety requirements would be violated with cables in the aisles.

Two other HL-77's were used backstage to get reverse angles on the audience during the presentations. Before the show went on the air, the 77's were used outside to get the arrival of the stars. These arrivals were then "hot edited" together immediately before the show for the opening montage.

Twelve Philips LDK 5's along with one LDK-15 were used throughout the Dorothy Chandler Pavilion. Several were supplied with four-point star filters. Three cameras had a filter with vaselined edges to provide a soft-edge effect. Most of the mounted cameras were equipped with 25:1 and 30:1 zoom lenses.

Two of ABC's most modern and elaborate remote units, "Phase 8" and "Phase 6" were used for the remote. The newest production center, Phase 8, consists of three 42-foot semis: a VTR truck, a utility truck, and a video/audio/control room truck. The basic compliment of equipment for these production units consists of a Grass Valley 1600 production switcher, two Chyron IV character generators, two Arvin still-frame machines, ten cameras and CCUs, and a Ward-Beck audio console. The latter was not used since the complicated audio was subcontracted to Filmways. The Phase 6 unit provided the additional Grass Valley switcher and cameras.

A total of 22 tape machines was involved in the production, although about a third of these were for making master recordings for editing and transmission throughout the world. Seven of the 22 were VPR-2, 1-inch machines in the Phase 8 truck.

Additional electrical sub-stations had to be added to the Pavilion's normal AC supply to accommodate a million-plus amp electrical load. In lighting instruments alone there were 680 lights on stage and 75 lights in the auditorium. In addition, 11 large spotlights were used. The stage lights were controlled by a Kliegl memory control board. Stage lighting intensity ranged from about 150 to 200 footcandles (1,400 to 1,875 lux).

Five audio/video lines were used as links to the main ABC lot. All incoming and outgoing signals were processed through frame synchronisers.

And, finally, some non-engineering facts and figures. The telecast was seen by one-third of a billion people in 54 countries. It was seen live in Argentina, Australia, Canada, Puerto Rico, Venezuela, Dominican Republic, Brazil, Mexico, and the United States. Brazil and Mexico sent personnel to do live commentary in Portuguese and Spanish.

In order to insert their own commercials, special long-distance phone lines were installed to alert all of the countries taking live feeds when the commercial breaks were coming up.

Immediately after the show, videotape editors started work on an hour edited version for the United Kingdom and Northern Ireland which was fed by satellite to London at 9 a.m. (p.s.t.) the next day. This was edited to a programme format outlined by the director, Marty Pasetta.

In the United States, commercial time went for $290,000 per minute. ABC paid the Academy of Motion Picture Arts and Sciences $1,650,000 for the rights to air the event.

This year's national ratings were reported to be 34.6, with a 63 share. And, although the number of viewers decreased as the telecast continued, the share, or percentage of television viewers who were tuned to the Oscars, increased to a national high of 72. However, nationally, both ratings and shares dropped over last year. The biggest Oscar telecast was in 1960 when the production pulled a 43.3 rating.

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JOE ROIZEN

# NBC's 1980 Olympic formula includes digital video effects

Jack Kennedy seems to have been around network television at NBC since its earliest days. As an engineering manager at the Burbank studios, he supervised the installation of colour studios, early quad VTRs, extensive editing systems, automation controls, and all the support gear that went into "beautiful downtown Burbank's" most famous landmark. With that installation fully operational, Kennedy moved to NBC's New York headquarters where he headed up the engineering department from an office in Rockefeller Plaza.

A little over two years ago (February 1, 1977), Jack Kennedy was handed his biggest international engineering challenge when NBC and the Soviet Olympic Organizing Committee announced an agreement giving NBC exclusive U.S. rights to the televising of the Summer Games of 1980. NBC announced at that time that they intended to make the Moscow Games the "biggest event in television history," with near double the coverage of any previous Olympiad. *BC* has already covered (April 1979 issue) the production values that are being considered by NBC's coverage team. In an interview with Jack Kennedy, he reviewed the technical equipment which will be used to fill in the 150 hours of expected Olympic highlights coming from Moscow.

NBC engineers will indeed have some interesting challenges to hone their talents on. First, the Soviet TV standard is SECAM, and by the host country's rules, all NBC origination will also be in that standard. That will, of course, make it easier to mix the Soviet World Pool feeds with the NBC unilateral cameras, which will cover 14 of the 27 venues that Olympic television will come from. Second, the Soviet TV equipment committed to NBC on site, must be integrated into the NBC gear that is being shipped over from the USA. Considering the amount of gear going into this operation, that in itself, is no small task.

Third, there will be a communications problem because of the language differences between U.S. personnel and the Russians. NBC is already running a special school for selected personnel so they can at least grasp the basics of

*Continued on page 42*

Joe Roizen, international video editor, is president of Telegen, Palo Alto, Calif.

"... the full NBC team will total more than 600 people, of which about 220 are technical types. They expect to use some 98 Russian technicians already scheduled to assist the NBC engineers."

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# 1980 Olympics

Russian before they get thrown into the Olympic Arena. Soviets will also provide translators to help with keeping the channels of communications open between NBC and Soviet TV staff members.

According to Kennedy, the full NBC team will total more than 600 people, of which about 220 are technical types. They expect to use some 98 Russian technicians already scheduled to assist the NBC engineers.

Kennedy's calendar for technical milestones is as follows:

After pre-assembly and testing of most of the equipment in New York, it will be shipped to Frankfurt (Germany) around mid-September of this year. This switching matrix from Japan will also go to Frankfurt, then all of it will proceed by truck to the Soviet Union. The projected arrival date in Moscow is October 1, 1979, at which time NBC construction and engineering personnel will begin the installations. The videotape recorders, colour cameras, and digital production effects units will come in early 1980 and will be integrated into the growing system. By March the tests of the two satellite links, the standards converters, and the master control switching matrix will have been completed; and April through June will see the mobile vans, VTRs, slo-mo units, and character generators moved into the venues and checked out.

If all goes as planned, the checkout of the completed facilities and the rehearsals of people and equipment will start July 1, 1980.

A number of decisions were made by NBC engineering rather early in the game, which represented a distinct risk when they were taken. The first was to use 1-inch Type C VTRs with some slow motion controllers; the second was to use ENG style cameras that were still evolving; and the third was to go to digital standards conversion from SECAM to NTSC over the two satellite paths from Moscow to New York.

NBC will use 28 VTRs in the Broadcast Center and 15 more at the venues; 41 of these will be the Ampex VPR2 console-type machines, six will be portable VPR 20s, and the Russians will provide two quads for handling tapes already in existence, or that they will generate. There will be nine slo-mo controllers in association with the VPR2s to extend the slo-motion and still-frame capabilities beyond those provided by disc machines.

Colour cameras used by NBC will all be RCA TK-76 or 760 configurations, either on pedestal or hand-held use. There will be 43 cameras in all for NBC's unilateral use at 14 venues. (NBC will bring 18, the Soviets supply 25). An interesting fact is that in combination with the Russian cameras at these venues, the colour camera total is up over 160, a figure that is greater than all the cameras used in Munich or Montreal, and there are at least 10 more venues covered by Soviet TV alone.

The editing bays set up at the Control Center will use 10 three-machine editing systems and 7 two-machine arrangements, all Ampex HPE-1 helical time code editors using the Convergence-style Super Stick mechanism.

The NEC switcher in Moscow will have 120 inputs and 90 outputs handling one video and four multiplexed audio signals. Two of the audio channels will handle separate unilateral sound and pool (international audio) sound. These will be mixed down for final air use.

The Soviet TV services will provide NBC with 14 mobile vans: 5 large ones, 3 medium sized, and 6 small units.

Of particular interest is the extensive use of digital equipment for synchronisation, production effects, and standards conversion. NBC will install five Quantel DPE 5001 effects

*Continued on page 44*

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generators to provide full signal handling flexibility in the origination SECAM signal format. Four Quantel DFS 3001 framestores will handle the synchronising of remote feeds, and lock them in with studio timing and colour frequency. Two DSC 4000 digital standards converters, installed on the U.S. side of the satellite links (Andover and Edam), will handle the job of turning 625-line, 50-field SECAM signals into 525-line, 60-field NTSC. Dual satellite links will be used in order to guarantee that signals from Moscow will indeed get through.

John Frishette, NBC's director of engineering for the 1980 Olympics, referred to the Moscow Games as "The Grand Remote" when he described their technical preparations for this event. In his paper for the recent NAB technical conference, he gave a good run down on the magnitude of the overall job. Some measure of this can be realised by quoting some of his statistics just for the Broadcast Center, where live studios and control rooms will contain 26 VTRs, two slo-mo HS100 discs, two telecines, two slide projectors, two electronic slide stores, four frame synchronisers, two digital effects units, and two Vidifont character generators. All that for just a couple of weeks of active on-air time.

The inputs to the switching matrix will include 51 international sources, 14 NBC unilateral sources, 28 VTRs, 2 live studio inputs, and 21 miscellaneous inputs for slo-mos, character generators, slide stores, etc.

The statistics at the venues are equally impressive and the total result should be a massive technical coverage of every run, jump, splash or heave by the athletes assembled in Moscow for this Olympiad 80. BC

# "The Grand Remote"

*During the NAB convention in Dallas, NBC's John H. Frishette delivered a paper titled "The Grand Remote." Of course, it was concerned with the Olympics and NBC's engineering preparations. The following are excerpts from that paper.*

"Jack Kennedy, vice president of operations and engineering, and I became involved in a series of production meetings commencing on February 8, 1977. That is the day the engineering began.

"We became aware of the fact that the Soviet Broadcasting Organization — namely, Gosteleradio — will televise 37 international signals from a total of 24 venues. Some venues, such as Lenin Stadium, have three international television sources originating from three mobile units, or O.B. vans as they are referred to in Europe and the Soviet Union. In addition to the 37 venue sources, there will be 14 additional television sources available to NBC and to the world, for a total of 51 signal sources. . . .

"During the production meetings, in analysing the programming demands of 150 hours of 'on-air' time from Moscow during a 15-day period, with an average of 10 hours per day, and the number of events of primary interest to the United States viewers, it was decided to increase the unilateral coverage from six venues to 14 venues, with audio-only unilaterals accompanied with international video from the remaining venues.

"The fact that Moscow was seven hours ahead of New York and 10 hours ahead of Los Angeles dictated that a major portion of the material 'on-air' would be delayed videotape.

"An additional factor for consideration was that all of the Olympic video equipment would be in the SECAM system and the power would be 50 Hz/220 volts. . . .

"At this point, most of the engineering was being done literally around 'black boxes' that we expected to be developed and manufactured but at that time did not exist in a form that met our specifications. The big holes in our system in the fall of 1977 and spring of 1978 consisted of SECAM to NTSC standards converters, SECAM frame synchronisers, SECAM special effects busses for the edit booths, a PBX telephone system, a production communications system, an engineering communications system, and test equipment.

"The Olympics is a worldwide function as far as the spectators and athletes are concerned. We found out that the Olympics is also a worldwide function when it comes to equipment. Our vendors represent three continents: Asia, Europe and North America.

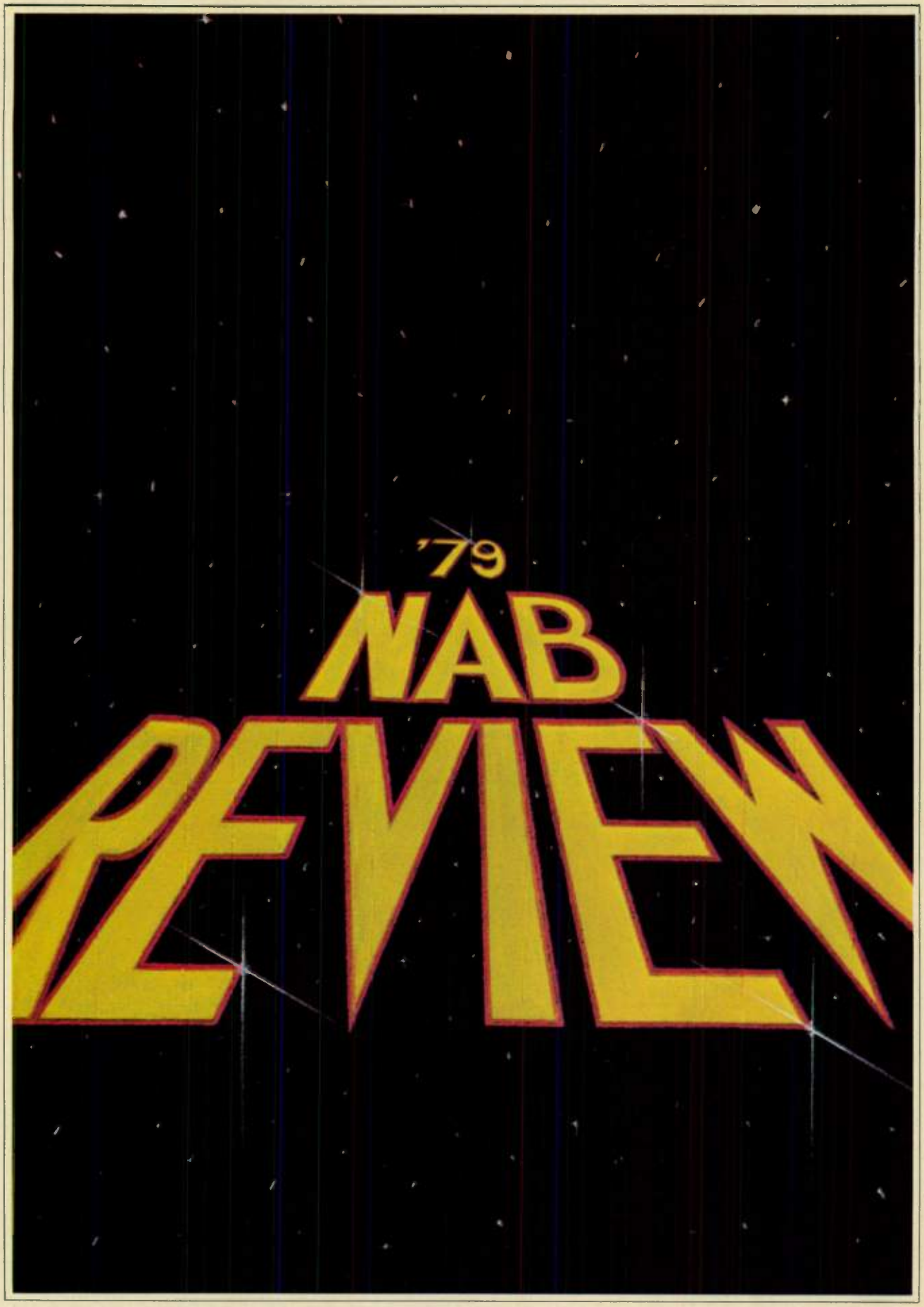
"In addition to the basic engineering problems, satellite circuits and four-wire coordinating circuits must also be ordered, even though the ground station for the second satellite was still to be constructed in the Soviet Union and Comsat had not yet placed the satellite in orbit. NBC Radio could not be ignored, they needed a programme and coordination circuits as well. . . .

"The NEC matrix will be given final acceptance tests in Tokyo during July of this year. It will then be shipped to Frankfurt to meet the equipment delivered from the United States. The equipment will be delivered by truck from Germany to Moscow, to arrive on October 1, 1979, at which time construction and engineering personnel and I will arrive and installation will begin.

"There will be a break during the Christmas holidays, and in January of 1980, the videotape machines, digital production effects, and cameras will start arriving. Testing of the satellite and standards converter will commence, as will testing of the master control and the entire matrix switching system. This will be completed by March of 1980. . . .

"There are two questions that are most frequently asked of me and my colleagues at NBC. First, how are you getting along with the Soviets? My answer: The cooperation has been excellent. On occasions when technical discussions have bogged down due to the language differences, a sheet of paper, a pencil, and a simple engineering sketch bridges the language barrier. I think that the planning already described is strong evidence of the strong relationship we have with our Soviet counterparts.

"Second, how will we fill 150 hours of air time which is twice as much as was done from Montreal in 1976? That is a question for the people in production, but let me try to give you a brief answer. Simply put, NBC is prepared to show more Olympic sports, in greater depth than has ever been done before. In the past, some Olympic sports have not made air. That will not be the case this time around."



NAB REVIEW

## OVERVIEW

RON MERRELL

# DIGITAL steals the show

NAB '79 was strictly state of the art, both in products and sessions. But what surprised many exhibitors is that more station executives and management types than ever before were up front at the demonstrations asking questions. In fact, just weeks before the NAB opened their convention doors, the NATPE met in Las Vegas, and their convention was probably more technical in nature than those of the NAB.

And at least two exhibitors were talking in terms of fibre optics. Of course these weren't landslide victories, but they were a sign of the times. Many of the initial fibre optic handicaps, namely the signal attenuation over distance, high costs, and the absence of practical connectors, have been overcome. What's more, at some frequencies, fibre optic cables are now more efficient than wires and coax.

*(Photo by Ron Whittaker)*

For in Dallas, the bigger issues under discussion had more to do with the business of the business and the government roadblocks that, despite the language of deregulation, keep cropping up at every intersection.

From the equipment side, there were numerous victories for digital, with video effects carrying the banner. In fact, you could find the DVE effects exhibitors just by scanning the exhibition hall for the largest demo crowds. Some were so well attended that the awe-struck crowds completely blocked the aisle.

Even for all the emerging catch words and new technology progress, most product introductions were refinements of standard product lines. When you walk the aisles and talk with the R&D engineers, you get the idea that if digital hasn't established a beach head, it soon will. And once entrenched, the innovations possible may offer more solutions than there were problems.

Now while Sony did demo a digital VTR, and Ampex had shown their experimental model at the winter SMPTE meeting, neither is likely to land on the marketplace in the immediate future. Multiple-generation tapes without degradation is a big plus for their application, but this alone is hardly the point. The all-digital station is coming, and the digital VTR will be a key to its realisation. And that follows right along with the great strides being made in digital audio. At this point it would be presumptuous to rub the crystal ball and look too far ahead, especially if you ask what all this will mean to the work-a-day operations of the world broadcast community. But this much is certain, the products that are part of that 1980's operation will make their greatest appeal to producers, news directors, programmers, and upper-level management rather than solely tweeking the imagination of engineers.

On the flip side, it would be grossly unfair to the industry's manufacturers to say that there weren't too many new and interesting products at the NAB show. It is significant that transmitters are using fewer tubes and that microprocessors are making life easier, not to mention the switcher improvements, processing designs, and the general freedom manufacturers are allowing for individual operating flexibility.

If you look past the dazzle and glitter of this convention, you come away concluding we need more time to absorb what is available. Once the convention closed its doors, we could be thankful that we have time to catch our breath before the next technological invasion. On the brighter side, most of the innovations we'll be seeing now will not obsolete six months later. The refinements and improvements, however, will make your operation more reliable, more flexible, and more challenging. BC

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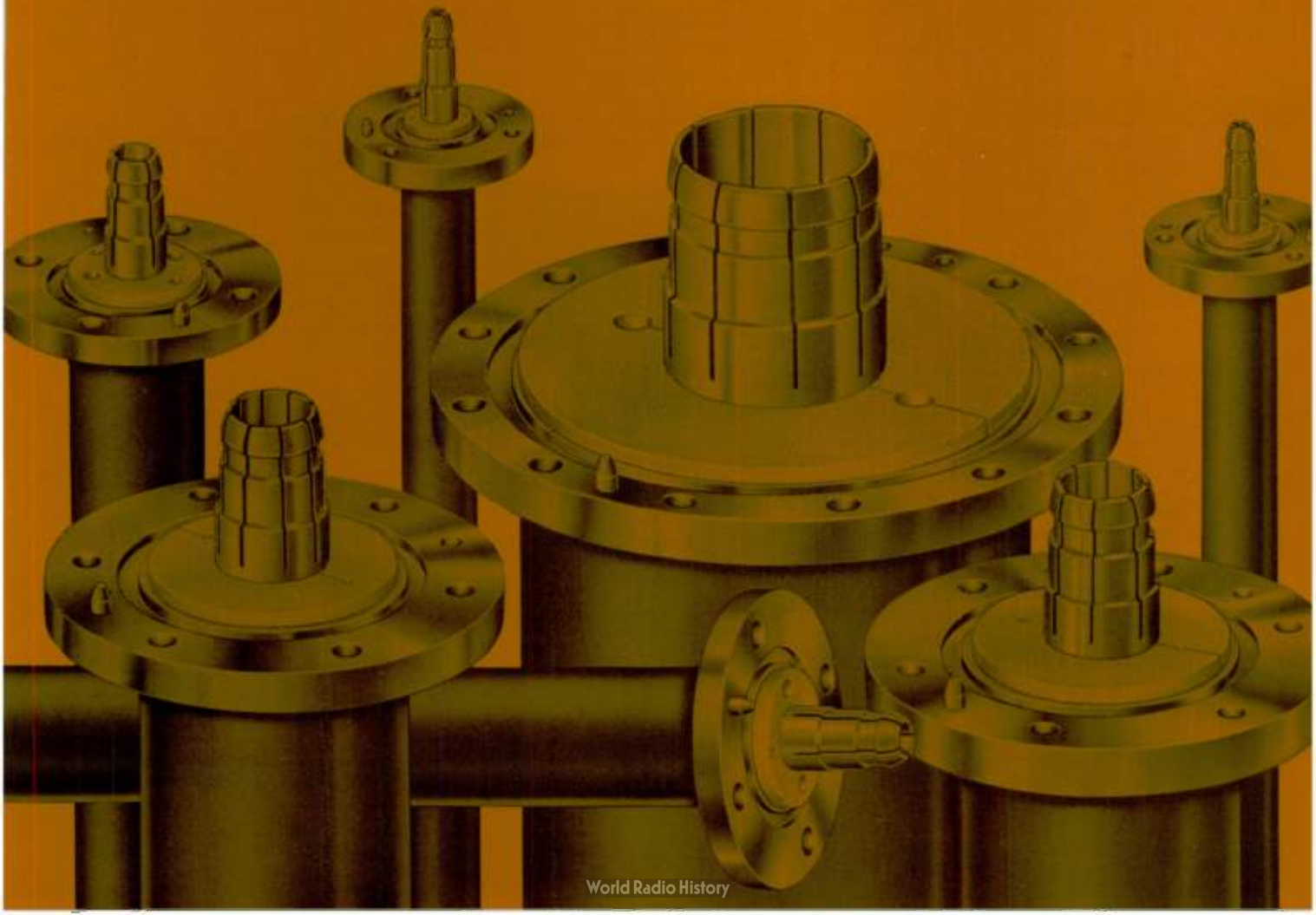

NAB REVIEW

## OVERVIEW

RON AND SUSAN WHITTAKER

# SESSIONS define the buzzwords

The "Big D" is famous for its "Cowboys," its cheerleaders, and its Super Bowl records. It can now add to its credit the biggest NAB convention of all time.

But "big" and "Texas" go together (it says here). And "big" at this year's NAB translated into 20,000 broadcasters and exhibit personnel from over 40 countries; and "big" was reflected in the 330 exhibits covering an area the size of six football fields.

However, this was not a year for any "big" surprises or breakthroughs in equipment; at least compared to some previous years. Rather, it was a year for expanded applications of digital technology and refinements in automated and ENG equipment.

Exhibits seemed a little less "show biz" than in previous years, with fewer "freebees" being given away. Even the number of pretty models, which usually are relied upon to divert eyes into booths, was noticeably less — possibly due to fallout from womens' liberation.

*Ron Whittaker, video production editor, is the coordinator of television and film at Pepperdine University, Malibu, California. Susan Whittaker is a project development associate for The Triseme Corporation, Hollywood, which works exclusively with ABC Television.*

Among the exhibits the largest crowds, in fact, were not drawn to beautiful models, or even to an impressive piece of new equipment, but to a four-foot robot called "Orion," which (who?) possessed (relayed) a hauntingly-human set of mannerisms and a sparkling wit. Orion joked with conventioneers and danced with the ladies in the Ward-Beck booth.

The real focus of much of this year's convention was not in the display areas, but in meeting rooms, where buzzwords such as "deregulation," "super-stations" and "Communication Act rewrite" prompted an air of urgency and seriousness which has not been present in previous years.

It seems that all of the advances in broadcast technology, which have for so long been a principal focus of NAB, have now resulted in a mild crisis in regulation. For some, profits are threatened; for others, new programming markets and huge profits loom on the horizon. And, quite appropriately, President Carter introduced the theme of deregulation at the opening session when he spoke about his comprehensive proposal to "reduce, rationalize, and streamline the regulatory burden throughout American life." This would affect the FCC and over 80 other independent regulatory agencies. Before an overflow crowd of broadcasters, Carter outlined several basic goals: to weigh the costs and benefits on all major regulations and rules; to clean up the backlog of outdated regulation; to end needless delays and procedural nightmares; and to give the public a voice in the rule-making process.

So with these formidable goals as a keynote, attention then turned to the various aspects and ramifications of the Communication Act rewrite. Since the writers of this 45-year-old act could not have envisioned such developments as commercial and public television, CATV, satellite technology, etc., the rewrite will undoubtedly have to be the most significant and complex piece of legisla-

*Continued on page 50*

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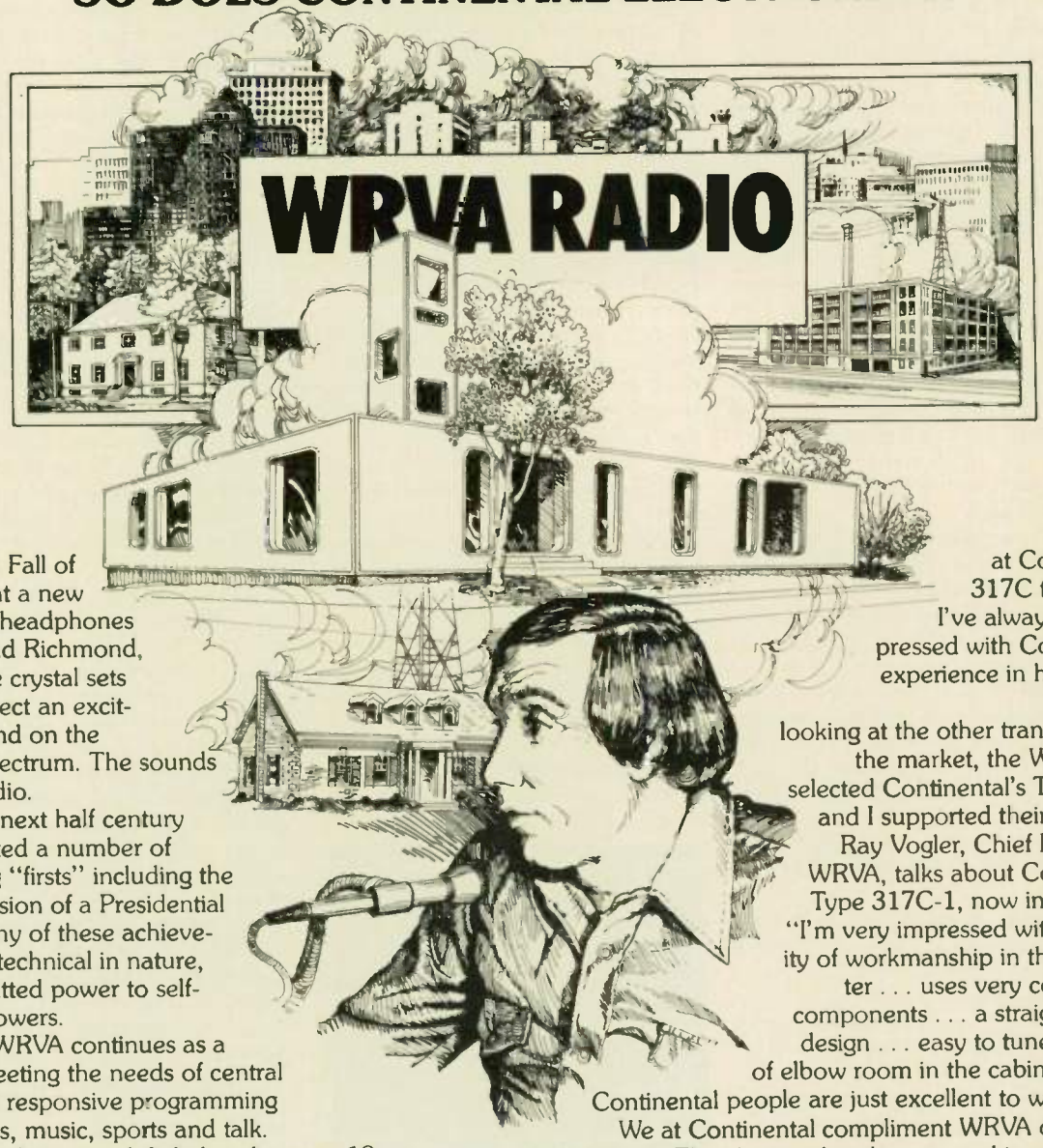


The late Fall of 1925 brought a new signal to the headphones in and around Richmond, Virginia. The crystal sets began to detect an exciting new sound on the broadcast spectrum. The sounds of WRVA radio.

For the next half century WRVA initiated a number of broadcasting "firsts" including the first transmission of a Presidential address. Many of these achievements were technical in nature, from transmitted power to self-supporting towers.

Today WRVA continues as a leader by meeting the needs of central Virginia with responsive programming offering news, music, sports and talk. Late night finds its signal dialed-up by most 18 wheelers from Canada to the Carolinas, Wisconsin to the Atlantic Ocean.

Mr. Jim Hoke, Vice President Engineering, Southern Broadcasting Company, explains how WRVA chose a new 50 kW AM transmitter: "I suggested to our engineering staff at WRVA that they go down to Dallas and take a close look at Continental's 317C transmitter. I've always been impressed with Continental's experience in high power. After looking at the other transmitters on the market, the WRVA team selected Continental's Type 317C, and I supported their decision."

Ray Vogler, Chief Engineer at WRVA, talks about Continental's Type 317C-1, now in operation: "I'm very impressed with the quality of workmanship in the transmitter . . . uses very conservative components . . . a straight forward design . . . easy to tune . . . plenty of elbow room in the cabinets . . . and Continental people are just excellent to work with."

We at Continental compliment WRVA on their fine operation. They knew what they wanted in a 50 kW AM transmitter. So did we.

For information on the 317C, write Continental Electronics Mfg. Co., Box 270879, Dallas, Texas 75227.

Continental Electronics

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# Buzzwords

tion ever proposed for the communication industry. Numerous sessions, which were aimed at the various broadcast professional areas represented, explored, and debated the intricacies and ramifications of the rewrite proposals.

One of the major controversial issues in the rewrite question is cable deregulation, with the resulting "super-station" phenomena and the sticky copyright problem surrounding the retransmitting broadcast signals. Under the present "compulsory licensing" system, cable owners must send, twice a year, a royalty fee, ranging from 1% to 2.5% of the cable system's gross revenue, to the licensing division of the copyright office. This amounts to a total national cable copyright fee of $12 million. Copyright owners must petition the Copyright Tribunal for their share of the royalties. The Tribunal then decides the settlements for all the petitioners in the light of this cable fee structure.

In a heated speech at an NAB luncheon, Jack Valenti, president of the Motion Picture Association of America, attacked, in his words, "the absurdity of this arrangement." To demonstrate the disparity in the fee schedule, Valenti said that while the cable systems get all their programming for only $12 million dollars annually in copyright costs, the networks consume $12 million dollars worth of programming in only two days, and commercial TV stations run through $12 million in 4.4 days.

The retransmission copyright problem has been complicated further by the development of the super-stations. Satellite companies now can pick up the signals (not necessarily with the station's approval) and send them to cable television systems around the country without having to pay royalties to the owners of the material. Instead of encouraging an open market system of competition, Valenti felt that deregulation as it now stands gives the cable owners a decided edge and short shrifts the owners of the programme properties. Valenti contended that the Copyright Tribunal is not legally empowered to solve the issue. In his words: "The Copyright Tribunal can never take the place of marketplace decisions." Valenti did support a proposal by Henry Geller, Assistant Secretary of Commerce for National Telecommunications and Information, which would require cable systems to obtain consent from originating stations for the re-transmission of their distant signals. Cable systems would be required to bargain with TV stations for the right to retransmit their signals, and television stations would then have to bargain with copyright owners for their consent. This, it is assumed, would generate a strong supply-and-demand structure. Representative Lionel Van Deerlin, the "Godfather" of the rewrite, indicated at a subsequent session that his second draft will include Geller-type provisions.

Super-stations received considerable attention. Concerns voiced by broadcasters in attendance included the implications inherent in the mass importation of distant signals, the possible dissolution of the current network structure, economic injury to struggling UHF and independent stations, reduced attention to meeting local community needs, and the lack of protection for programming already bought in the local market. But, panelist Robert Mulholland, president of NBC-TV, brushed aside the fear that super-stations would hurt the networks. According to Mulholland, the network-affiliate bond is the heart of the entertainment-information system. Super-stations, he said, will have only a "minimal effect" on the way networks do business in the future.

Another panelist, Ed Bleier, executive vice president of Warner Brothers Television, said that a "critical mass" audience is needed to insure quality production. Even with maximum cable coverage, the super-stations can only reach 25% of the television homes, which does not represent this needed critical mass. Bleier also pointed out that because of super-stations, some programme syndicators are refusing to sell in certain markets, fearing the loss of distribution control over their properties.

The atmosphere became even more charged when Teleprompter president Russell Karp, reacting to Valenti's earlier remarks, insisted that this "widespread paranoia" about super-stations is misdirected. The real threat to the future is "the biggest super-station of them all, the Bell System." Karp said the "one-wire" fibre optics Bell System looming just around the corner is not only capable of severely challenging the commercial networks, but of also forcing local broadcasters to face up to "Bell-supplied and Bell-subsidized programming." He contended that Senator Ernest Hollings' recently-introduced Communication rewrite "permits the telephone company to enter the programme and distribution business." Karp appealed for a united effort between cablecasters

and broadcasters to face the *real* super-station threat — "Ma Bell." There was little response to this from the panel members. Former FCC commissioner James Wiley did agree that if that came to pass, the Bell System would undoubtedly concentrate on distribution, leaving the cable systems in the precarious position of producing programming for their livelihood.

In other sessions, the spectrum fee proposal in the Communication rewrite drew considerable attention and argument. Speaking at the "In the Box" debate, John Summers of NAB challenged the government's ownership of the airways and contended that this "fee" actually is a special tax levied only on broadcasters. This, he contended, is a First Amendment violation. "The power to tax is the power to destroy. This gives the government the leverage to increase the tax if they don't like what we are doing."

Proponent Harry "Chip" Shooshan, House Communications Subcommittee, fired back that licenses are not free today. Regulation is the price. Administration costs, legal fees, and money lost through bureaucratic delays make it rather expensive. He contended that the spectrum fee is a cheaper trade-off for less regulation. In a separate session, Van Deerlin underscored this, noting that while the broadcasters still won't like this lowered fee schedule, that when it is spaced out over a 7-to-8 year period, "it will amount to less than many stations' yearly legal fees."

Though money-conscious broadcasters were not pleased at the prospect of paying spectrum fees, they should have been heartened by the report from the president of the Television Bureau of Advertising, Roger D. Rice. "TV's rate of growth in advertising will outpace that of the advertising industry," according to Rice. TV advertising revenue is expected to increase from 1978's $8.97 billion to $11.6 billion in 1980 — an increase of 29.4 percent.

And speaking of 1980, there is good news for those conventioneers who complained about Dallas' hotel accommodations, poorly marked streets, and shortage of after-hours entertainment — next year's NAB convention will be back in Las Vegas.

ac

NAB REVIEW

## OVERVIEW

MORRIS COURTRIGHT

# ROLES changing for management/engineering

NAB Dallas. Big show! Big exhibits! Big sessions! Big crowds! Texas big — including distances between hotels, convention center, and airport.

If your desire was to see equipment, the exhibit hall was a wonderland, dreamland and seventh heaven rolled into one. Bigger than ever with more equipment than ever. From audio amplifiers to zener diodes, it was all there. With about 347 exhibitors from Accurate Sound Corporation to Zei-Mark Corporation, plus about 25 public service displays, the biggest problem was deciding which ones to visit.

Anyone who tried to see everything was guaranteed to wind up with sore and aching feet and senses dulled from a surfeit of information.

In short, a plethora of glittering, gleaming, flashing gear performing a greater myriad of tasks than ever. Equipment that will expand and ease the operations of any broadcaster, and that will also assure the job security of the up-to-date engineer, who has the ability to maintain it and keep it operating.

*Morris Courtright, facilities editor, is a consulting engineer in Yuma, Arizona.*

Probably the most impressive aspect was the dramatic increase in the number of new specialty companies and the expansion of others into additional lines of equipment. However, once the sensory overload of seeing the glitter and glamour was nulled out, something very significant to the engineering profession became apparent: The days of baling wire and chewing gun engineering are rapidly drawing to a close. The skills required to maintain the new generation of equipment requires far more than soldering gun, multimeter, and a rudimentary knowledge of Ohms law. The engineer who does not keep abreast of current technology is going to be left by the wayside wondering what happened.

According to comments from many of the exhibitors the show was off to a running start the first day. Exhibitors who usually had time in the morning of the first day to walk around and renew acquaintances found themselves deluged with serious, interested broadcasters the minute the doors to the hall opened. Broadcasters knew what they wanted and were ready to buy it when they found it. Such an atmosphere does, of course, bring joy and gladness to the hearts of the manufacturers. At least to those who are making what the customer wants. In any event it aptly demonstrates the growth and expansion that is taking place in the broadcast business.

A look at the engineering sessions will also indicate strongly the future course. Old reliables were there: audio processing, audio tape, loudness and building new facilities. The significance was in the newer subjects: communications satellites, microprocessor cart machine, television ancillary signals, 9 kHz spacing, adapting AM transmitters for stereo, and radiation hazards. It is apparent to the most jaded convention goer that the technical side of broadcast engineering is mushrooming at a logarithmic rate. The rapid spread of digital electronics and the microprocessor into broadcast equipment is creating "smart equipment" that seems to think for itself and do the job almost unaided by human hands. Unaided that is until Murphy's law prevails, which it will do sooner or later. And, when it does happen, the "smart equipment" needs a smart engineer.

For instance, with currently available automatic transmission systems and programme automation systems, an AM directional station can be left

to run itself day after day. (Note that the FCC rules do not quite allow this yet.) The ATS will automatically monitor the transmitter, make any required adjustments, switch antenna patterns at the required times, change power level as needed, and even keep a technical log of the entire operation. While this is going on, the programme automation system faithfully switches the music, commer-

*Continued on page 56*

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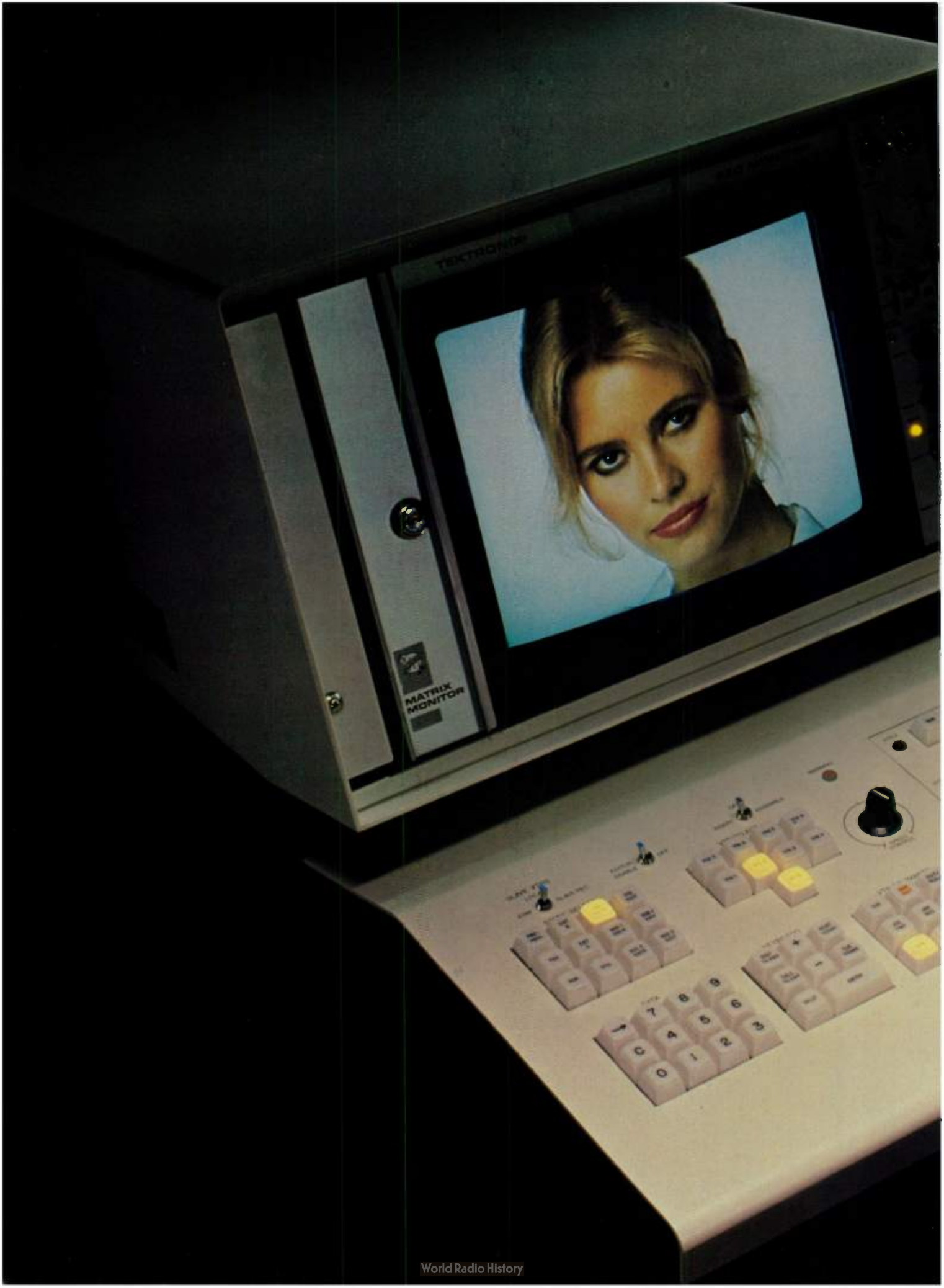

# THE EDITORS

## RES-1, EC-2, HPE-1, EDM-1

With so many different videotape recorder types now in professional service, it isn't easy to select an editing system that can handle both the present and the future. That's why Ampex has a **total** selection of editing systems to match your production requirements.

For helical-only studios, the Ampex HPE-1 does a masterful job with as many as four VTRs. And if your needs call for straightforward stand-up editing with the quad AVR-3 or AVR-2 recorders, there's the microprocessor-controlled EC-1 and EC-2 Edit Controllers.

Studios with both Ampex quad and 1-inch VTRs will appreciate the RES-1 system, capable of handling either or both types in a production mix. This convenient, sit-down editing system has a lot of growth capability—all the way to special effects and switchers. Top of the line is the computer-assisted, fully automatic EDM-1, with enough versatility to make magic from just about any kind of professional video or audio source. It'll even learn your personal "touch" and duplicate it on command.

Every Ampex editing system has growth capability. By adding options and accessories, you'll find that Ampex technology keeps up with your advances in production concepts.

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# Changing roles

cials, and PSAs; brings in the IDs on time; and prints out a beautiful, clear text log of what it did. Now if that isn't euphoria for the manager it sure is getting close. All it takes to puncture that euphoric balloon, however, is one soft IC or one misprogrammed instruction. The engineer who walks into the station at this time had better know what he is doing!

Another trend that may bring tears to the eyes of many an old engineer is the increasingly modular construction. The days of tracing out circuitry and locating that one faulty component are pretty much behind us. There isn't time anymore. The trend now is to locate the faulty module, replace it, get the station back on the air and fix the module later, if at all. This modus operandi requires a new concept in spare parts management. You have to have the modules on

hand, or be willing to wait the time it takes for one to be flown in. The little cabinets full of resistors, capacitors and other discrete components will still be useful, but you must have the modules and it will be up to you to convince management to invest the money.

An important change noted at this NAB was the increasing incidence of equipment being purchased by management and programming staff with little or no input from the engineering staff. Much of this equipment is bought based on its capability or appeal with little thought given to its technical interface with the rest of the station's equipment. If any thought is given to the technical it usually winds up with "Good old Joe can make anything work, so there won't be any problem." However, even "good old Joe" can't make a portable RPU work across town unless he has a repeater in his back pocket.

As always after an NAB show and convention, certain products are remembered as being different, innovative, unique, or maybe just appealing. Obviously, six people will have six different lists of what stands out in their mind. Beauty, as a sage once said, is in the eye of the beholder, and what is significant to one engineer may not be to another.

Among the challenging units at the show was the Potomac ATS-11 Automatic Transmission System. Not only is it ahead of the FCC rules in capability, it clearly indicates the direction we are going in transmitter facility operation and control, and the resultant role of the engineer. The system employs microprocessor technology to provide continuous automatic monitoring logging and control of multiple AM and co-located FM transmitters, including directional arrays. Transmitter parameters, common point current, antenna phases and current ratios are continually monitored and compared to two sets of preprogrammed limits. Exceeding the first set triggers an LED alarm indicating the marginal parameter. If the second or "legal" limit is exceeded, both an LED and aural alarm are activated and the transmitter shuts down, as specified by the FCC.

A perpetual master clock regulates the sign-on, pattern switching, and sign-off times compensating for local sunrise and sunset. If separate transmitters are used, the ATS-11 can turn on the filaments of the second one, then inhibit carrier of the first one, verify loss of carrier, switch the pattern, verify contact closures, verify pattern status, turn on the second transmitter, monitor it and verify proper operation, and turn off the filaments of the first transmitter. Autologging provides RS-232 data which may then be used for teletype, CRT and similar devices.

Among the RF equipment, transmitters once again made a strong showing, with several manufacturers introducing new models at varying power levels for all types of service. Notably, fewer tubes are being used, as solid state continues its invasion of these hallowed territories. All this serves to point up the fact that virtually every category of equipment is in a state of change. A number of transmitters are covered in our special review of new products introduced at NAB.

Though not of the magnitude of transmitters and other major equipment, there were three items that should find wide acceptance in the broadcast industry: Russco's new Mark V precision turntable, and McCurdy's ST-1910/1911 spectrum translator and MTPL OL-1930 open-line talk show system.

The Russco Mark V is a variable speed turntable with almost instant start. Speeds are precision variable plus or minus 10% at 33 or 45 rpm. Wow and flutter is under 0.05%, and rumble minus 63dB in mono and minus 57 dB in stereo.

The McCurdy spectrum translator translates a 60-2760 Hz spectrum up to 300-3000 Hz for transmission over a voice grade line then recovers the original for a gain of two octaves normally lost in transmission.

The open-line talk show system conferences up to eight incoming lines in either 2- or 4-wire configuration. The system automatically adjusts all parameters for maximum isolation and line switching. Preset muting automatically lowers the level of incoming calls whenever the talent speaks. BC


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Add to these the best features offered on competitive models, which we consider as standard, and you've got the PHASER, the undisputed leader in its class.

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DIGITAL

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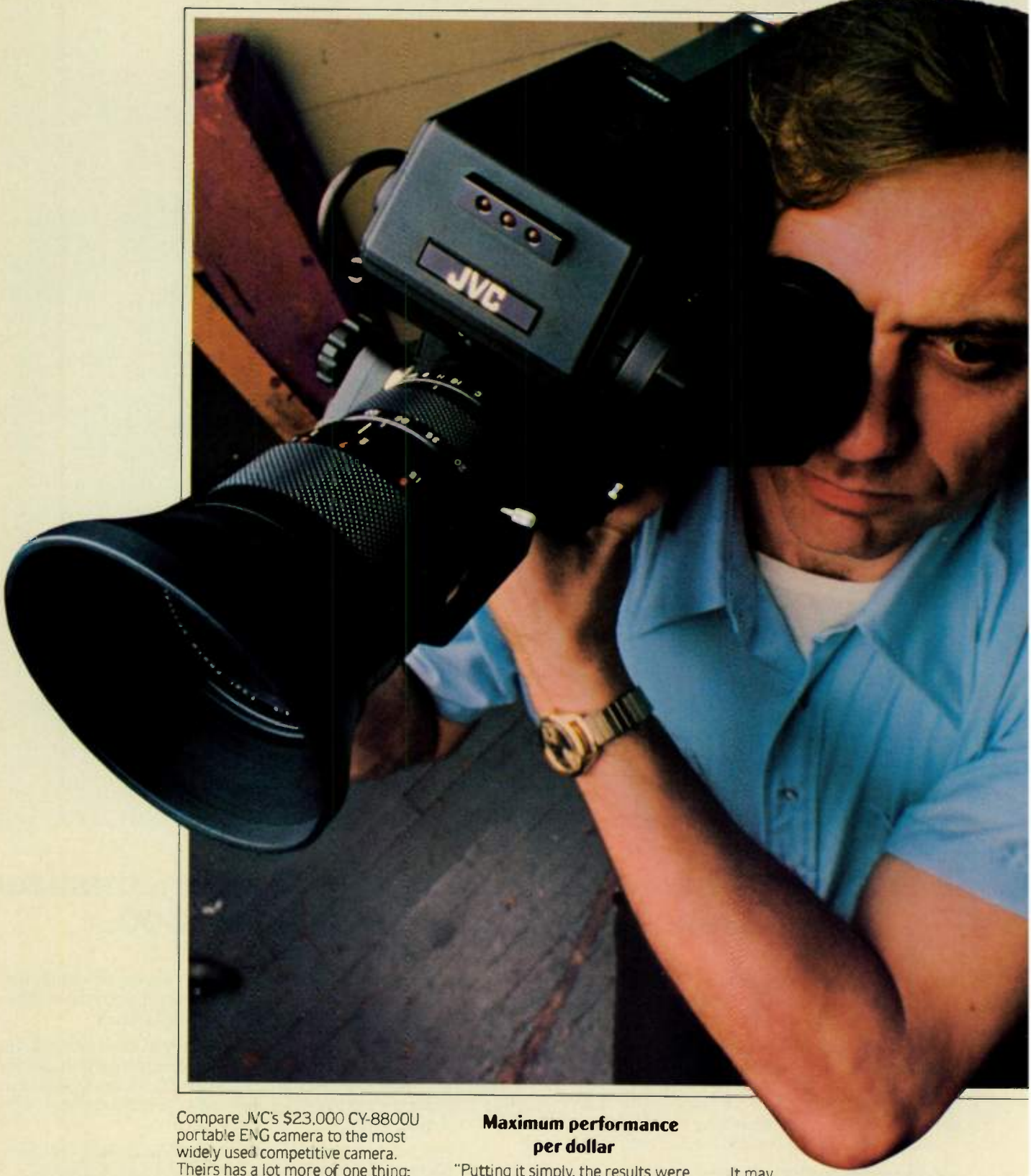


Compare JVC's $23,000 CY-8800U portable ENG camera to the most widely used competitive camera. Theirs has a lot more of one thing: cost. About double, in fact.

But there, for all intents and purposes, the differences end.

Because, in any ENG/EFP assignment where you find normal lighting conditions, you'd be hard pressed to see any difference in results.

**Maximum performance per dollar**

"Putting it simply, the results were excellent," says well-known Producer-Director/Cameraman Lon McQuillin in his review of the CY-8800U. "Color quality is marvelous...There are few ENG cameras at any price that can top the JVC's performance, and then only when pushed into very poor lighting conditions... It may well set the standard for the rest of the cameras in the category."

Behind that performance are high sensitivity and S/N ratio (50 dB). 500-line resolution. Sensitivity doubling (6 or 12dB). Auto white balance. And horizontal and vertical contour correction.

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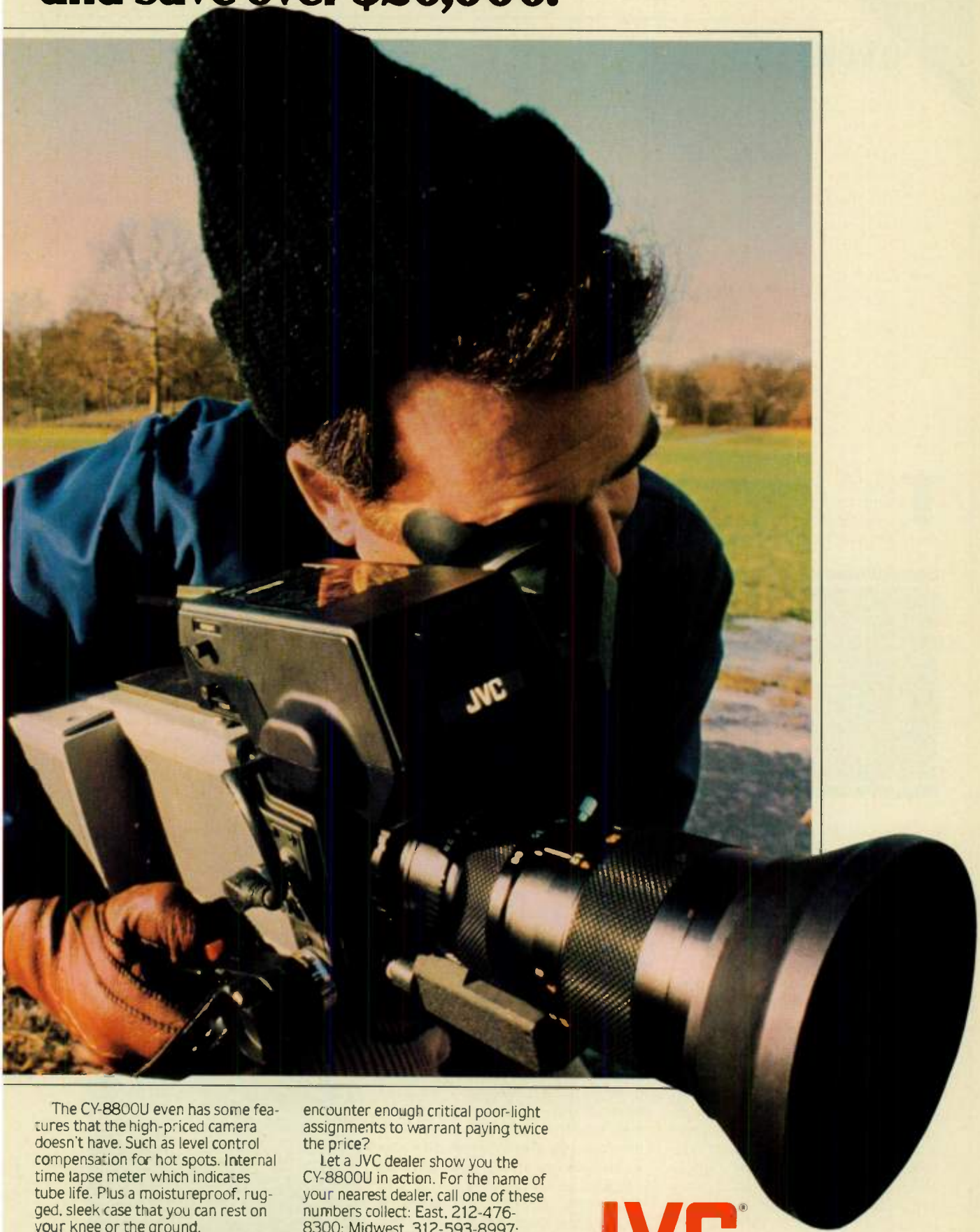


The CY-8800U even has some features that the high-priced camera doesn't have. Such as level control compensation for hot spots. Internal time lapse meter which indicates tube life. Plus a moistureproof, rugged, sleek case that you can rest on your knee or the ground.

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NAB REVIEW

## OVERVIEW

JOE ROIZEN

# SONY DVR makes its debut

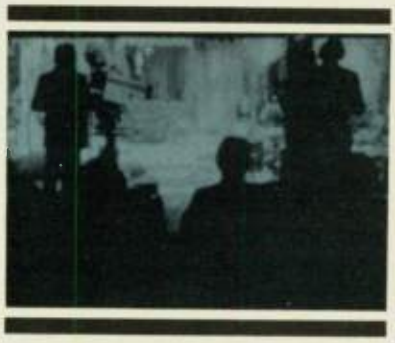
The crowds were bigger, the stands more luxurious, the equipment was glossier, and there were no bargain prices, but all

in all it added up to a banner NAB that reflected the healthy financial status of the broadcast industry, and its suppliers.

Notwithstanding the advance rumors, no commercial CCD colour camera appeared; the only digital VTR that showed up, was hidden in a hotel suite clearly labeled "experimental." Digital effects dazzled the eye at almost every booth that had a TV shown, and here and there a few new leapfrogs in technology sat on their lilly pads waiting to be admired.

For the first time at an NAB show, teletext was a prime topic for a workshop, and operating hardware based on both the British and French systems were displayed or demonstrated. One-inch helicals were everywhere, at their manufacturers booths or with any exhibitor who needed one to show his own product. Even the quads are far from over the hill, with update kits, new accessories and clever peripherals extending their duty cycles for another few years.

The Dallas Convention Center balcony bristled with portable parabolics, set up to prove once again that satellites are handy signal relays, and inside the spacious halls, full-sized helicopters or mini vans with extendable ENG antennas showed the ultimate mobility of modern electronic image acquisition equipment.



The world's largest broadcast convention drew 20,000 visitors who toured over 300 exhibits, both figures at near record levels. President Jimmy Carter gave the opening address which reflected on the growth of broadcasting and the need for deregulation, one of his more popular topics these days. Carter returned to Washington, D.C., to sign the peace treaty, while the NAB delegates settled down to solid business in the exhibit halls and the conference rooms.

A convention with several hundred exhibitors is hard to do justice to in a short report, so only a few unique items will be touched on briefly.

Among the large exhibitors, Ampex featured their role in the Moscow Games of 1980, and their huge display full of their entire A/V product line included examples of gear going to Moscow such as the VPR-2 and VPR-10 series. Across the way, RCA's theme was "Cost Effective Broadcast Equipment" and their colour camera show was a very spectacular one. RCA surprised the industry by offering free earth stations to broadcasters who would sign up their new "programme by satellite" service.

Philips continued their "Innovision" theme with a show-style display of their colour cameras and the 1-inch Type C helicals. Next to them Bosch/Fernseh featured their product line with emphasis on the multi configurations of their BCN Type B helical VTR. Fernseh promised to have their BCN cart machine for automatic programming at Montreux, and invited visitors to see it then.

*Continued on page 62*

*Joe Roizen, international video editor, is president of Telegen, Palo Alto, Ca.*

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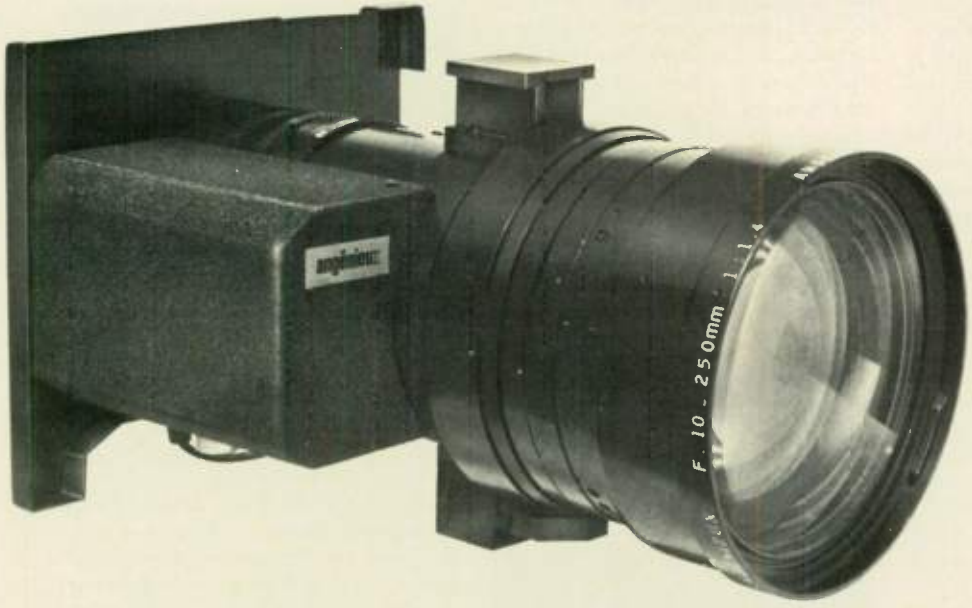


| DESCRIPTION | RANGE EXTENDERS | FOCAL LENGTHS | APERTURES |
|---|---|---|---|
| 25 x 10 (basic lens) | 1x<br>1.5x | 10-250mm<br>15-375mm | f/1.4-f/2.8<br>f/2.1-f/4.2 |
| 25 x 7.5 (25x with retrozoom) | 1x<br>1.5x | 7.5-188mm<br>11.5-285mm | f/1.4-f/2.8<br>f/2.1-f/4.2 |
| 25 x 16 (25x with tele-attachment) | 1x<br>1.5x | 53-415mm<br>25-622mm | f/1.4-f/2.8<br>f/2.1-f/4.2 |

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# Sony DVR

Marconi had a full-fledged camera show with their range of studio and portable cameras, and the VPR series for video recording. Marconi also now represents CMX and offers a full editing system capability. Near them the combined booth of Thomson-CSF and the Labs leaned mostly toward the Microcam in its many forms. The digital noise reducer, the Vidifont character generators(that do the Cyrillic alphabet and also are going to Moscow), and other products rounded out the stand.

Japanese manufacturers were at NAB in full force. Sony had the most eye-catching booth with a video show that used four of their large screen projectors fed by BVH-1000s which included digitally mastered audio tracks. Hitachi had a unique laser film recording process which turned RGB electronic camera images into superb film pictures for large screen projection.

NEC had their 1-inch Type C machines in prominent display, among a range of other products that included digital effects/frame store devices. Toshiba has also forcefully entered the U.S. market with their line of studio and portable colour cameras; and Sharp was advertising an under-$10,000 ENG camera on local Dallas TV stations, no doubt to catch the delegates attention while they were shaving in the morning (they got me that way!).

The combined Tektronix/Grass Valley display sparkled with slick shows that were eye catching and informative. Switchers with programmed memories and digital effects which seem limitless were at this booth. Equally impressive video manipulations could be seen at MCI/Quantel, Vital, and others.

There was a fair amount of innovation among small exhibitors. Dolby Labs had new noise reduction units that could improve audio tracks on all VTRs including quads and 1-inch helicals. This reflects the growing concern about better audio in TV. A variety of companies such as CVS, Microtime, Dynasciences and Yves Faroudja showed various devices to enhance colour under pictures from U-Matic-type ENG recorders. Faroudja introduced a new record booster which pre-enhance portable cassette tapes, and attaches to the side of the small VTRs that it's designed for.

Recortec was now publicly showing the HBU video recorder, a modified U-Matic running at three times normal tape and head speed which produces quad-quality direct colour pictures.

In the monitor field Conrac's new comb filter series of precision monitors were all over the show, and Barco was also quite prominent in two booths of their own representatives (Electro Optical and Rhode and Schwarz) and in many client exhibits. There was a variety of other colour monitors in all price/performance classes offered by Amtron, Electrohome, World Wide, Ball, Sony, Ikegami, Fernseh, *ad infinitum*.

There were three teletext exhibits. One was the SOFRATEV booth with a complete ANTIOPE system including keyboard entry and floppy disc memory. Various monitors showed both teletext and viewdata types of operations. Pages relating to the NAB show were composed at the booth and displayed on demand. Bonneville (KSL-TV) of Salt Lake City had a slide and tape presentation on their experimental teletext system which was FCC approved and had BBC cooperation. Micro-TV of Philadelphia showed their INFOTEXT system in conjunction with the RCA satellite demonstration, sending vertical interval digital data along with two alternate programme channels.

The Sony digital VTR was impressive. Demonstrated by Takeo Eguchi, one of Sony's digital experts, the BVH-1000 transport was coupled to a rack of processing equipment. The tradition of having no operational sound channels on a digital VTR was not broken although Eguchi pointed to space in the rack for that addition.

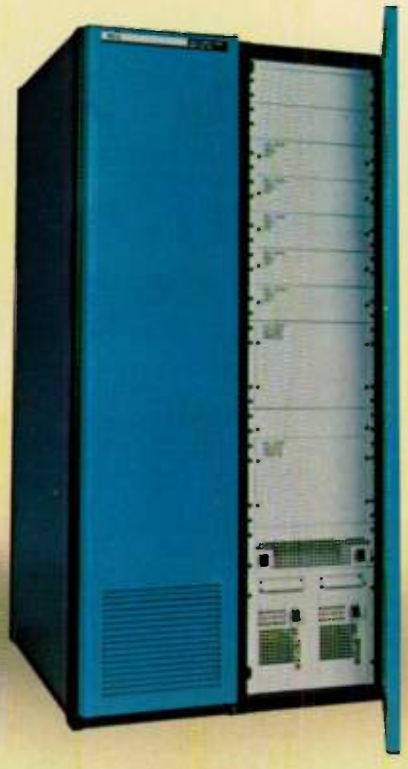
The DVR makes an impressive 58 dB video S/N ratio. The sampling rate is 3*f*sc which for NTSC is 10.74 MHz. It uses the same tape speed, but lays down two parallel, non-segmented tracks. The writing speed is 25.6 M/sec. and the tape speed is 24.4 CM/sec. with a head drum rotation at 60RPS. The recording data rate is 115 Megabits/sec.

The most impressive part of the Sony DVR was the picture performance with the error concealment and correction systems turned off. The pictures still looked quite good except for some random dots.

Mr. Morizono, managing director of Sony, reiterated that this digital recorder in no way resembled a commercial products. He saw it as a test bed for further developments and a way of soliciting users opinions on the future shape of a practical DVR. He predicted that a practical DVR would be in another format and that it might be as compact as a current U-Matic.

Regardless of the eventual DVR format of the future, it must be said that the Sony machine shown in Dallas, working into a comb-filter equipped Conrac, played back excellent pictures and nearly perfect test signals. It's reported that one potential user, after seeing the demo and being told of the experimental status of this machine, said "I don't care about that, when can you deliver eight of them?" ac

# The signals in a TV plant are no better than the weakest link through which they pass.



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NAB REVIEW

## OVERVIEW

RAYMOND MEYERS

# SATELLITES are gaining momentum

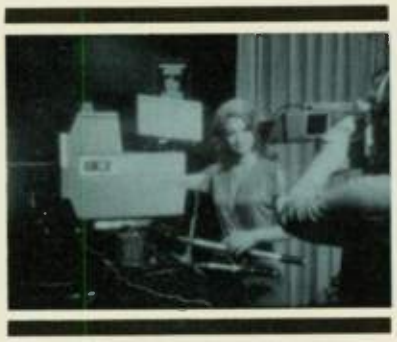
The 57th NAB convention was, as expected, the biggest and best yet. The equipment was spread out over two floors, and they offered enough products to boggle your mind, even if there weren't many products that fell into "revolutionary" category. Numerous seminars and workshops kept the crowds moving, and for the most part they were designed to get the audience into the action and to talk, in terms that generally could be understood by both engineering and management.

There was a feeling about this show that became obvious after the first day: it was professional from top to bottom, and it qualifies as one of the top conventions in the world. And the professionalism of the booths was reflected in so many ways, including the use of Imero Fiorentino & Associates to light a number of booths and staff them with talent. They were always dedicated to featuring the equipment and its applications.

I attended several of the sessions, including one on engineering principles of communications satellite systems. It was well presented, but the FCC representative seemed out of touch with the current FCC position on DomSats. An RCA representative pointed out that the company has surfaced with what appears to be an immediate solution to the FCC red tape over the micro earth terminals (anything under 4.5 meters) by offering end-to-end services.

And if you attended the satellite session and then rushed off to the session on new and profitable uses for SCA, you could detect some new and interesting choices. The SCA session detailed how the SCA subcarrier can be used to generate more profits by offering voice services (stock market reports, security alerts, chain store messages, etc.) and data. In fact, one of the speakers described how his company is using SCA for transmitting data that can be displayed on a visual monitor. What's more, one service offered would allow the user to punch up a computer-controlled terminal that would be highly selective about what it tracks down for later recall. However, SCA could be on the endangered species list due to Docket 21310.

One session on tall towers came near the close of the convention. Among the panelists were representatives from Flash Technology, the FAA, and A.D. Ring & Associates. After all the shouting, I think the bottom line of this session was that towers don't run into aircraft, aircraft on instruments don't hit towers, and that aircraft vs. towers really comes down to crop dusters hitting power lines and not towers. It also was apparent that the FFA decisions about tower clearances are really "hit or miss."



Way off the exhibit floor and in a far-away hotel, a company named Lexicon showed a unique unit that will allow you to speed up or slow down tape while not changing the pitch of the voice or the music.

But it was apparent that much of our future is up there in the sky. With satellites. The satellite influence was greater than ever this year. With all the honing and fine tuning going on in new products, there seems to be no end to what can be realised if we will just get started . . . with the help of the FCC, of course. BC

*Raymond Meyers is the satellites editor.*

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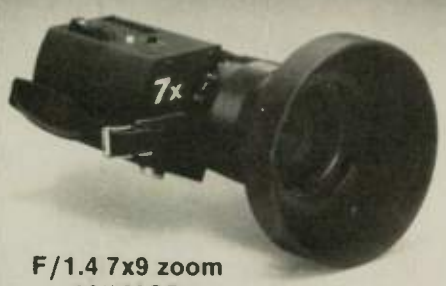


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## Blanking . . . AM stereo . . . teletext . . .

# NAB sessions hit hot spots

One of the very real advantages of attending the NAB convention is the opportunity you have to share in the glitter and excitement of the equipment exhibition. And you could literally spend the entire convention in the exhibit halls booth shopping. But the engineering sessions, with a lot less fanfare, can keep you up to date on the technical happenings of the industry. And in some cases, provide the background it takes to help you make that next technical decision. But from all quarters it's obvious that we still are too often stuck with a communications gap.

The gap, of course, has evolved over the years as management and engineering became more and more sophisticated and specialised in their unique and separate directions. Even the language of the business is a contributing factor . . . so much so that management and engineering have trouble maintaining a meaningful dialogue.

John Cannon, president of the National Academy of Television Arts and Sciences, told broadcast engineers at the convention that they should open up a continuing, meaningful dialogue between themselves and television's creative community by talking and writing in non-technical terms.

Cannon said that an Academy committee is now exploring the possibility of a TV show related to past and present Emmy awards which would help dramatise to the public what really goes on in the engineer's laboratories, workshops, studios, and stations. He said he thought this would be dramatic and interesting. In fact, Cannon said, "We should not begin by worrying about ratings and numbers. Let's do something to make you better known and to make the American people better informed."

He reminded the audience that the Academy exists to provide an all-important meeting ground to improve communications. Its central purpose "is to get actors talking to news people, writers talking to executives, directors talking to media people, big city station people understanding small station people, and everybody interfacing, crossing paths and sharing."

The interface of engineering and management rises to the critical point when we come to issues such as AM stereo, 9 kHz spacing, TV blanking, and teletext. Management buys the concept, and engineering has to make it work. And unless there is a dialogue developed that throws out the inside terms and technical "foreign" language, the challenge of the coming decade will be needlessly lost. What follows in this report, is a fine example of what I'm saying, because here are important technical sessions that need to be translated for management by engineering.

There was considerable emphasis on AM stereo, with everyone saying it's coming, it's just a matter of time. But of course the testing goes on at station for the five systems vying for the FCC's brass ring. Fortunately, most consulting engineers and station engineers realise there will be much more to consider than just adding another black box to the system — the AM stereo exciter.

Everything at station comes under scrutiny, from cartridges and consoles right out to the antenna. But the one area least considered to date has been the transmitter. And it becomes the bad news, good news situation. The bad news is that there probably isn't a transmitter in the field today that will meet the specs necessary to pass AM stereo. But the good news is that the modifications necessary to meet specs are not beyond the reach of modification kits, kits that the manufacturers will be supplying.

In a paper presented by Cliff Leitch of the Harris Corporation's Broadcast Products Division it was pointed out that the biggest problem will be with the old transmitters, or those in poor condition. While conversion may be difficult, if not impossible, for these transmitters, Leitch said that most AM transmitters in use today can be converted to stereo successfully "by adding a stereo generator and making some simple modifications."

Leitch said, for example, that an adjustable delay line might be needed in the stereo generator to assure that the audio and RF signals arrive at the final at the same time and phase. Leitch added that an open-loop feedback system might be required in some cases in order to improve frequency response and phase linearity.

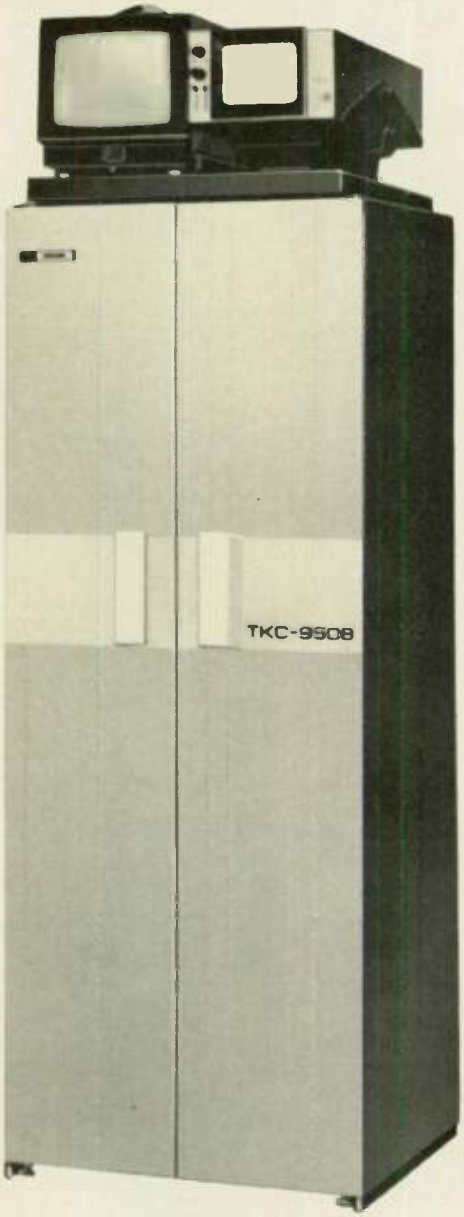
While the conversion process may sound like just one more roadblock, Leitch said this need not be so. "All the details," he said, "will be worked out by the transmitter manufacturers, and the consulting engineers will work out the antenna system problems. This should make for a smooth conversion process for the broadcaster."

Well this session had to leave attendees feeling alerted to the problem, but armed with the satisfaction that the system, whichever is selected by the FCC, will be made to work without undue complications. And then the next panel turned on the alarms and repeaked everyones interest.

"I guarantee you that if you don't have an aural STL today, you're in real trouble." That was Harold Kassens' opening comment at the AM stereo broadcasting session. "Back in 1971, the land mobile people stoled 5 MHz frequency space from the aural STL band. That 5 MHz still isn't being used by the land mobile people. It's being held in reserve for future use. NAB, I under-

*Continued on page 70*

# No more dirty movies.

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stand, has filed a petition with the Commission to try to get that 5 MHz back, but I don't see any way shape or form that the Commission is going to release that 5 MHz." But Kassens says there may be relief in an old Commission proposal that would open up the band from 2110 to 2113 MHz.

Kassens also said that there may be a problem for a station going AM stereo, because the Commission might not want to grant approval for a stereo aural STL bandwidth when it may be some time before the station would actually use it for AM stereo. It's an old chicken and egg question whose answer will reveal the depth of the Commission's eventual commitment to supporting AM stereo.

Another member of this panel session was a representative for the Bell System. While we're all familiar with the problems that can and do exist with getting and keeping matched pairs, it was pointed out that the results of a recent station survey show the lines are available for about 80% of the stations surveyed. And this same survey showed that about 75% of the stations will go to AM stereo when it is approved, and within a one-year time frame.

Session moderator Chris Payne told the audience, "Get to work now, if you're planning to go AM stereo. Even in the experimental cases around the country where the various proponents are doing experimental work, the big bugaboo has been the STL. In almost every case of experimental transmission of AM stereo, the problem area, in terms of comfortably transmitting AM stereo for the FCC tests, has been the STL. So, get to work."

Payne warned that having enough adequate test equipment at the station will be important for maintaining a quality signal. "If you don't have enough test gear, let's do the best we can to get more of it." What wasn't pointed out is that traditionally engineers have had their test equipment requests fall on deaf ears. Signal quality does have its effect on the bottom line, but in some cases it's tough to prove to management.

Jim Loupas of Jim Loupas & Associates (Chesterton, Indiana) said that most of his clients are planning well in advance for the shift to AM stereo. And that includes making the equipment transition to stereo.

Well where do we stand now? FCC panel representative John Taff said that the Commission has decided to extend the time in this proceeding to May 15 for comments, and June 15 for reply comments. Undoubtedly, the pressure represented in manufacturer and at station interest will keep this issue moving, even if it's a lateral move from one burner to another. Already far too many people have made investments for this issue to be sidetracked or delayed much longer.

Tom Keller of WGBH, Boston, led a panel discussion on a subject near and dear to the hearts of most TV broadcasters. The panel included Wally Johnson of the FCC; Sam Stelk of the Kansas City Regional District of the FCC; Blair Benson, VP of engineering and technical operations for the Video Corporation

*Continued on page 72*

## NAB scores big with "ham" reception

What had to be a surprise to the NAB was the response to their first amateur radio operators reception. As if someone had called a giant CQ, several hundred amateurs arrived in time to share in a common greeting: "Hello, Charlie. I didn't know you were a ham!"

In fact this meeting was one of the largest at the convention. And if the convention exhibit halls had been closed and everyone were free, there would have been an even greater crowd. Of course the whole idea of this reception was to pay tribute to amateur radio, because so many people who are now a part of the broadcast industry worldwide got their start in communications as ham operators. And judging from the size of the crowd and the continual question of "What band do you operate," they still are quite active ham operators.

Door prizes were given, and by the luck of the draw, DX wins again. In fact, the prizes went to a VK and two VE's. However, the DX odds were good, as there were quite a few DX calls present on the badges.

During the reception, recognition was given to Robert Booth with an official NAB certificate attesting to his contributions to ham radio and broadcasting. Booth is with the law firm of Booth and Freret. He's also a member of the Association of FCC Consulting Engineers. The award was presented by George Bartlett.

Based on the high interest at this first-ever ham reception, there will be others. And while this is just a communications hobby, it has made its contributions to the broadcast industry. Along with the NAB, *BC* recognises the contribution these manufacturers, station engineers, owners, managers, salesmen, and lawyers continue to make. Now all we need is a broadcast/ham callbook. 73 until Vegas.

Ron Merrell, W6OIZ

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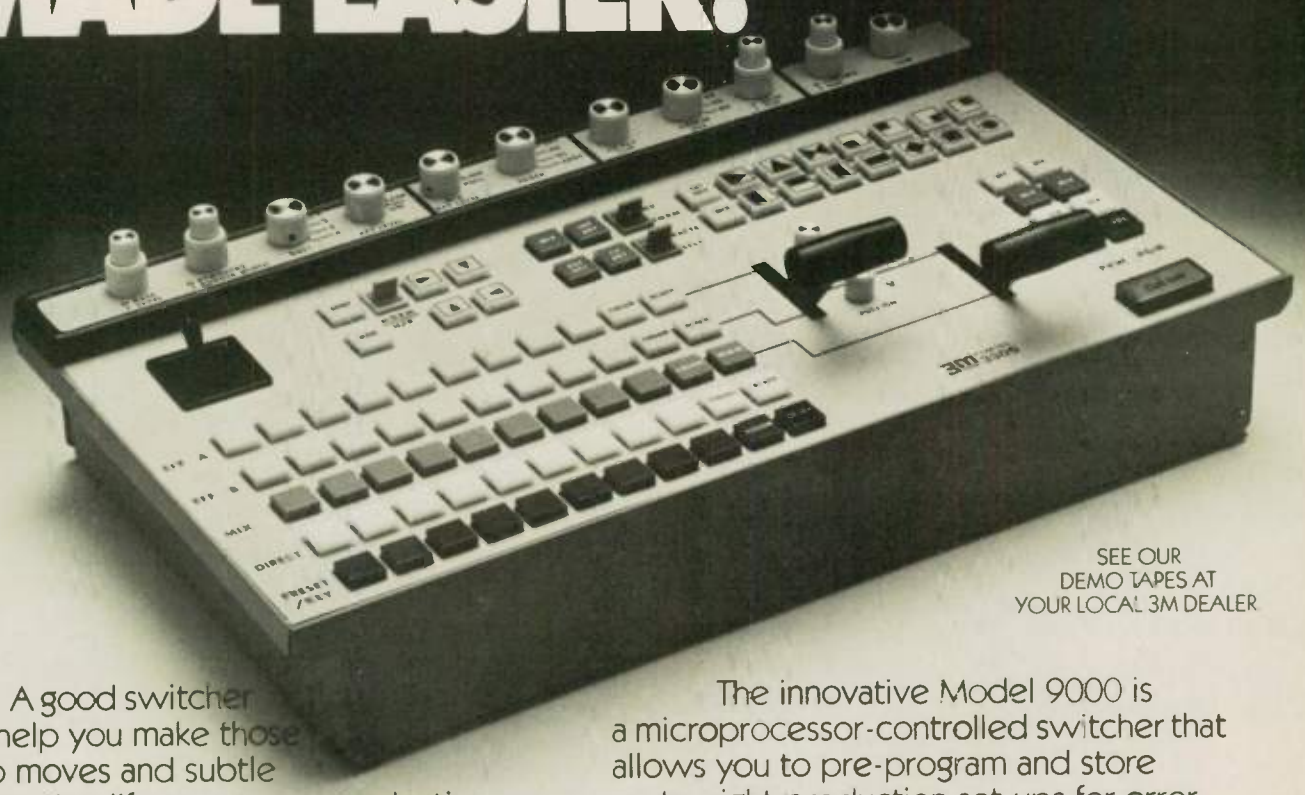

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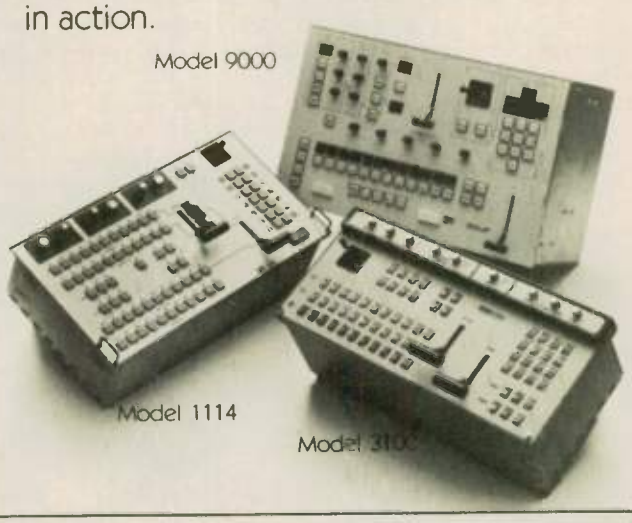


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3M

of America; Frank Davidoff of the CBS Television Network; Charles Magee of Westinghouse Broadcasting Company; Bob McCormick of the PBS; and ABC's John Serafin.

Davidoff talked about why blanking is a problem, from the standpoint of the system we're using. Why does vertical blanking increase with modern equipment processing? Davidoff said this can be accounted for by the use of ENG-type equipment, time base correctors, and simple videotape recorders, which are difficult to adjust and provide a variation in vertical blanking timing. This can, of course, be improved by better equipment design, more careful care given to adjustment and operation of the equipment. "But there are other reasons that are sort of inherent in a television signal," said Davidoff. "Many of us use slo-mo machines, field synchronisers and such, and with the use of such equipment vertical blanking will inherently widen by a half line each time you go through one of these devices."

According to Davidoff, horizontal blanking will widen in normal broadcast operations because of normal signal tolerances. "You recall," he said, "that earlier I mentioned RS 170A chose a tolerance value for front porch of 1.5 microseconds ±.1. Now this is a very tight tolerance. A great deal of broadcast equipment in use in broadcast plants cannot meet this tolerance. But as I said, it was hoped that it would be a target for the future and that broadcasters eventually would be able to meet it. Well, here we have two signals. Signal A, having a front porch on the high side of the tolerance, 1.6 microseconds, and signal B, having a front porch on the low side of 1.4 microseconds. Each of these two signals has a nominal blanking of 10.9 microseconds. If we take signal A and apply it to a stabalising amplifier whose cleanout blanking has been set to proper front porch, 1.5 microseconds, say, and 10.9 microseconds blanking width, well the output of that amp will have widened blanking by a tenth of a microsecond, so the output signal A will be 11 microseconds.

"Similarly, signal B in going through that amp will also broaden to 11 microseconds, but in the other direction. Now if a broadcaster were to take signal A and signal B into a special effects amplifier, and use the ordinary conventional horizontal wipe, where the left edge of blanking would come from signal A and the right edge of blanking would come from signal B the output of the special effects amplifier would be a signal with 11.1 microseconds. So here we have a case of two signals that start out within their very tight tolerance, and yet because of operating practices really inherent in broadcasting, they will end up with two-tenths of a microsecond widening in their horizontal blanking."

Another blanking problem is caused by random lockup of videotape recorders. Here the blanking might be increased to 11.4 microseconds. This can happen every time you make a videotape generation. Of course statistics will show that it doesn't happen every time, but it could possibly. There are many other reasons, added Davidoff, such as the random relationship of subcarrier and horizontal sync, changing of line 1 into a line 2, changing a field 1 into a field 2.

In talking about the system analysis of blanking, he said that before the NAB subcommittee started to investigate blanking widths, "I think most broadcasters and equipment manufacturers were pretty naive about this whole blanking question." While a camera manufacturer might design his camera to meet FCC specs, further signal processing was not considered for its design. "In the NAB subcommittee we tried to analyse the television system," he said.

Davidoff explained the system signal processing problem this way: "Starting with horizontal blanking, let us start at the end of the system where we have 11.6 microseconds blanking in the radiated signal to the home viewer. The affiliate station, the licensee of the FCC, certainly should be allowed a tenth of a microsecond for measurement thereof. No two people are going measure exactly the same, no matter how good the measurement equipment and techniques are. Then RF engineers estimate that going through the transmitter and demodulator may add between .05 and .1 microseconds change in blanking. So let's allow a tenth for that.

"Then the station again may use a synchroniser, so he doesn't have to genlock his plant to a remote feed or a network feed. And many synchronisers will 50% of the time cause a signal to broaden by 140 nanoseconds. Let's be generous and allow three tenths for that, so that one could say the signal inputs to the station should be a half a microsecond narrower than his output, or 11.1 microseconds. Well the network video center also uses synchronisers, has tolerances on its blanking widths, stab amps, does a lot of processing . . . let's assign three tenths for that, so that we can say 10.8 is the maximum which should enter the network video center. The programme supplier, as I said, may have the hardest job of all because of the very signals he has to work with and the very expensive signal processing he undergoes, but let's give him three tenths just for talking purposes. That means that a camera should have no wider than 10.5 microseconds in order to satisfy these requirements." Davidoff emphasised that these were arbitrary figures used to explain the problem.

Paul Hedberg moderated a panel that drew an SRO crowd that wanted more information on how to make better use of (and get more profits from) the SCA subcarrier. Hedberg opened with highlights of his six-station experience and then turned the mike over to Ray McMartin.

Ray McMartin, founder and owner of McMartin Industries, largest manufacturer of subcarrier receivers and associated equipment, told the session audience that, "The industry really has made tremendous strides in the last 20 years, in transmitters, SCA generators, monitors, and receivers. We think that in the next 10 years you're going to see just as dramatic changes in the future, so hang in there." He went on to say that stations "should consider SCA as a separate business. That's absolutely essential. SCA activities should be operated with their own profit centers, their own management personnel, their own sales personnel, and their own engineering personnel."

McMartin pointed out that getting into SCA is quite economical, from an investment standpoint. And he added that if an FM mono station added stereo, it would suffer a 20 dB loss, whereas adding SCA would only amount to a 1 dB loss. This, of course, is especially meaningful in the fringe of a stations' coverage area.

McMartin concluded that, "Advanced technology, a more understanding FCC, and genuine public needs for low-cost transmission of a specialised nature provides you with a return on equity. The opportunities

are of incredible proportions, limited only by your own creativity and ambition."

Hedberg pointed out that he already has gone into the creative side by offering market reports to farmers, and he obviously is doing quite well. He indicated that in fact he has expanded his business by leasing the subcarrier of another station in order to expand his own services. So, if you're not interested in using a subcarrier on your frequency, you might make additional money by leasing your subcarrier to a broadcaster who is interested. You can end up making a profit either way.

In fact, while the voice system will make money, data can be transmitted and then displayed at the user end on a visual monitor. The date can be transmitted at a rate of about 60 words a minute.

Mo Gardner of Radio Data Systems said, "I'm mostly concerned about the statement that my FM subcarrier bills more than my station, because if it does, I'm in the wrong business. Please don't expect your SCA to make more money than your station . . . or I would submit that you ought to get a new manager for your station. But it can add a tremendous amount of income . . . with very little cost.

"One dB is indistinguishable," Gardner added. "The best proof in the world I think is the fact that some pretty fair country radio stations, a few of them we own, (KBIG in Los Angeles, WRFM in New York WCLR in Chicago, KMBR in Kansas City) all top-rated stations billing millions of dollars, have used their SCA for years and years. So don't tell me that it can't be beautiful music. It does not have to foul up your main channel."

Gardner described how his company offers a service to supermarkets. The home office can send produce information to store managers to alert them to changes in shipments or circumstances that otherwise could create problems for the store manager. In a several hundred store chain, the communications problems are enormous. According to Gardner, "That kind of data, where speed and mass distribution are essential, is what SCAs are so useful for." In fact, he detailed how banks can be tied to SCAs so that when, for example, a bank is robbed and checks are taken, a quick call to the station will allow all bank security officers to be alerted to look for these checks at their banks.

Jim Warren, director of the Digicast Project, a broadcast-based electronic news system, offered an interesting challenge. The project proposes to combine the speed of a newscast with the content of a newspaper and much more to provide data in a machine-readable form. Warren wants stations to consider the future connection with home computer users. Additional revenues from such an SCA service could come from either selling ads within the data, or by selling service to computer users on a subscription basis.

A representative of the Digital Broadcasting Corporation said that his service can transmit data at a rate of about 12,000 words per minute. He described "infocast" as rapid communication hard copy within seconds

*Continued on page 74*

to 2, 3, 100 or 10,000 different receivers. The applications are to pass along price changes, shortages, special promotions, emergency situations, perishables, security information, police alert, and hot line. According to Von Meister, the applications are virtually unlimited.

Robert A. O'Connor, CBS, opened the teletext workshop with the statement that, "Within recent years it has become quite apparent that the television programme signal is capable of accommodating a wide variety of so-called ancillary signals that can be piggybacked on the programme signal without any adverse effect on the programme signal. The vertical blanking interval of the video signal has proven to be the most promising location for such signals." (For background reference, see the November 1978 issue of *Broadcast Communications*.)

Bill Loveless of KSL-TV described his station's experimental teletext operations (See *Broadcast Communications*, November 1978) using an expanded CEEFAX approach. O'Connor reviewed the actions of the EIA committee which he chairs on teletext, and he announced that CBS is running parallel CEEFAX and ANTIOPE tests at KMOX to determine adaptability to the U.S. colour TV system.

A common theme among the panelists was the proposed captioning for the hearing impaired, which is now planned for line 21. They insisted that it should be accomplished within a teletext format. The CBS posture on this matter is that the dedication of a full line in the vertical interval to a single, low data rate service for a small segment of the population is not an efficient use of this resource.

However this is resolved, there is a

# Sony demonstrates digital VTR

By Joe Roizen

Sony has now publicly declared itself in the race toward an all-digital VTR, and chose the 1979 NAB show in Dallas to expose an experimental machine. The DVR was not in their booth at the convention center, but rather at a private suite in the Sheraton Hotel, where small groups of people were invited in to demonstrations put on by Takeo Eguchi, one of the developers.

Not unexpectedly, the Sony DVR is built around a BVH 1000 transport, perhaps for the same reasons that the Ampex DVR used an AVR3 base and the Bosch Fernseh machine used a BCN, that's what was easily available. The Sony DVR has an interesting lineage. Sony is an IBA licensee for the digital technology developed by John Baldwin and his group at Crawley Court. No doubt Howard Steele's direction of that project while he was the IBA's engineering head influenced him in his current position of managing director of Sony Europe.

Sony also set up an R & D lab in Palo Alto where a few VTR experts like Grant Smith and Barry Guisinger contributed to some of the signal processing developements on the DVR. The actual development work was done in Japan where "Morrie" Morizono, managing director of Sony, supervised a digital group that included Mr. Eguchi. This young Japanese engineer, after a few years of R & D work at Sony France's Paris Office, spent a year at MIT on a special fellowship programme in advanced digital technology. He returned to Tokyo to take up his new duties as assistant manager of the advanced development department for the Video Product Group of Sony.

**Off-screen photo** of Sony's experimental digital VTR exhibited flawless reproduction and a capacity for 58-59 dB video S/N ratio, almost 10 dB over current 1-inch analogue machines of this type. (*Photo by Donna Foster-Roizen*)

As a result, the Sony DVR appears to be a really international project involving Japanese, U.K. and American technology. The Sony DVR consists of a regular transport operating at normal tape and head rotational speeds on the NTSC signal format. Associated with the transport is a five-foot rack of digital processing equipment, which contained the video circuitry, and adequate space for the audio digital equipment, which was not present. This leaves the chain of no audio on digital VTRs unbroken, since neither the IBA, Ampex, nor Sony have yet shown associated digital audio on a DVR.

The Sony DVR uses a 3*f*sc sampling rate (10.74 MHz) for the composite NTSC input signal. An analogue-to-digital converter at the input and a D/A unit at the output accepts and renders studio-compatible signals. The signal system is virtually transparent, even the smallest deterioration visible on the most critical test signals like pulse and bar, are due to the input and output filter of the A/D/A converters. Quantization is done with 8-bit sampling, and this seems more than adequate when the expanded waveforms are looked at on a Tektronix scope. The track configuration for video consists of three parallel non-segmented tracks which are narrower than the standard analogue machine. Two tracks are for video, the third for eight channels of audio. The head writing speed is 25.6 meters/sec., while the tape speed is 244 mm/sec. Drum rotation is synchronous with the picture field rate, 60 RPS.

Both error correction and error concealment techniques are used in the Sony DVR to provide error protection to the video signal. When Eguchi would shut off these circuits during playback, a random pattern of dots would appear in the image, although the picture impairment was not so severe that it could not be used. The recording data rate on this machine is 115 magabits/sec.

Sony demonstrated the machine on two monitors: one of their own with a limited resolution, and a Conrac monitor with a precision comb filter which was capable of very excellent reproduction.

On the Conrac, the test signals and live colour picture playback were superb. Eguchi claimed that the S/N ratio was 58-59 dB, and was limited

growing interest in teletext in the U.S., and it seems inevitable that it will make its debut in the near future.

During the workshop on VTRs, Hans Groll (Fernseh) emphasised the advantage of a DVR in the PAL/SECAM world where a single machine could easily record in one standard and play back in another. This would ease the tape exchange problem. He also pointed out that the advantage of his firm's BCN format for digital recording segmenting short tracks and changeable wrap angle, among others. His remarks lead to speculation that their 50th anniversary celebration in Montreux might bring more news on a machine that won't be too far from the marketplace.

In a far different segment of the papers, Kerry Meyer, manager of engineering for International Tapetronics, gave a radio session audience a detailed accounting of some 50 new features incorporated in ITC's new series 99 cartridge machine.

Meyer said that the Series 99's playback frequency response is "much better than the new NAB standards" and results from a new head design that also "removes the hump and bump in the low end." He added that "computerised control, advanced mechanical design, and sophisticated solid-state electronics provide true reel-to-reel sound quality."

Now if you missed these sessions, you're at least partly up to date. Of course there were many more interesting sessions that we don't have room to cover here. But even this limited review should entice you to start making plans now for the next NAB convention in Las Vegas. And if management doesn't think it would be worthwhile, remember our opening remarks from Mr. Cannon. Help stamp out the communications gap!

BC

only by the 8-bit quantization process or the colour cameras inherent characteristics.

With narrower tracks, tracking becomes a very important facet of a DVR, and Eguchi demonstrated the effect of deliberate off tracking. This would appear as a series of horizontal interference lines segmenting the image until the image disappeared under full off-track conditions. Obviously, the use of dynamic tracking will be important in a DVR if the long-scan format is maintained.

The Sony DVR uses two frame stores for digital signal storage and processing, and depending on the sophistication of the configuration, could use up to nine heads on the scanner. Three basic heads would accommodate read/write requirements on the three tracks; three additional heads would provide "confidence" replay during record; and three "advanced" read heads might be used for editing.

A small sampling of non-Sony industry experts unveiled some cautionary remarks. While all agreed that Sony should be commended on the excellent work they have done to achieve a digital VTR, they also pointed out that the machine shown is only playing back its own recordings and no interchange has been demonstrated. The very narrow tracks and the high packing density may have "stretched the rubber band too far" and that further work to create a more viable recorder will undoubtedly be needed.

Morizono, in his position statement of March 26, was also emphatic in his remarks about the status of a DVR at Sony. He maintained that what was being shown was neither a practical machine nor an endorsement of the Type C format for an eventual DVR. In fact, he stated that in his opinion there are more appropriate formats to achieve a practical digital VTR. In his opinion, the DVR of the future could be compacted to something resembling a U-Matic in size.

Sony wants to get broadcast community inputs with regard to a DVR of the future, Morizono said, and he was particularly concerned about the environment such a DVR might encounter as studios go more and more toward all-digital operation. A digital VTR can only be justified when it has been developed with a convenience and economy that is superior to current products especially in the areas of editing, multi-generation duplication, and special effects. And Morizono gave assurances that Sony is working on that.

Regardless of the stated limitations by both Sony and outside experts, the Sony DVR did show a remarkable capability which the broadcast industry cannot sweep under the rug. Performance characteristics that outpace current analogue machines by a substantial amount will create their own pressures or industry demands for at least a few pre-production machines for special applications.

**Takeo Eguchi**, Sony's digital video expert, is shown demonstrating the digital VTR which his company developed using the BVH 1000 type C transport. Back to the left of the VTR contains the digital processing circuitry. Conrac's professional colour monitor with a precision comb filter displays a near-perfect test signal playback. *(Photo by Donna Foster-Roizen)*

MICHAEL SCHEIBACH

### Play it again, boys . . .

# One more time through the issues

Equipment manufacturers were not the only ones demonstrating precision timing, master edits, and instant replays at the convention. Many of the government and industry leaders who held the podium at NAB came well prepared, having rewritten and updated their positions on a host of perennial issues.

Those making the rounds of luncheons and sessions heard all the familiar topics of previous conventions: deregulation and the "rewrite," children's television advertising, the spectrum use fee, CATV infringements, etc., etc., etc.

President Carter set the stage on opening day by showing once again that politicians know enough about crowd control to deliver what is appropriate for the audience at hand. And what this crowd of broadcasters wanted to hear was the administration's view toward industry deregulation.

Carter captured their attention by telling the audience that he is proposing a major reform measure to reduce the regulatory burden "throughout American life."

To be known as the Regulation Reform Act of 1979, this proposal is designed to achieve five major improvements in the regulatory process: improve analysis of cost-effectiveness of government rules; increase effectiveness of public participation; improve planning and management; review old rules to eliminate duplication and ineffective rules; and reduce processing delays. Combined with this, Carter says he will issue an Executive Order and further legislation aimed at expanding and making permanent his paperwork reduction programme.

In the meantime, Carter feels that FCC Chairman Charles Ferris is working diligently to reduce the amount of paperwork required of broadcasters through "a zero-based review of every FCC rule and regulation." Of course, no one needs reminding that the president's reform measures will not solve all the problems within the broadcast industry. Specific legislation is the key, and Representative Lionel Van Deerlin has the inside tract for getting a deregulation measure through Congress first.

Van Deerlin also addressed this convention, and told a television session that he agrees in principle with President Carter's efforts to lessen the burden on the broadcast industry. But his answer is contained in a new version of his Communications Act rewrite. Speaking on Monday, he said his proposal would include a "spectrum use" fee (opposed by broadcasters), but would also impose new rules governing CATV's transmission of commercial programming.

On Thursday, following the close of the convention, Van Deerlin *did* introduce to the House a rewrite of the rewrite. This new bill, H.R. 3333, calls for the immediate deregulation of radio, and the phasing out of controls over the television industry over

"... the president's reform measures will not solve all the problems within the broadcast industry. Specific legislation is the key, and Representative Lionel Van Deerlin has the inside tract for getting a deregulation measure through Congress first."

a ten-year period. Cable television would also be decontrolled; however, the present "compulsory license" would be replaced with a requirement that before transmitting broadcast programming, cable operators must obtain the consent of either the broadcaster or copyright holder.

Until H.R. 3333 becomes law, which could take some time, broadcasters will have to continue dealing with the compulsory license and arbitrary division of copyright fees paid by the cable industry.

A very vocal critic of this arrangement is Jack Valenti, president of the Motion Picture Association. Speaking at a Monday television session, Valenti said the present compulsory license system, which permits cable to transmit programmes while paying only an annual fee, constitutes a "welfare plan" which "makes a mockery of a competitive marketplace."

"The compulsory license for cable is the bond in the throat of free and fair competition," Valenti said, "and until it is extracted there is not now and never will be any fair competition in the home viewing market. Therefore, deregulation will always be a sham, a splendid delusive sham.

"Cable is rapidly becoming a major, muscular force that will bestride the communications industry like a colossus," Valenti continued, "and to borrow a Shakespearean metaphor, the rest of us will be peeping through its huge legs, dismayed and frustrated because cable's nourishment comes right from the bones and blood of the forgotten person in all the disputes that rage: the copyright owner."

When, and if, H.R. 3333 passes, the copyright owner will be compensated. And despite his attack on the compulsory license, Valenti stressed that the MPA and the rest of the "creative community of copyright owners" are not the enemy of cable.

"We want cable to grow," he said, "particularly in areas where over-the-air service is inadequate. The pay cable arena provides an opportunity for copyrighted material to be bargained for competitively. . . ."

The broadcaster also stands to make money from cable if the Van Deerlin bill passes. But he must be ready. So said David Polinger, vice president of WPIX, New York. Polinger gave a report on cable copyright and the present work being done by the NAB Ad Hoc Committee on Cable Copyright Royalties, of which he is chairman.

He told the broadcasters that with cable deregulation almost a certainty, and with satellite coverage on the increase, cable will continue to expand. And that means more use of broadcast programming, and more money being paid to copyright owners.

Although his report centered on the compulsory license system currently in use, under which royalty payments are distributed by mandate of the Copyright Royalty Tribunal, the underlying message was clear: broadcasters must copyright their programming.

Another hot issue that seems to reappear at broadcast conventions is the proposed ban by the Federal Trade Commission (FTC) on children's television advertising. Debating this issue during an "In the Box" session were Brenda Fox, assistant general counsel of the NAB, and Tracy Westen of the FTC Bureau of Consumer Protection.

*Continued on page 78*

# Jack Harris honoured for distinguished service

*The NAB's 1979 Distinguished Service Award went to Jack Harris, president of KPRC and KPRC-TV, and executive vice president of The Houston Post Company. The following is taken from his acceptance speech:*

"Broadcasting provides for our country and its people the most modern and most highly regarded communication services the world has ever seen, and has earned the trust of the vast majority in America. The service we render is the finest in the world. No one even challenges that boast.

"Many of our critics know this. Some seek change because this service we render does not meet their specifications. While they would never really become television viewers, they have very firm opinions on what other Americans should have on their TV screens. Some are seeking change for reasons which are not always made quite clear. Typical is the apparent determination on the part of persons both in and out of government to change the structure of American broadcasting. Many of these appear to be moved by the idea that more is automatically better, a notion that even Mother Nature abandoned eons ago.

"For our part, the challenge of the '80s is two-fold: to withstand these efforts to destroy one of the finest products of American ingenuity and dedication — the free system of radio and television broadcasting, and to continue to improve upon our services to the American people — by drawing upon the best talents of our engineers and scientists, our writers, performers and producers, our journalists, and, yes, our salespeople and managers. . .

"What we are now offering the American public is certainly not a wasteland or cotton candy. But it is also not all of a quality and diversity this television industry should now be producing. . . .

"We have become captivated by and enslaved in the numbers game.

And, in the process, good judgment and a pursuit of excellence have been subverted. The challenge to this maturing industry is to break the shackles that bind us to the ratings game, to reach upward toward new plateaus of achievement that will make us all proud, as well as profitable."

NAB REVIEW

# One more time

Fox attacked the government's involvement in this area, saying it "flies in the face of the First Amendment." She again pointed out that if an ad is misleading and deceptive, the NAB Code Authority will eliminate it. But it does not, and should not, concern the federal government.

Fox cited a recent Roper study which indicates that 89% of parents of children aged 3-10 feel their children know the difference between commercials and programming. Westen countered this by stressing that there are two fundamental issues in this matter: "first, whether we believe that preschoolers are consumers, and second, that given the link between sugar and tooth decay, should 2 to 11 year olds be exposed to commercials before they are old enough to evaluate a commercial's messages."

As in other discussions on this topic, neither side seemed willing to budge. And the debate rages on. While the FTC argues from the children's point of view (seemingly disregarding the role of the parent), industry spokespersons are arguing over the impact of this ban on the bottom line: if children's ads are banned, revenues for children's programmes will disappear.

This same point was raised by Marvin Shapiro, chairman of the Television Bureau of Advertising, in his "State of the Business" address to television execs.

"Television's most crucial problem today is the attempt by certain groups to persuade the Federal Trade Commission to ban all advertising aimed at children on children's programming. They argue, of course, that any advertising aimed at children is unfair, manipulative, and irresponsible. . . .

"Should they be permitted to deprive the industry of $7 million in revenue from advertising for children's products, and strain the resources networks and local stations need to continue and upgrade programming for the children of this nation? Make no mistake about it; if advertising on children's programming is curtailed the industry simply will not have adequate resources to produce innovative, educational, and entertaining programming for children."

This "bottom line" argument by broadcasters against the ban on children's TV ads is a strong one, and one that is often reshaped to throw against other forms of government regulations of the industry. But despite this fear of curtailed profits, it is very clear that the broadcast industry, both radio and television, is prospering in the U.S.

In his "State of Selling" address, Roger Rice, president of TvB, predicted TV ad revenues would increase a startling 29.4% next year, from $8,970,000,000 in 1979 to $11,610,000,000 in 1980. He also predicted that television's share of total advertising in the U.S. will increase, from 20.5% to 21.3% in 1980.

Ellen Berland Sachar of Mitchell Hutchins Inc. supported Rice's optimism, telling television execs that she foresees "a good year for the broadcasting economy this year and a better one next." In 1979 Sachar sees total television ad revenues up 10%, with local revenues leading the way with a 12-14% increase. Ad revenues will be up 15% in 1980, with network revenues up 13-15%, spot revenues up 16-19%, and local revenues up 14-16%.

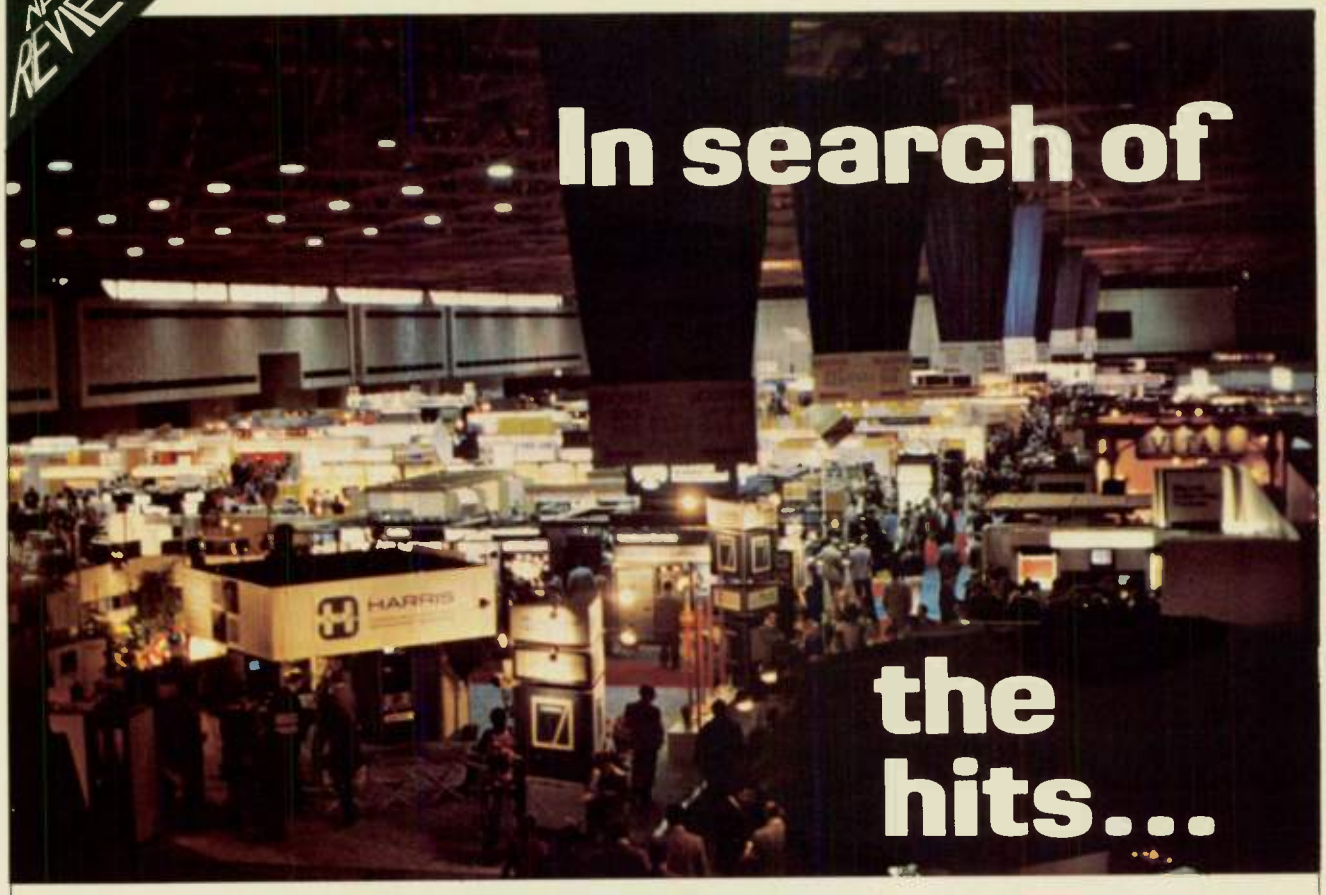
Prosperity in the broadcast industry isn't limited to television either. Radio executives also heard good news from Miles David, president of the Radio Advertising Bureau, who said radio could grow at a 20% annual rate and be a $7 billion industry within six years.

From listening to the speeches, questions and answers, reports, and debates, the message comes down to this: Broadcasters want less government interference, while not eliminating all regulations; and broadcasters want more competition in the marketplace, including the cable industry which has thus far been protected by the government. That's the bottom line. BC

**Sachar:** "Barring any economic or political 'surprise' to the system (and by definition, we cannot predict these), it is just possible media spending patterns, particularly television spending patterns, have now entered a new era of balance and equilibrium, a very positive development for the television business. . . ."

**Rice:** "Total advertising was a 43 billion, 740 million dollar industry last year. In 1980, total advertising should be 54.5 billion — up 24.6% in three years. During the same period of time, total television is expected to increase even faster, up 29.4% — from 8 billion, 970 million dollars last year to a predicted 11 billion, 610 million in 1980."

NAB REVIEW




## BC *rewinds the exhibit scene for a last trek down the aisles*

If you journeyed to the NAB convention this year, you'll recall how jammed the exhibit halls were . . . especially in the upper hall when the pep band came through. And some really interesting and creative demonstrations were continually so well attended that you always seemed to arrive two minutes after it started, forcing you to stand on your toes or try again later. In fact, some demo crowds completely blocked the aisle. No matter how hard you tried, it was virtually impossible to see all the product introductions.

Among the crowds this year were a number of station execs, who left the sanctity of the session halls to move through the convention floor, asking questions, getting hands-on demonstrations, and making those all-important final buying decisions.

Although the involvement of station management in buying decisions is not new, the number of them on the convention floor, and the increasing number of production personnel and news directors looking closely at new equipment, indicates a definite shift away from the notion that only the chief engineer is making final recommendations on equipment purchases. Not only were some management people making the trek unaccompanied by their chief engineers, but several manufacturers were well prepared to talk to them in non-technical terms — emphasising the end results rather than the circuitry. Manufacturers were talking about improving station image, expanding station capabilities, and allowing more creative freedom through simplified operation of their equipment.

Of course, if you didn't attend the convention, then you had only the March issue to judge and guess at the hits. But even then, not all manufacturers reveal their new products before the show. So you not only missed the surprises, but the crowds as well.

In this article, we're going back down the aisles in search of those new products introduced at the show. You may be amazed at the number of introductions you missed. So in this last replay, here's your chance to catch up on the product premiers. You'll notice that we are including "circle" numbers with each booth visit. For more information on the products described, draw a circle around these numbers on our Reader Service Card and you'll get all the spec sheets and brochures you need by dropping the card in the mail right away.

You'll note that our editors went down the aisles for you, seeking out the hot spots. Their reports reflect the incredible digital invasion, the influence of mieroprocessors, the continuing interest in and upgrading of ENG/EFP equipment, and the amazing world of digital video effects. Of course they concluded that, surprisingly, transmitter introductions were highlighted everywhere. But aside from the suspected and expected, the specialty product companies probably carried the show. And their new products were based mostly on the fallouts from the emerging technologies.

So whether you attended the show or stayed home and minded the store, come back with us now as we replay the equipment exhibit scene of the 1979 NAB convention.

*Continued on page 80*

**AF ASSOCIATES** — The new 1-inch machinery is gaining popularity in the industry, but quad is a long way from dead. The proof is in the brisk business AF Associates has been doing in rebuilding Ampex quad VTRs. In quad and its capabilities, this is a company to see. But what was new at the AFA booth was their connection with Audio Plus Video International Inc.

Video Services Corporation, an offshoot of AF Associates, has been pared with Audio Plus Video International to bring DICE digital standards converter to the U.S. Designed originally by the IBA, the machine is currently manufactured by the Marconi Company. It meets full FCC specs. The major services offered will be standards conversion of video tapes and cassettes in the PAL, SECAM, and NTSC television standards. (Circle **213**)

**ACCURATE SOUND** — One of the main attractions at this booth was their 4000 cassette logger. It's housed in a rugged rack-mounted design, and it'll take on low-speed logging assignments as well as normal cassette record/playback and medium-speed duplication.

The 4000 will simultaneously record or playback four individual channels of analogue data in one direction. Erasure is handled by a two-channel ½-track erase head, and the record/erase function can be engaged on either one or both of the two-channel pairs. Control circuitry prevents cassette damage during wind and rewind, and it has automatic end of tape sensing.

If you add it to the AS-4200 VOX/Auto sequencer system, your system becomes voice/signal activated. The tape runs only when a signal is present, allowing longer recording time on each cassette. Then in playback, you won't have to listen to long stretches of silence. (Circle **258**)

**ACRODYNE INDUSTRIES** — Big news at the Acrodyne booth was the announcement that station KCBY-TV in Coos Bay, Oregon, has installed an IF diplexed transmitter manufactured by Acrodyne. This is important because it is the first type-accepted IF diplexed VHF transmitter to be utilised for commercial broadcasting in the United States.

The unit installed by KCBY was a 2.5 kW transmitter. According to the company, the IF diplexed transmitter has superior linearity and performance characteristics, primarily due to the elimination of the aural transmitter and its associated components in the simplified, compact IF design. The IF diplexed transmitter is able to achieve simultaneous amplification of the visual and the sound carrier in one common amplifier.

The 2.5 kW unit joins the company's line of 5 kW IF diplexed transmitters, which are also FCC approved. A plus feature, according to Acrodyne, is the in-service reliability and ease of maintenance on their transmitters. The front-mounted Fault Memory System Display Panel facilitates quick recovery from malfunctions thus minimising potential for down-time. (Circle **101**)

**Hachiro Nakamura** of Japan gets into the Texas spirit at NAB '79. (*Photo by Ron Whittaker*)

**ADDA CORPORATION** — The company was drawing crowds again this year, and the main attraction was the VIP-1. It's a video image processor that combines a frame synchroniser with a time base corrector (for U-matic recorders). The VIP-1 expands video up to 10% to correct blanking width problems (horizontal and vertical). It also features freeze frame and freeze field functions.

The unit can freeze incoming video through the freeze frame mode. Interfield jitter can be eliminated by switching to the separate freeze field mode. Once the picture is frozen, it can be expanded. Independent horizontal (1.0% resolution) and vertical (1 line resolution) can be adjusted to 10%. The unit has manual and automatic expansion modes. There also is a front panel expansion defeat control. (Circle **102**)

**AGFA-GAVERT INC.** — Just introduced to the U.S. is their PEV 500 quadruplex videotape. According to Dave Rubenstein, technical manager, and Peter Jensen, a technical sales representative, the tape has a number of important advantages: excellent chroma; superior slitting for added edge stability and improved winding; fewer dropouts; and a very high signal-to-noise ratio. The tape comes in a sturdy, flame-proof shipping case. A half-hour tape contains 35 minutes of tape, an hour reel 66 minutes of tape, and an hour and one-half tape 98 minutes of tape, all of which represent an obvious bonus.

The PEV 500 tape incorporates a different coating process than is generally used, and is subjected to what is probably the highest quality-control standards in the industry. Although the tape is in limited supply at present, Agfa-Gavert hopes to soon be in a position being able to fill large orders in the United States. At present, Rubenstein and Jensen encourage producers to order a few rolls of the tape to compare it with what they have been using. (Circle **236**)

The same quality has also been incorporated into two other tapes now available from Afga-Gavert: their Chromiumdioxid videocassettes and their Professional PEM 468 Mastertape for audio. The latter is especially recommended for multitrack recording in sound studios.

**AMCO** — The company's offering at the NAB was a new line of studio furniture designed for function, strength, and adaptability. Featured were new data input and work desks available in a variety of structure and colour combinations; a new low-cost, high-quality line of desk-top cabinets; and a group of poly-dimensional cabinets with the emphasis on versatility and adaptability to non-standard sizes. (Circle **103**)

**AMERICAN DATA** — Production and distribution switching systems highlighted the American Data

*Continued on page 82*

# "The TDF-1 makes all our signals studio quality."

## "The TDF-1 Digital Noise Filter has made a major difference in how our news feed looks..."

"As a member of ITNA, we receive co-op news feeds from all over the world, and sometimes they are 6th or 7th generation converted from PAL by the time we receive them. The TDF-1 absolutely dramatically cleans up even the worst feeds. It makes us look live . . .

"Commercials shot with ENG/EFP equipment look better. It cleans up shots under existing light to the point where the client is happy with them . . .

"Overall, our day-to-day operations look significantly better."

— Hal Protter
Vice President and General Manager
KPLR-TV, St. Louis, Missouri

## "The TDF-1 has given us a consistent air look and higher overall quality - better than network ..."

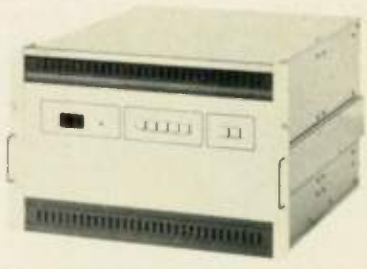
"It really makes life easier — it improves the signals that need improving and leaves the rest alone . . .

"We did a side-by-side test with a competitive unit, which we thought was pretty good, but when we brought the TDF-1 in — well, somebody had sure done their homework on it! It especially handles film grain better . . .

"It's fabulous on cartoons! By the time you run the TDF-1 up to its top correction, you end up with a signal that has no grain . . .

"I haven't seen anything it doesn't handle well."

— Jim Gonsey
Chief Engineer
KPLR-TV, St. Louis, Missouri



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Circle (38) on Reader Service Card

# Convention hits

booth, which adjoined the other Philips companies (Amperex and Philips Broadcast Equipment). Attendees were able to get hands-on demonstrations of the complete line of professional video equipment. But attention focused on the new products, particularly a compact version of the 558-3 studio production system, and a small production switcher designed for ENG/EFP applications.

The 558-3 features two, four-channel video processors each with 100 pattern wipe generator, variable softness and borders, pattern presets, positioner, modulator, variable ratio spotlight, luminance keyer, colour matte generator, key blink, and key invert. The "heart" of the system if American Data's new Quad EVA control element (or four-channel video processor). All 558 production systems are designed for use with Quantel computerised digital effects systems and frame synchroniser devices. And they are available in NTSC, PAL and PAL-M versions. (Circle **109**)

**AMPEREX** — According to David Mitteldorf, Amperex's new camera tubes received "a very enthusiastic response from camera makers who see the possibility of offering smaller, lighter cameras with improved performance."

New this year was a rear-loading 1-inch S73XQ Plumbicon® for use in studio and EFP cameras, and the 74XQ 18mm Plumbicon for EFP/ENG cameras. Mitteldorf said these tubes employ the new diode gun concept which increases resolution, signal/noise ratio and beam reserve with no compromise as to lag. (Circle **299**)

**AMPEX** — Despite the anticipation that the company would show their experimental digital VTR, Ampex is resolute in not allowing the industry to conclude that such a VTR will be in production in the very near future. But the throngs at this booth didn't go away disappointed, because a lot was happening in equipment lines and new products.

The company introduced a completely new 1-inch broadcast-quality videotape that was developed especially for the new generation of helical video scan recorders on the market. the 196 Series is compatible with all 1-inch high-band helical machines and all video standards. According to Ampex, RF signal losses from multiple playback passes, and hour-long still framing (equal to over 21,000 playback passes) are negligible, resulting in full brilliance of the recovered signal. (Circle **104**)

Ampex also announced a new accessory for the VPR-20 portable VTR that provides audition-quality colour confidence playback on a standard television receiver. The new stabilizer gives the VPR-20 the capability of providing video or RF playback in colour.

Ampex also introduced a new accessory for their quad VTRs, a single-line digital dropout compensator (DOC) that improves the digital dropout compensation scheme by narrowing the spacial displacement of the replaced signal as compared with two-line DOC systems. Kits for the AVR-3 are available now, with kits for the AVR-2 expected soon. (Circle **106**)

The most recent addition to the Ampex line of editing systems is the HPE-1. It's a microprocessor-based modular system designed for on- or off-line editing with helical VTRs in 1-inch and ¾-inch teleproduction/broadcast formats.

**AMPRO** — The star of this booth was their Microtouch console line. If you're not sure whether you like the rotary or linear fades, you have a choice. But the highlights of this design start with Microtouch bus switching to eliminate lever keys, FET audio switching by touch buttons, and four colour LED readouts of programme 1, programme 2, cue, and off for each mixer.

Actually, Microtouch is available with up to 21 inputs into 5 and 8 channels in rotary and linear fade configurations with dual mono and stereo outputs. And the price range runs from $1,495 to $3,495. The consoles also feature two inputs per mixer, a five-input remote line selector assignable to any high-level input, three input selector to 10-Watt monitor amp and two programmable muting relays, and a host of other features built into its easy-to-operate design. (Circle **194**)

**AMTRON** — The primary attraction at the booth were the new 7800 Series colour television monitors. Designed for use as master monitors in broadcast and production applications, the 13-inch model 7813 and 19-inch model 7819 share the same performance specifications, including use of analogue comparators and servo loops to provide accuracy and stability. A unique calibrate switch restores the monitor to "factory-correct" with a minimum of operator adjustment.

Amtron also featured its AM professional series of NTSC colour monitors. These are available in 5-inch and 8-inch half-rack models (AM-5, AM-8) and 12- and 17-inch full-rack versions (AM-12, AM-17). All have switchable A-B inputs, internal/external sync, and heavy-duty construction; the AM-12 and AM-17 add optional pulse cross display and pull-out rack mounting slides. (Circle **110**)

**ANDREW CORPORATION** — The company continues to attract a lot of attention with their lineup of earth station and microwave antennas and transmission line systems. Their new

*(Photo by Michael Scheibach)*

products include a 12-meter earth station antenna, grid parabolic microwave antennas, an ultra-gain antenna for the 10.7-11.7 GHz band, an improved low loss Heliax elliptical waveguide for the 5.925-6.425 GHz and 10.7-11.7 GHz bands, and low-loss LDF series foam-dielectric Heliax cables in ½-inch, ⅞-inch, and 1⅝-inch sizes.

Its too much to detail here, but you can get newest catalog by using the reader service assigned to this company. As with other products in this section that you'd like to know more about, circle the appropriate number on the reader service card in this issue and drop it in the mail. (Circle **273**)

**ANGENIEUX CORPORATION OF AMERICA** — Angenieux displayed their new 25:1 zoom lens system for ⅔-inch broadcast TV cameras. As explained by Herb Van Driel, broadcast optics manager, Angenieux saw in the rapidly-growing broadcast and non-broadcast market the need for a medium-priced zoom system. Therefore, Angenieux developed this high-speed (f:1.4) 10 to 250 mm lens, which accepts a 1.5X extender in a rear turret, and wide angle (.75X) and tele (1.66) front attachments. The front attachments quickly snap into place with a bayonet mount. The new lens system is lightweight (5.4 kg or 12 lbs.) and will focus as close as .44 meters, or 17 inches. Price is about $12,600 with a three- to four-month delivery time. (Circle **235**)

**AQUAVISION** — Exhibiting at the NAB for the first time, Aquavision is a production company specialising in unusual environmental conditions with an emphasis on underwater operations. The company provides highly specialised television equipment on a rental basis, and also offers full underwater support facilities manned by experienced personnel in the Virgin Islands. Aquavision has produced underwater broadcast-quality tapes for advertising, network shows, and national television spots. (Circle **111**)

**ASACA** — A new portable video switcher, designed to perform all the functions necessary for a field production system, was introduced by Asaca. And with the increasing emphasis on EFP, it was definitely one of the hits of the show.

The ASW-100 is a compact blanking switcher which will operate up to three cameras and can be operated on DC 12V or any AC outlet. It has automatic camera phase control (ACPC) and camera remote control functions as well as a mixer and fader. Other features include internal sync generator which can be locked by external black burst; VTR remote controls for VTR Play, Record and Stop; preview monitoring for each camera; cable equaliser that compensates the cable loss up to 1,000 feet; and a character generator input with downstream which can be mixed or keyed.

Since the switcher has three-camera inputs and a mix-fading facility, the switcher is desirable for three-cameras and one-VTR field production system. A special effects unit is available as an option. (Circle **202**)

*(Photo by Ron Whittaker)*

**ARVIN ECHO** — Their Slo-Mo System was the hit of this booth. It combines three Slo-Mo-1 units plus controllers. In one configuration of the system, three 20-second sequences can be recorded. Configured another way, the system allows a 60-second sequence, with the entire system (wired either way) occupying only three feet of rack space. Obviously, this system has applications for sports, production, and programming needs.

Standard features on the individual Slo-Mo-1 machines include variable speed for forward and reverse playback, edit capability, frame animation, and time lapse recording. These units include a digital comb filter, auto cue, dropout compensation, automatic chroma control, and prom selectable blanking (no drift). Another advantage of these units is that it takes only about one minute to replace the recording disc. The power requirement runs about 1200 Watts. (Circle **112**)

**AUDI-CORD** — A perennial NAB attraction, cartridge tape machines were in abundance in the exhibits. And at the Audi-Cord booth, an intermediate-priced tape machine series was introduced that had many of the features and quality of units costing much more.

The new "A" Series uses modular construction, so the transports and other assemblies are interchangeable, facilitated by latching connectors with a slip and lift cover. Features included a replay reminder system, one or three tone (mono or stereo), and full remote control that is automation compatible. The company also displayed their triple transport reproducer. Their new Modu-Cart 100 series cartridge machinery was displayed in the model 115 record-reproducer and the model 100 reproducer. (Circle **113**)

**AUDIO DESIGNS** — ADM introduced three stock stereo radio consoles with mono capability. First was a 10-input stereo console ST-100. Second was a 16-input stereo console ST-160. And last was a 20-input console ST-200.

These consoles are totally modular in design, permitting the user to equip them for his own particular operating parameters. They are desk type consoles. They were designed to stringent ADM standards and carry the ADM 5-year unconditional warranty. According to Murray Shields, director of marketing, "The overall success of the show was our best one by far." (Circle **77**)

**AUDIO DESIGN & RECORDING** — The highlight of this booth was their E 950 Paragraphic® Equaliser that combines the features of a conventional graphic equaliser with the flexibility of parametric equalisation. The unit offers variable frequency control over a four octave range for each section, and the system can be used for 6-section stereo or 12-section mono systems.

In broadcast applications, it will function as a line equalisation system, while in the recording sound processing studio it exhibits great flexibility. In the 12-section mode it gives an octave equaliser with two floating sections for use over the whole bandwidth for tight notching. (Circle **114**)

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NAB REVIEW

# Convention hits

**AUDITRONICS** — The latest model in Auditronics' line of broadcast consoles was unveiled at this booth. The 110B "on air" console features input and attenuator modules which are compatible with other Series 100 consoles. The 100B also features stereo "Audition" channel (output) with metering as well as stereo "Programme" channel (output) with metering. Mono Sum output with metering can be derived from either Programme or Audition.

To insure maintenance of stereo balance and separation, Auditronics made all master controls deliberate access only (screwdriver-driver adjustable) and deleted all unnecessary controls. Remote start/stop switches for tape machines and turntables may be mounted in the trough as an option; standard remotes are also available. In addition, eight input stereo switches will provide input from eight stereo sources to one module. Inputs are available for monitoring off the air, network, and auxiliary sources. (Circle 115)

**AUTOGRAPHICS** — Many broadcasters were introduced to a relatively new company which provides a full range of electronic graphics for production and post production. Autographics, based in Hollywood, lists among its clients ABC Entertainment, CBS Sports, Warner Brothers, Compact Video, and Dick Clark Productions . . . just to name a few. What does the company do? It supplies expert operators, maintenance, engineering and font compose, graphic artists, creative consulting, and graphic planning. They promise to ship a Chyron IIIB or IV any place in the world and make it work. (Circle 116)

**AUTOMATED PROCESSES** — Broadcasters looking for a multipurpose communications system that can save time and money found it at the Automated Processes booth. AP's new System 8000 Communicator is a microcomputer-controlled, programmable communications system providing intercom, programme monitoring, audio signal distribution, and interface to standard telephones simultaneously.

The 8000 has many outstanding features, including silent solid-state crosspoint switching; continuous status readout; wide-band broadcast quality audio; privacy lockout; remote machine control; and modular construction for maintenance and expansion. Of particular interest to directors and producers, the 8000 can recover the exact intercom network and signal routing used on any production; this can not only save time, but save money.

Also introduced at the show was a new split desk console — designed for AM-FM-TV, mono or stereo, for on-air and/or production studios. The console can handle up to 16 input channels mono mike/line or stereo line inputs in any combination. Other features include optional patchbay; digital clock and timer; prefade listen and solo on all channels; and start/stop machine controls. (Circle 117)

*(Photo by Ron Whittaker)*

**AUTOTRON SYSTEMS DIVISION** — This company is a division of Automation Electronics Inc. They displayed the Autotron Star System, a totally in-house minicomputer system designed for sales, traffic, management controls, and receivables.

The system has several optional module features that include a complete word processing system; cross index system to automatically prepare the music log; background music accounting system; and the Inter-Com module that provides inter-station communications and sales status. (Circle 118)

**THE BTX CORPORATION** — The appeal of cost-effective recorder automation brought broadcasters into the BTX booth, where interest focused on the 4600 SMPTE Tape Controller. Because the 4600 actually "learns" the user's manual technique without the user needing to think of time code, production sequences can be manually developed and replayed until the desired result is ready for mastering. The 4600 also allows the user to pre-programme production sequences by developing as many as 30 consecutive instructions using either keyboard entry or automatic capture of time code locations.

Features include full remote control of fast forward, rewind, play, stop, record in, record out, and record enable; multiple instant previews or replays prior to mastering; capability to automatically capture SMPTE locations and offsets. The 4600 interfaces with all recorders having electronic tape counters. (Circle 119)

**BARCO** — The first of the new products introduced by Barco was the CM 33 colour monitor. This compact 14-inch monitor is lightweight and features a carrying handle, making it useful for ENG/EFP applications. Optional rack-mounting fixations adapt the monitor for installation in both studio and mobile facilities. The CM 33 can be connected to a video camera and/or a VTR, and can even be used as a data display for industrial or home computer systems. It is available in PAL, SECAM, or NTSC 3.58 versions.

Barco also introduced the new AVD 33 demodulator. This unit accepts TV off-air signals to deliver video (2 BNC sockets) and audio

(DIN sockets) outputs. The AVD 33 can be used separately, or in combination with the CM 33, changing it to a receiver monitor. The demodulator's digital tuning system features up-to-date voltage synthesis techniques and a 20-channel memory capacity. It is equipeed with a built-in monitoring loudspeaker and supplementary connections for a second loudspeaker and headphones. (Circle 120)

**BAYLY ENGINEERING** — A new line of Telefunken pulse duration modulation (PDM) short, medium, and longwave broadcast transmitters were shown at the convention. Their power outputs ranged from 100 kW to 650 kW, and this was their first showing in North America.

These transmitters use the Pantel modulation method, which increases the total efficiency of the transmitter by 10%. Other advantages of the Pantel system include lower tube cost (only three are used), compact space-saving design, and easy access to all components. Hyper-vapotron cooling is used for the power tubes. Special consideration in the design was given to operation of these transmitters by remote control. (Circle 121)

**BEAVERONICS** — The model 712 video production switcher was Beaveronics' contribution to the new products introduced at NAB. The switcher, designed for use in broadcast studios, teleproduction facilities, and CCTV applications, can also be utilised in mobile van operations due to its small size.

The model 712 features a 12-video-input, 4-output switching matrix consisting of 12 single-input, 4-output switching cards; each input has an input amplifier with clamping. Its special effects system includes features characteristic of large switchers, such as adjustable soft-wipe, pattern presets, a pattern modulator, and symmetry control. The model 712 is available in PAL and PAL-M versions. (Circle 122)

**BELAR** — Two hot items on display in the Belar booth were additions to their modulation monitor line, and an ATS AM frequency monitor. Their model FMM-2 is an FM monitor — suitable for ATS — that uses a sample-and-hold peak modulation meter circuit, independent of polarity. This allows the meter to respond to very short programme duration peaks. It ultra-linear digital discriminator insures low intermodulation distortion. The other modulation monitor, the FMS-2, is designed for stereo service. It incorporates two independent autoranging voltmeters that allow the user to automatically measure the channel separation and crosstalk.

The AMM-4 is a digital AM frequency monitor that's designed especially for ATS. The counter will monitor any frequency from 10 kHz to 50 MHz, using a 3½-digit LED readout. It will also show loss of RF level (with optional relay contacts), and it has two off-frequency alarms which are inhibited so that three successive errors are required to signal an alarm. If the carrier frequency exceeds ±10 Hz, a front panel LED flashes, warning of an impending off frequency-condition. After three counts, it will change the front-panel indicator to a continuous On state. If a ±20 Hz condition occurs, a second front-panel indicator is activated. Relay contacts for add-on alarms for these conditions are optional. (Circle 208)

**BERKEY COLORTRAN** — According to Michael Gresch, the technical sales representative, Berkey introduced two new scoops this year: a 2-K and 1-K focusing scoop. The new scoops incorporate rapid-focus, cool operating handles, which can vary the light output from a medium beam to a wide flood. Light output has been increased through the use of long-life "quartz" lamps in combination with a new high-efficiency reflector. Total weight is only 8.4 lbs., or 3.8 kg.

Also introduced this year, according to Thomas Pincu, vice president of marketing and sales, is a "Mini-Ellipse," a new multi-spread ellipsoid spot for short-throw applications. The new spotlight, which according to the specifications, delivers more light than any competitive unit, also delivers more saturated colours when used with gels than has been previously possible. Another light which drew considerable attention this year, according to Joseph Byron, manager of lighting fixture design and engineering, was the 6-inch Theatre Fresnel. Although designed principally for theatre applications, the lightweight, low-cost light is attractive to many people in television. It weighs less than 10 lbs. (4.39 kg.) and takes a range of lamps from 250 to 750 watts. (Circle 237)

*(Photo by Ron Whittaker)*

**BERKELEY VARITRONICS SYSTEMS** — The BVS SID Decoder provides visual display of the source identification, time and calendar information transmitted in the television vertical interval. Designed to meet full network/SMPTE standards, the decoder uses digital circuitry to trap the one megabit per second data stream contained in frames two and three, in line 20, and converts this digital word via MSI circuits to a suitable format for display on seven-segment LED readouts. (Circle 123)

**BEI (BESTON ELECTRONICS INC.)** — The overwhelming reaction to BEI's new Dataprompter was "It's about time!" This automatic character generator paces any announcer through commercials, documentaries, and announcements. Applicable to television, film, videotape, or any on- or off-camera work, the

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# Convention hits

Dataprompter is simply operated by entering the copy and the desired length of time. The unit then does the rest by displaying the characters for the announcer to read. (Circle **276**)

**BIRD ELECTRONIC CORP.** — Among their wide array of measuring instruments at the show was a new 300-watt load resistor. The model 8173 Termaline® dry high-power coaxial load is designed for 50-ohm RF line and system termination. At 300 watts continuous duty, the 8173 complements the present Bird dry loads group ranging from 2 watts through 600 watts. (Circle **124**)

**BLOOMINGTOM BROADCASTING COMPANY** — John Clark, systems manager for Bloomington Broadcasting, attributed the high level of interest at the company's booth to a greater degree of sophistication among broadcasters with regard to computer systems. Bloomington introduced new traffic system hardware designed to enhance its existing product line of broadcast computer systems. Recognising the growing role played by business automation, NAB attendees seemed to be taking advantage of the exhibit to investigate the new options available.

**BOSCH** — No doubt about it, Bosch was celebrating at the NAB convention. First off, they're in the 50th year as a company, and their proud record of achievements includes televising the 1936 Olympics.

They celebrated their anniversary by introducing the KCP-60 broadcast colour camera. This is a high-quality, low-cost camera for situations which don't require the complex subsystems of today's bulkier top-grade cameras, but which do require their quality. Outside durability was a key factor in its development. It uses three ⅔-inch Plumbicon tubes and has automatic beam control that surpresses smearing, streaking, and comet-tail effects.

Included are a studio/daylight switch (3000/7000K), a built-in six-position filter wheel, bias light for low-level shots, producing a usable picture at only 100 lux. It will work in PAL, SECAM, NTSC, and PAL-M. There are a host of other features, and you can find out more about them by using the reader service number we have assigned to this product. (Circle **212**)

We had to wait for the Montreux Symposium to see the BCN 100 1-inch automatic multicassette VTR, but at least it was announced at NAB and was the subject of a press conference held at the Bosch suite. The system will offer rapid random access to 32 cassettes with up to 30 minutes playing time each. And you have a choice of up to three tape decks to ensure new production applications in addition to news or commercials. All the tasks previously handled by numerous production VTRs (with associated editing systems) can associated editing systems) can now be accomplished with one centralised unit.

The BCN 100 records, edits, and play its own cassettes. Or, it can process cassettes previously recorded on the briefcase-sized BCN 5 cassette VTR. Features include continuous playback, parallel play for time code synchronous playback of two identical cassettes for 100% standby operation, parallel recording, continuous recording, and online editing for post-production of all programme material. (Circle **184**)

Happy birthday, Bosch!

**BROADCAST ELECTRONICS** — Ten new mono/stereo audio consoles were on display, with the top of the line being the Series 350 consoles with 10 vertical mixers. The Series 350 features vertical attenuators; built-in intercom; low level balanced mike or line level input selection; and multi-channel muting. Consoles are available with dual-channel mono outputs (10M350) or stereo outputs (10S350).

The 250 Series rotary-mixer consoles feature ladder-type maintainable step attenuators with cue bus switching, telephone-type channel keys, and contact-free FET bus selection. Mixing controls on the 150 Series are also equipped with cue bus switches; other features include contact-free FET bus selection and field-proven 3600 Series plug-in modular electronics. Each mixing channel accommodates two pushbutton-selected inputs, and may be preset for either mike or high-level service. (Circle **125**)

**BROADCAST VIDEO SYSTEMS** — Several products were featured here, but gaining a great deal of attention was the new 339 Color Balance Corrector, which provides a wide range of correction for NTSC encoded video signals. Because no decoding takes place during the correction process, BVS says signal-to-noise is not impaired. Correction vectors are derived from the separated chroma and added at the recombination point of the luminance and chrominance signals. The 339 requires no external subcarrier or pulses. The video is merely fed into the 339, and the unit delivers three outputs of corrected video.

Also featured at the BVS booth was their new model 360 rotary wipe. The 360 can update your existing switcher without modification to get effects available on larger, more expensive switchers. The start of any wipe can be positioned using the joystick positioner. By varying the split levers, the speed of rotation and extent of wipe can be changed to give a wide variety of wipe patterns as well as the four standard shapes. (Circle **126**)

**CCI** — Being new on the exhibit floor, CCI caught the eye of the engineering crowd right away with their lineup of TV transmitters and accessories, namely the Type CCT-U-55. It's a 55 kW visual, 12 kW UHF aural transmitter, using an IF modulated exciter and requires less space than any other UHF transmitter in its class. It uses the new high-efficiency EEV external cavity watercooled klystrons or Varian-cooled external cavity klystrons. The rig is designed for complete hands-off remote operation. Specialists in the field of total system engineering, CCI has a complete lineup of transmitters, antennas, coax, waveguides, diplexers, demodulators, and all forms of coax switching products. (Circle **250**)

**CMX SYSTEMS** — CMX software engineers, in conjunction with a number of creative editors, collabo-

## FOR MORE INFORMATION

To obtain additional information on the new products featured in the NAB Review, simply circle the number on the Reader Service Card that corresponds with the boldface number following each company listing.

rated on the development of a new expanded keyboard that is dedicated to agility for the tape editing system. A quick look at the new CMX keyboard gives the impression that the system might just be more complicated than ever. Not so. In fact, the new features actually cut the operational time. And the additional functions truly give easier access and a lot more flexibility.

The result is a more organised keyboard with extra keys to increase its functionality. All operational parameters (event number, reel number, etc.) can be directly accessed without going through a lengthy dialogue sequence. Now, just the entry of the desired change provides the necessary input, the built-in logic does the rest.

Open Re-Edit, Close Re-Edit, and Insert Event are now single key operations. Close Re-Edit and Insert Event have been separated to prevent accidental EDL change. All functions used for auto-assembly have been grouped together for convenient access. The Enable or Disable of events may be done independently of the assembly dialogue. And the operator can view a summary of the events which are enabled or disabled for the auto assembly process. CMX has another hit. (Circle 99)

**CABLEWAVE SYSTEMS** — The attraction at the Cablewave Systems booth was their 4⅛-inch Flexwell cable. Designed for high-power, low-loss broadcast application, the Flexwell cable features a corrugated tubular copper center conductor, high density helix dielectric, corrogated copper outer conductor, polyment and black polyethylene jacket. (Circle 128)

**CALIFORNIA MICROWAVE** — Already established as a major supplier in the earth station terminal market, California Microwave displayed their multi-purpose, small-aperture terminal designed for practical broadcast, wire service, and data users. All its programme demodulators are stereo phase and gain matched.

Broadcast features are: better than 10 dB head room; +18 dBm peak programme output; carrier and AFC output power without changing tuning or loading; low-voltage control circuitry for safety; front-panel plug-in relays for easy adjustment and maintenance; and remote-control interface standard. CSI transmitters use standard components readily available from conventional sources. All parts and wire meet EIA and FCC specifications. (Circle 197)

If you could make it through the long lines, and be fortunate enough to find an empty chair, you might have a nice lunch. (*Photo by Ron Whittaker*)

**CSI ELECTRONICS** — Several FM broadcast transmitters were shown at this booth. These transmitters feature phase lock loop exciters; tuning and loading adjustments on the front panel; direct adjustment of alarms; 3.5, 8, or 15 kHz audio bandwidths; and two-frequency selectable demod channel. Included in the options are a cue channel, 2:1 or 3:1 comparator, and a switchable transponder selection.

This terminal system is a modular design. And the electronics include . . . you guessed it, a microprocessor. The microprocessor data multiplexer can accommodate diversified data speeds and formats, and it can be programmed to handle secure voice and data transmissions. (Circle 130)

**CANON** — The growing importance of ENG/EFP was again in evidence at the Canon booth, where a host of new lenses designed for portable cameras were on display. Among them was the J13X9B TV zoom lens, a 13X system lens especially designed for ENG/EFP cameras with ⅔-inch image tubes. This small, lightweight lens can be used on an auxiliary studio camera for swift, spontaneous movement; as the principal camera for on-the-spot news gathering; or for use in producing commercial videotape. (Circle 200)

The J13X9B was just one of several excellent lens systems shown by Canon. Others include a 10X zoom lens for exclusive use on Plumbicon® colour TV cameras; 12X, 18X and 25X zoom lenses for 1¼-inch Plumbicon colour TV cameras; and 10X, 12X, 18X and 25X zoom lenses for 1-inch Plumbicon colour television cameras.

**CAPITOL MAGNETIC PRODUCTS** — Two new products headlined the Capitol Magnetic booth. One of these was their new Q17 high-output, low-noise (HOLN) lubricated tape. Designed to complement the new AA-3 broadcast cartridge (see below), the tape uses premium ferric oxide previously found only in more expensive cassettes and studio mastering tapes. Features include higher output, lower noise, and lower distortion; a new low-friction binder on the oxide side adds to smoother tape motion. The HOLN tape is bias compatible with Capitol's Formula 17. (Circle 129)

Capitol Magnetic also presented their new AA-3 broadcast cartridge to NAB attendees. Applicable to AM, FM, stereo, mono, voice, or music, the AA-3 tape meets or exceeds NAB specs (60 peak to 12.5Hz) on properly aligned equipment. AA-3's built-in phase stability is achieved through a specially designed plastic guide which transports the tape at a consistent height.

**CECO COMMUNICATIONS** — CeCo's booth at the NAB emphasised

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# Convention hits

the scope of their large inventory of tubes, semiconductors and components for the broadcast industry. The company stressed the wide variety of industrial radio and camera tubes available through their distribution system. (Circle 131)

*(Photo by Ron Whittaker)*

**CENTRAL DYNAMICS** — CAP is the latest computer-assisted production option offered by Central Dynamics which is designed specifically for the company's CD-480 video production switchers.

According to Central Dynamics, CAP is a must for fast-moving production sequences. Complex scenes involving multiple sources, keys, SFX amplifier mode, etc., can be preloaded into CAP's memory, and recalled randomly or sequentially, and accurately executed during real-time production. Again, the emphasis is placed on the operator's freedom to achieve the desired effect through greater artistic expression — rather than getting entangled with operating procedures.

CAP can be added to any CD-480 production switcher. It memorizes all crosspoint selections, mode selections, and potentiometer settings for a complete CD-480 SFX processor system. Other features include integral memory for 32 or 64 switcher setups; up to 10 seconds of fader "learn" for each memory event; 10 minute memory for all Learn events, and 60-second Learn duration for any single event; instantaneous random access to any event; and permanent storage of memory contents on optional floppy disc. (Circle 132)

**CETEC SCHAFER** — Microprocessors are the heart of the 7000 automation system in this booth. In a system based on a universal hardware concept, the 7000 exhibits clean quality audio; and according to Cetec, voice-over-music is perfectly balanced automatically.

The 7000 includes a dedicated CRT terminal, with additional terminals available. The keyboard is colour-coded and interlocked, making it almost goof proof. When an illogical entry is made, the system will advise you in plain English on the display. And it'll wait while you drum up new instructions. The system has a 1000-event memory, and the capacity for 16 audio sources. (Circle 216)

**CHRISTIE ELECTRIC CORP.** — A "live" mannequin kept the aisles congested around the Christie booth, but the real hit of their show was another life-like creature named HAL.

Looking somewhat like a member of the *Star Wars* crew, HAL is actually a completely new spotlight which Christie says will revolutionise the present "follow-spot" design. HAL is a new metal halide follow spot which weighs up to 60% less than existing models, yet runs an average of 1,000 hours with a metal halide bulb — and HAL can achieve a daylight colour of 6000°K. Going one step further, HAL runs on only 12 amps, thereby using less energy. More features: six-colour built-in boomerang; durable nichrome iris; safety interlock. And HAL can be plugged into a common 115 volt/20 amp outlet. (Circle 133)

**CHYRON** — Long on experience in graphics display and movement equipment experience, Chyron introduced their fourth generation, the Chyron IV. And as you'd expect, it's strictly state-of-the-art, with an interesting lineup of features. These include as standard features: 27 nanosecond resolution; a multi-font library; instant italics; 64-colour palette; background stripes and solids; automated animation effects; see-through characters; and an adjustable video window during roll.

The options include a camera front compose unit, remote keyboards, and a full-function second channel. (Circle 254)

**CINEMA PRODUCTS** — Introduced a unique attachable in front of the camera prompting system. And this system was designed for on-location assignments both indoors and outdoors. Operated from a 12-volt battery, a sidemounted light source (or it will work well with sunlight, lights off) provides the image on a 45 degree angled clear glass that acts as a "mirror." The script can be typed or hand printed onto a continuous roll of six-inch-wide matte-finish clear plastic. It advances by an ultra silent, miniaturised motor-drive unit, and is controlled by a small remote control box that allows you to vary the speed.

The company also introduced the NC-14 battery belt that will power the MNC-71CP video camera for about two hours of continuous running time. Other new products included a highly portable video set-up and test/service system, and a universal 16FX fluid head that will take cameras up to 20 pounds.

Other introductions were their newest Steadicam for film and video cameras with an adjustable monitor, the new GSMO state-of-the-art 16mm camera, a lightweight field Bubblelight, and a 1-inch portable VTR from NEC.

For further information on these products, dial up 213-478-0711, or drop a line to Cinema Products, 2037 Granville Ave., Los Angeles, CA 90025.

**COHU INC.** — Cohu's featured attraction at their booth was the DM series of monochrome monitors. Of special interest was the line's automatic video level control feature, which makes it possible to maintain a set contrast level independent of signal strength.

With 9-inch, 14-inch, and 17-inch models available, the series features solid-state modular construction with interchangeable plug-in circuit boards. This plug-in modular construction simplifies maintenance, which leads to stable operation with a minimum of down time. Other features include 800-line center resolution, continuous-duty operation, and loop-through input. (Circle 181)

**COLORADO VIDEO INC.** — CVI introduced two new units at the NAB. The first was the 262A video

compressor, a completely solid-state sampling converter. The unit accepts standard, composite TV signals and reduces the video bandwidth to audio range. The output of the 262A is a slow scan signal with a line rate identical to the field rate of the wide band input signal. Typical applications of the video compressor include origination of programme material for broadcast over FM radio station subcarrier channels, remote environmental monitoring, signature verification, and conferencing.

CVI also displayed the model 275 video expander. A solid-state video memory capable of storing one frame of video information, the model 275 can be used as a computer output display device or as a slow-scan video communications receiver. It will accept input data from FM carrier from the CVI model 260B video compressor over standard telephone lines; baseband slow-scan video from the CVI model 201A video compressor over an 8 kHz communications channel; or parallel digital data from a computer or other source of pictorialised information. (Circle 185)

**COMARK INDUSTRIES** — Comark displayed new directional couplers. Featuring sturdy construction, high directivity (30 dB), easy installation, and external load, the CI-7341 and CI-7342 fit standard transmission lines (1⅝, 3⅛, and 6⅛-inch). Both offer the ability to provide a sample of either the incident or the reflected wave without rotating the coupler, thus maintaining directivity of the sample while providing a flexible instrument for monitoring requirements. (Circle 183)

**COMMERCIAL ELECTRONICS INC. (CEI)** — A new digitally controlled broadcast colour television camera system was showcased at the CEI booth. Offering improved quality at reduced costs, the CEI-330 extends cable range between camera head and electronics unit to 2400 feet; and according to CEI, does so without compromising colour control or signal-to-noise ratio.

Two components, a camera-head-addition (CHA) and an auxiliary power supply, plus one board change convert a CEI-310 camera system to the remote 330 configuration. The three-pound CHA provides viewfinder control switches and micro-cable connectors.

Modular configuration optimises

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the system for field or studio use. The 330 version provides simple, long remote feeds with standard or micro-cable interfaces. Then, with a few quick field changes, the 330 can be converted to a 310 to regain use of unique 310 camera control features. (Circle 134)

**COMPACT VIDEO SYSTEMS** — This impressive booth, despite being located in a corner on the second level, was a definite "crowd stopper," with one end displaying hardware and the other featuring a new mobile production van. In addition, several monitors showed videotapes of shows completed at the company's Burbank, California, facilities. Together, these displays illustrated quite well why Compact Video Systems is one of the leading production/post-production companies in the U.S.

The new Super Tape Truck (STT) was designed and equipped specifically for videotape production. The STT features four AVR-2 videotape machines with additional space available for adding helical VTRs. According to company reps, the truck doubles location taping capabilities so you can A&B and shoot with two isolated cameras. You can also make production office copies in ½-inch, ¾-inch, or 1-inch formats.

The STT has a 120-square-foot production control room equipped with 18 black & white and two 19-inch colour monitors, a 1600 triple re-entry Grass Valley switcher, a six-channel high-volume PL, and telephones with a remote set including comm lines. (Circle 192)

**COMPUTER IMAGE CORP.** — A new full colour image compression animation system with rotation was unveiled by Computer Image at NAB '79. Part of the development of the "System IV" computer animation system that will be operational later this year, the system was demonstrated through the use of a videotape of a station promo that incorporated live action and animation. Hal Abbott, VP of production, pointed out that "full colour animation is but one of the recent innovations we have made" and added that Computer Image is always exploring new ways to use electronic video animation. Among these new uses are the animation of weather forecasts and the development and preparation of new broadcast promotional materials and ID's for television and radio stations. (Circle 81)

**COMPUTER MAGNETICS** — The emphasis at this exhibit was Computer Magnetics' Extended Prime Life (XPL) video heads, designed to maximise output of a quadruplex VTR. The XPL heads are plug-compatible with all Ampex VR 1200, 2000, and RCA Hi-Band VTRs, and are available in 10, 6, and 5 mils track width. A new head tip design contributes to improved performance and extended life. (Circle 186)

**COMREX** — Stopping by this booth, we found an item that already is getting good action at station. We're covering it this time down the aisles because this is its first conven-

tion exposure. And the interest was all about the Comrex Low Frequency Extender. It completely restores just about everything that you lose on the low end when you do a telco remote. Most people are unduly concerned about what Ma Bell cuts off on the high end. But what really hurts is the loss of the bottom two-and-a-half octaves.

The mike input is slightly hotter than the recorder input so that voicers can be done over a taped background without having to assemble the tape back at the station. Since the unit is only about the size of a cassette recorder, it's ideal for news departments that send back their reports by dial-up phone. This unit restores what you normally lose on the bottom end, and as a bonus it removes any noise that was on the line below 250 Hz. (Circle 150)

**COMSEARCH** — Equipment for satellite earth station placement frequency coordination and RFI measurements was featured here. And Comsearch president, Harry Stemple, said the products were well received. Comsearch also has units for STL microwave frequency assignment, point-to-point microwave frequency coordination, and computer systems. (Circle 252)

**CONRAC** — A new model 5742 high-resolution colour monitor was introduced at NAB, which incorporates a switchable comb filter. Other monitors included the 19-inch 6142, a compact, modular monitor with comb filter separator designed for demanding professional applications; model 5322, a moderately-priced monitor; and model 5722, a high-resolution, compact monitor for VTR mounting.

The 5700 series of monitors feature a new high-resolution shadow mask with Conrac colormatch phosphor, preset controls for brightness, contrast, chroma and phase; and horizontal, vertical delay and AFC time constant switches. According to John McClimont, marketing manager, Conrac sales are up 52% over last year and the factory has had to greatly increase production output to meet demands. (Circle 238)

**CONSOLIDATED ELECTRONICS INDUSTRIES** — The company introduced a new concept in air-programme and reproducer units. Called Cuerac™, the system is fully automatic and computer controlled. It features a storage capacity of 500 randomly selected cartridges with expansion capacity to 2500 units. Cuerac has a programming capacity of 2500 units which is expandable to 8000 units, and allows the system to provide either jock assist or fully automatic operation.

Of special interest to programme directors is Cuerac's ability to minimise breaks in formats, while maintaining ease of access for additions of new air cuts. A system alarm for instant problem indication is also included. (Circle 182)

**CONSOLIDATED VIDEO SYSTEMS** — Several new products were shown, including a digital synchroniser and time base corrector for ENG/EFP applications, and a 16-line window option for the CVS 520 TBC. Features on the digital synchroniser and

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TBC include freeze frame and field. Options include positioner, compression, DOC, and digital noise reduction.

Also displayed at the CVS booth were their TBCs in PAL, SECAM, NTSC, and PAL-M. There was also a great deal of interest in EPIC™ Computer Aided Editor. EPIC is a complete, software-based system for on- or off-line use with multiple VTRs, from quad and 1-inch to ¾-inch cassette types. (Circle 58)

**CONTINENTAL ELECTRONICS** — The company is continuing its push into the medium-power AM market while maintaining its strong position in the high-power AM market. Continental transmitters are the result of continued product improvement design, with emphasis on performance, reliability and simplicity that other designs are only beginning to approach. Continental's pioneering design effort has kept their transmitters at the forefront of advanced design since the 1940s.

Utilising state-of-the-art concepts combined with solid-state devices, the model 315/316F 5,000/10,000-watt AM transmitters use only two tubes in a high-efficiency amplifier. Modulation takes place in the output stage of the exciter. This "collector-modulation" technique eliminates critical tuning adjustments and is almost identical to plate modulation except that no transformers or chokes are used. The 317C, 50,000-watt transmitter uses high-level screen-grid/impedance modulation in a design pioneered in 1946 to eliminate the performance limitations of heavy audio iron core components. The power required by the modulator is very small, which adds to the overall efficiency of the transmitter. (Circle 136)

**CONVERGENCE CORPORATION** — The opportunity for a hands-on demonstration of the ECS-100 Series Superstick Editing Control was the main drawing card at the Convergence booth, as broadcasters got a real "feel" for this superb unit.

New features of the ECS-100 unveiled at the show included ¾-inch helical and 1-inch Type C videotape recorder interfaces. A key feature is that the Superstick controls tape motion in both the record VTR and up to three source VTRs. Operators also found the close proximity of the control buttons to the Superstick extremely functional. The location of the preview edit, perform edit and replay controls permits the operator to perform an edit without having to look at the editing control system. The ECS-100 Series was truly designed to let the operator focus on the creative side of editing.

The ECS-100 Series includes many other features, but to name just a few: a proprietary CUT/LAP™ option which enables the creation of fades to or from black and soft edit transitions between scenes using only a single source VTR; Liplock®, which retains the natural pitch of audio throughout a broad range of tape speeds; special effects switching; and time code and automatic animation. (Circle 135)

**CROSSPOINT LATCH CORPORATION** — The company introduced the

newest addition to its line of video production switchers, the model 6112. A completely self-contained unit, the 6112 features two independent mix-effects systems, a downstream keyer, and an optional chromakeyer and colour bar generator. These features permit a wide range of special effects combinations. The model 6112 requires only sync and subcarrirer to drive the unit, and will accept any combination or synchronous, non-synchronous, composite, non-composite, colour or monochrome signals. (Circle 138)

**DATAMETRICS** — The model SP-733 SMPTE edit code reader shown at this booth features time and "user bit" operation; eight-digit hexidecimal display/output; range of 1/5 to 40 times recorded speed; and automatic forward/reverse sensing. Front panel displays include eight LEDs for time or user bits; code present indicator; forward direction indicator; drop frame format indicator; time operation indicator; user bit operation indicator; and display hold indicator. (Circle 193)

**DATATEK** — Traffic through this booth was directed toward the company's D-4300 series of video and audio switching units. These units are designed for auxiliary switcher and small routing switcher applications meeting high-quality performance standards. And from reports, many broadcasters found these switching units to be the answer to their needs.

The units can be adapted to numerous situations, and are available as 6x1 video, 6x1 audio, 16x1 video/audio, 20x1 video, and 20x1 audio. They can not only be used as a single output buss, but they can be stacked for multiple output busses by looping inputs between units. They can, therefore, be used to make up small, economic routing switchers and may be expanded easily. D-4300 switchers can also be remote controlled, although local control is available. (Circle 127)

*(Photo by Ron Merrell)*

**DELTA ELECTRONICS** — Long a reliable supplier of RF test equipment, RF ammeter products, and antenna array monitors, Delta Electronics now has an automatic power controller and an amplitude modulation controller.

The APC-1 power controller measures the operating power of an AM station, and by interconnection to the transmitter's "raise/lower" controls keeps the operating power within FCC limits. Using a DC voltage from

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an external linear rectifier and a long-time constant circuit to remove modulation components and carrier shift variations, an output is provided to adjust transmitter power controls. An ATS option is available.

The AMC-1 modulation controller provides a closed-loop system around the transmitter to maintain AM modulation at the desired level. The modulation is maintained at the desired level independent of variations in programme audio level, transmitter characteristics, or supply voltage variations. (Circle 137)

Another item of note was the announcement that the company has moved into its new facilities. Delta Electronics' new address is 5730 General Washington Drive, Alexandria, VA 22312; (703) 354-3350.



**DEWOLFE MUSIC LIBRARY** — The '79 NAB was "fantastic," according to Larry Kessler, vice president of DeWolfe. Not only did producers and engineers take an interest in this booth, but Kessler said radio and TV executives showed a great deal of interest in DeWolfe's music service. New this year were 20 new LP albums of light, contemporary background music useful in production of television and radio spots, with full copyright protection. (Circle 253)

**DIGITAL VIDEO SYSTEMS** — This booth was crowded throughout the convention, and with good reason. Digital Video Systems unveiled their Phaser, a frame store time base correcor/synchroniser. And it's selling for $17,500 complete. The microprocessor is in the limelight in the phaser, with multiple microprocessor control, and adaptive digital circuitry that make the unit a SMART hands-off system. No mode switching is required.

Features include a clean hot-switch between non-synchronous hetrodyne and direct colour signals, software programmable chroma/luminance delay, 5 TV line hysteresis, full bandwidth freeze frame and freeze field, and it will pass VITS and VIRS correctly in all modes.

But the DVS DPS-1 digital processing system offers over three million bits of random access memory. This and other features kept it drawing equal time amont booth attendees. Its an all in one frame store TBC/synchroniser whose microcomputer provides 11 TV lines of hysteresis to eliminate motion discontinuities whenever frames are added or deleted. It controls freeze frame or field, periodically tests its own functions, and allows simple expansion for "optical effects." You can expect near perfect separation of luminance and chroma and full bandwidth freeze frames provided by the unit's picture adaptive digital comb filter. (Circle 195)

## FOR MORE INFORMATION

To obtain additional information on the new products featured in the NAB Review, simply circle the number on the Reader Service Card that corresponds with the boldface number following each company listing.

**DI-TECH** — Despite the number of switchers on the convention floor, Di-Tech reported good reaction to their model 5840 series AFV routing switcher which employs separate frames to house the video and audio modules. A great feature of the 5840 is the ability for input/output expansion beyond the 40 x 15 by simply adding additional frames and interconnecting cables.

Among the many features of the 5840 are audio and video breakaway, allowing a choice of switching AFV, video only or audio only; X-Y master control, standard up to 100 x 100 matrix; BCD parallel input port for computer control; and audio/video crosspoint which are multiplexed, thereby providing a positive tally for the audio and video.

Optional features include crosspoint LED numerical readout for input status on each 40 x 1 audio or video crosspoint card; single buss thumbwheel and take button control on each 40 x 1 audio or video crosspoint card; and serial control system. Another feature will allow up to three channels of audio per input. (Circle 139)

*(Photo by Michael Scheibach)*

**DOLBY LABORATORIES** — NAB '79 was the first showing of the Dolby NRU-10, a two-channel audio noise reduction unit for professional VTRs. Like other professional Dolby noise reduction units, the NRU-10 provides 10 dB of noise reduction, from 20 Hz upwards, rising to 15 dB at 9 kHz and above.

The NRU-10 will interface between a tape recorder and separate mixing facilities. It is designed to connect to recorders (such as most VTRs) whose built-in audio gain controls and meters are regularly used for level setting. As a result, the NRU-10 has its own record and playback level controls, as well as large, illuminated VU meters, which take over from those on the recorder. The NRU-10 is especially useful in recording situations where console gain controls are not required or easily available. The new unit will be available in the fourth quarter of 1979.

Also shown was a noise reduction unit (cat. no. 155) designed specifically to incorporate A-type noise reduction within the Sony BVH-1000 VTR. Two fully independent channels are provided in the unit, which plugs into an existing unused circuit card location in the BVH-1000, with minor changes to the backplane. The front panel meters and gain controls on the BVH-1000 are used in the normal manner; a bypass switch allows for instant removal of the noise reduction card, restoring the VTR to its unmodified state. Delivery is slated for the third quarter of this year. (Circle 140)

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**DRAKE-CHENAULT** — Programme directors take note: A new weekly radio programme featuring the week's "Top Thirty" songs will soon be available. Combined with an expertly researched and presented music countdown, Drake-Chenault includes interviews and lifestyle pieces on the top names in contemporary music; complete produced promos ready for local insertion; an ad maker kit for local newspaper advertising; on-air contests and promotions; a complete package of news releases and publicity materials, including on-air one liners; and much more. And keeping in mind that this all comes down to the bottom line, The Weekly Top Thirty has eleven commercial avails per hour.


**Is she real** or isn't she? Visitors at this booth never really knew, for sure. *(Photo by Michael Scheibach)*

**VICTOR DUNCAN** — Victor Duncan, which has been supplying film producers with production equipment for the last 18 years, has recently entered the video market. Being one of the largest equipment service companies with 5,500 accounts throughout the country, they already have in place an extensive distribution system. According to William Cataldo of the Video Division, their new broadcast-industrial service supplies cameras, recorders, tripods, editing systems and lighting and test equipment.

Victor Duncan now offers rental, sales and repair services featuring such names in video as NEC, Cinema Products, Bosch-Fernseh, IVC, JVC, Panasonic, and Ikegami. According to Cataldo, Victor Duncan, which for so many years has been relied on by film producers, is now offering the same dependability and high speed service to video producers. (Circle 249)

**DYNAIR ELECTRONICS** — To meet the needs of broadcasters looking for smaller, more economical switchers which maintain a high level of performance, Dynair has developed the Series 10, a new line of solid-state switching systems which offer performance features not normally found in systems of this size.

The basic switcher is designed around a 10-input by 10-output matrix with all the elements, except for the majority of control components, mounted on a single printed circuit board. As a result, the unit occupies only 13.34 centimeters (just over 5 inches) of standard relay rack. Controls are front mounted or can be remoted through a single coaxial cable up to 610 meters in length. As many as 15 bus or master switch controllers can be installed on the single serial data comm line.

The key to the Series 10 switcher is a microcomputer control system using a microprocessor as a logic replacement element. The microcomputer scans all of the momentary buttons, the LED display, and communicates on the coaxial comm line with all other optional controls. (Circle 196)

**DYNASCIENCES** — Although not introducing any new products, Dynasciences attracted good crowds with its standard lines of broadcast equipment.

The model 104 post-production editor with multi-source editing capability is a consistent winner, with its ability to carry out complex professional edits accurately and easily. Edits are accurate to within ±1 frame (TV) with modified VTRs. Front panel controls include search, still frame, cueing, transport controls, preview, and Dynasciences' patented positive reserve drive which minimises wear on the recorder and tape through reduced tape tension in all reverse modes.

Other controls located on the front panel are the Digital Insert Memory for precise timed inserts; Time-Trak digital counter system; electronic stopwatch; animation; expandable RS-1 multi-source deck selector; full rolling and static preview; edit review; integral pulse-cross; and digital tracking indicator; NTSC colour black, colour bars; and H/Lock Abort. (Circle 198)

**DYTEK INDUSTRIES** — The company showed the Video Controller. It's really a quality switching line that starts at $14,000 and slides up through additional features to $80,000. Some of the features are: multiple level keying per M/E; over 100 wipe effects; rotary wipes; computer interface; status mode readouts; and automated transition control.

Shortly after the convention, a marketing agreement was signed between Dytek and TeleMation, whereby TeleMation will market the SL video controller line both on the domestic (U.S.) market and on the foreign markets. Dennis Reinhart, executive VP of Dytek, said that "TeleMation product and market development expertise will further enhance Dytek's new DVC series of switchers slated to be introduced in early summer." (Circle 108)

**ENGLISH ELECTRIC VALVE (EEV)** — Actually, five main groups of products were featured: Leddicon® and Vidicon camera tubes; amplifier Klystrons; Power Tetrodes and vacuum capacitors; travelling wave tubes; and high-brightness character display tubes.

NAB attendees were drawn to the booth by a new teletype message display. The display comprised ten E729 character displays which can be switched by low voltage logic and are CMOS compatible. It draws just two Watts of power per character.

Also new this year was EEV's P8203 1-inch high-resolution Vidicon that gives resolution up to 1,600 TV lines for high-performance cameras. (Circle 166)

**EG&G** — No pun intended, Strobeguard® — a high-intensity

obstruction lighting system — was the highlight of the EG&G booth. This is a lighting system designed for towers and tall structures. Its controller increases the flash duration during the nighttime hours to 100 ms.

The system features low power consumption and plug-in PC boards that are protected with a special coating. It includes a self-activating monitoring and identification of malfunctions. (Circle 164)

**EMS INC.** — Robert Burrows, newly elected EMS president, and Lee Marvin, executive vice president of operations, were on hand to explain EMS' new EDIT-Q line of videotape editing control products. EDIT-Q allows the video user the option of purchasing only the editing capability their needs dictate. As editing requirements grow, the editing system grows via plug-in modular optional add-ons to the basic editor.

The heart of the EDIT-Q line is RES-Q™, a remote, edit, search, cue module. RES-Q features frame-accurate editing, remote control, variable pre-roll cue times, accurate time display readout, unlimited time duration for inserts, and insert length timing. And no VTR modifications are required.

Also included in the EDIT-Q line are VID-Q™, up-front video edit location monitor; AUD-Q™, variable speed, intelligible audio; TS-Q™, T-bar throttle search and cue module; and the MK60A, an intelligent interface mod kit. (Circle 255)

**ESE** — "Low cost" and "precision timing" were the key phrases at this booth, which displayed the excellent lineup of ESE timers.

The ES-300 is a four-digit incandescent display, 100-minute timer with six controls: Count Up, Count Down, Min-Set, Sec-Set, Stop, Reset. The ES-301 is similar to the ES-300, but with a gas discharge display. The ES-302 adds a fast-set lever wheel programming. Also shown were the ES-400, a three-digit 10-minute timer with Start, Stop, Reset; and the ES-500, a six-digital, 12-hour combination clock/timer with five controls (Start, Stop, Reset, Fast Advance, Slow Advance).

ESE timers have a number of standard options available, including BCD output, remote connector, slave, and six-foot remote cable and pushbutton set. Tenths of seconds are available on all timers except the ES-500. (Circle 88)

**EASTMAN KODAK** — If you caught the Academy Awards show after the convention, you saw Kodak's Ken Mason collect an Oscar for Kodak film. The company continues to improve their news film line and processing time, making film very competitive with video for news and ENG/EFP. Latest versions give special attention to film that will help you come back with the news from the toughest-to-cover news situations.

**EDUTRON** — The company demonstrated their ccd-VP, a video processor that is intended for use on any 1-volt composite video signal, with applications following any VTR, TBC, camera, microwave or satellite receiving station. It's a combination of a standard broadcast sync generator, processing amplifier, video image enhancer, and noise reducer.

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# Convention hits

To achieve a maximum amount of noise reduction, the ccd-VP, without causing any picture degradation, uses both picture combing and coring. The chrominance signal-to-noise can be improved up to 10 dB and the luminance up to 7 dB. (Circle **161**)

**ELCOM** — The company displayed their standard WBL limiter. It's a wide band high-speed phase coherent limiter designed to be used in conjunction with the Elcom Insta-Peak II FM Processor. It installs easily on existing exciters and stereo generators. The unit provides up to 40% more modulation on the FM carrier by eliminating overshoot that occurs in stereo generators and pre-emphasis networks. The company also displayed their dual spectrum audio processor, with the smooth control characteristics of the optical attenuator and the split spectrum control technique. (Circle **168**)

**ELECTRO CONTROLS** — In recent years, lighting controls have undergone vast changes. In fact, at a quick glance, the newest lighting control consoles look a lot like an audio or video production console. This company takes their lighting control console right into the flexibility of modular construction

The Plexus 1000, in keeping with the state-of-the-art, has a memory control system, but because of its modular design can be stepped down all the way to a manual single or two scene system. On the high end, you can count on 400 sequence positions for 200 memorized cues. (Circle **148**)

**ELECTROHOME (USA) LTD.** — Introduced here was a new 25-inch colour monitor as part of their 2,000 series. According to Laird Weagant, the U.S. sales manager, there has been a very positive reaction in the United States to the introduction of their broadcast monitors. Electrohome makes the only colour monitors that are RGB and NTSC switchable.

The 2,000 series of broadcast monitors are the only ones available with all signal circuitry available at the front of the monitor. The slide-in modules are interchangeable between their 19- and 25-inch monitors, a feature that greatly simplifies servicing. Also new this year for Electrohome was a 9-inch security monitor, the ESM-914. According to Weagant, 80% of all models are in stock with only a three to four week delivery time on all products. Price? Below comparable products. (Circle **242**)

**ELECTRO-VOICE** — The hit of this booth was the D056 Omni, a shock-mounted omnidirectional microphone that is virtually impervious to mechanical noise. Also, a built-in blast filter reduces "P-popping" dramatically.

Also unveiled was their RE16 Super Cardioid, a mike that combines the best features of the RE15 with additional mechanical noise isolation. It is designed to handle high ambient noise problems. Obviously, these two mikes were designed to stand up to operation in highly active environments. (Circle **176**)

**FARINON VIDEO** — The name of the game in television news is "ENG" — the capability to send your news team into the field for the "big" story, irregardless of where it happens. To meet these requirements, Farinon Video introduced microwave transmission systems and a central ENG 2 GHz receiver with remote split-channel selection.

Farinon displayed a fully-equipped minivan complete with their new portable microwave antennas in the 2, 7 and 13 GHz frequency bands. An integral part of the Farinon ENG gear is the new FV2CR Central Receiver with an 82 dB dynamic range, thus minimising the problems of weak signals and distortion.

Jorgen Bistrup, marketing manager, explained that the FV2CR eliminates the problem of having the signal strengths vary when transmitting over longer distances. It does this by compensating automatically to assure optimum performance. The FV2CR operates with a minimum system fade margin of 20 dB for transmissions up to 300 miles away. And for those news stories just a few blocks from the studio, the FV2CR guards against overload and distortion. (Circle **203**)

*(Photo by Ron Merrell)*

**YVES FAROUDJA INC.** — A new Portable Record Booster designed to improve the picture quality on portable ¾-inch VTRs was introduced by Yves Faroudja. The booster's primary purpose is to reduce image "flatness" on VTRs. Features include the following: corrects the "cartoon" effect common with multiple-generation dubbing on colour under VTRs; allows the use of higher thresholds in playback enhancers without detail loss and improved signal-to-noise ratio; can be used with any colour under VTR with or without a playback enhancing system; makes better master tapes on ¾-inch or ½-inch cassette machines, thus extending the number of acceptable generations.

Also new this year was a Comb Filter Separator, a compact device designed to provide separate luminance and chrominance components from a standard NTSC encoded signal. The advanced techniques used in this device to process the composite NTSC signal result in full bandwidth luminance; a luminance signal from chroma interference or intermodulation products; clean chrominance signals which are also free of high frequency luminance cross talk or rainbow patterns; and excellent quality, crisp colour images. (Circle **89**)

**FIDELIPAC** — If a tape eraser was on your shopping list, this was a good place to move into and out of the aisle traffic. Fidelipac was showing their Blank-It, a multi-format unit.

The Blank-It will take on NAB cartridges, 8-track carts, ¼ to 1-inch reels, magnetic film, cassettes, videocassettes, computer tape, and dictation cassettes. Housed in an easy-to-handle Noryl case, this eraser has a 5 minute duty cycle, and it's thermocouple protected so it can't burn out. It's rated at 880 Watts. (Circle **234**)

**FLASH TECHNOLOGY** — Yes, even tower lighting continues to un-

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dergo changes, and the FTB-205 is a good example. This high-intensity tower lighting system was designed around weight, wind loading factors, maintenance, and power consumption considerations.

As a whole system, the FTB-205 was designed for a service life in excess of 25 years. The controller draws 50 Watts maximum, with automatic day-twilight-night intensity control. And it includes a sensing and display of system status and beacon failure detection. This includes alarm contacts for a remote alarm. The nighttime flash is a burst of flicks, providing longer apparent flash duration of 0.25 seconds. (Circle 165)

**FREZZOLINI ELECTRONICS** — The Frezzi for the TK-76 got plenty of attention at this booth. The F-12-PS portable electronic belt was specifically designed for the popular TK-76, and it is directly interchangeable with existing power supplies for the camera.

One of the highlights of the F-12-P6 is that it can be fully recharged in 45 minutes. What's more, the electronic output sensing circuit automatically disconnects at the battery's minimum voltage. Due to its design, the automatic sequencer can change up to five of these belts at one time. The batteries are protected in epoxy-coated aluminum cassettes.

Frezzolini also demonstrated F-30 and F-30-EXF belts for powering up the Mini-Pro® and Sun Gun® portable lights. These belts can be charged in 25 minutes. (Circle 141)

**FUJI** — Al Bedross was on hand to introduce the company's new low noise 1-inch broadcast videotape. It's called the H621. And it's designed especially for mastering use on the 1-inch machines. In fact, Fuji demonstrated the stereophonic sound capability of their tape.

According to Fuji, the H621 tape already has been used as a programme source for commercial stereo television broadcasts in Japan. Meanwhile, the company announced at the convention that their Beridox VHS and Beta-format videocassettes would shortly be available in duplicator bulk packaging, without labels and cases. (Circle 167)

**FUJINON OPTICAL** — The company was demonstrating its new ultra-high resolution lens, which incorporates a built-in pattern generator for the new generation of auto-align cameras. According to Jack Dawson, director of advanced development, the new lens is capable of resolving 1300 TV lines, which is a 40% increase in resolution over previous lenses. A new compact tricolour test pattern generator is standard on the new high-resolution lenses and it is available as an option on the standard 16X and 30X lenses. The generator allows a precise matching of the lens and camera in all three colour channels, regardless of studio or ambient lighting condition. Two models of the new high-resolution lens are available: 14x12.5 F:1.6 for 1-inch cameras and 14X16.5 for 1¼-inch cameras.

Also displayed by Fujinon was the new f:1.7 17X9 lens for ENG applications, billed as the world's lightest, longest and widest ENG/EFP zoom lens. This new lens fits 10 of the top ENG cameras; and, in fact, it was being demonstrated by many camera manufacturers at NAB. (Circle 239)

**GARNER INDUSTRIES** — If you're in a hurry to erase a videocassette, this company will send you home with their model 270 that will do the job in less than 5 seconds. It's compact unit features a one-step, in and out operation. Its high flux coils were designed for high-speed erasures.

Handling up to 8½-inch reels and cassettes, the erasure level is -75 dB. The unit is overheat controlled with an automatic cutoff switch which resumes circuit operation automatically after sufficient cool-down. (Circle 175)

**GLENTRONIX** — There was real interest in the new Glentronix sideband response analyser, because it's designed to make TV transmitter alignment a lot easier. Aside from being all solid-state, it has a built-in video sweep generator with sync and blanking generators and adder. It

also has fixed 50% APL, or it can be varied from 10 to 100%. And it will work quite well even with low-cost scopes.

Other features include an amplitude calibrator with an electronic flashing of a reference line, sweep rate. And among its list of other features, this unit has a reversible horizontal output to suit your scope polarity. It also can be used for translator measurements by using an external double sideband test modulator. (Circle 173)

**ALAN GORDON ENTERPRISES** — The new Swintek Mark 200, unveiled at this booth, is a closed-loop intercommunication system specifically designed for clear, two-way communication in high noise environments, with the added feature of carrying programme material or functioning as a wireless mike system when necessary. This full-duplex communicator features one-half mile usable range; push to talk for system expansion; and data information input. The system may be used as a conventional telephone when desired, or operated as a control-station/satellite set with several user options. (Circle 188)

**GOTHAM AUDIO CORP.** — The KMR 82i condenser shotgun mike introduced by Gotham Audio is designed for those occasions when a mike should not appear within the picture, or in recording conditions, when a mike cannot be positioned within the desired distance of the sound source.

The Neumann KMR 82i is a lightweight mike which makes for ease of handling. And it is characterised by its largely frequency-independent rejection of sound inciding at an angle to the microphone's axis, by its low self-noise; and its good transient behaviour. (Circle 189)

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To obtain additional information on the new products featured in the NAB Review, simply circle the number on the Reader Service Card that corresponds with the boldface number following each company listing.

# Convention hits

**GRASS VALLEY** — Digital video effects was the star attraction again at the Grass Valley booth, but when visitors checked in, they found some interesting new additions to the company's lineup of quality products. Interest was centered on their all-new 300 series production switching system that was introduced here for the first time. Recognising the keen interest broadcasters have shown in video production and effects, the 300 is a no-compromise ease of operation switcher designed for full integration with digital video effects and plenty of interface flexibility.

Four input buses are provided to each mix/effects system, with two separate input buses for video and title key sources. Each M/E can be re-entered into every other, and in any order. Features include bordered quad split from each M/E system, new wipe patterns including matrix wipes, rate control positioner, and expanded rotary and pattern modulation control. Each M/E has a built-in Effects Memory (E-MEM) system as standard equipment. But an optional expanded E-MEM is available. (Circle **162**)

A second generation Digital Video Effects Mark II system, using the all-new NEC DVP-16 Digital Video Processor, was designed as a companion to the 300 Series switcher for expanded effects capability. Options allow up to four separate signals to be manipulated individually.

Grass Valley also introduced a stand-alone audio routing system, the 410 Series (32-in/16-out). It can be expanded to 32-in/64-out without the need for input fan-out distribution amplifiers.

**GRAY ENGINEERING LABORATORIES** — Sharing space with Mach One, Gray Engineering still attracted its share of the NAB crowd. One of the reasons: their new model DR-115, a unit designed to insert identical time or user bit character into four separate video channels from a single SMPTE edit code input.

Character size and positioning, as well as brightness, are adjustable on the front panel, and control all four functions alike. Character can be displayed with or without video, or they can be boxed. Each channel has two separate inputs for bridging composite video, and each channel has provisions for two outputs. (Circle **174**)

**THE GREAT AMERICAN MARKET** — As reported in the March issue, HMI lights are challenging the standards in lighting. And to keep pace with developments in this area, The Great American Market introduced a 1200-watt HMI fresnel lens spotlight. This Greatmark[TM] HMI light produces over 90 lumens per watt, which makes it ideal for keylight or fill, TV remotes, film locations, news pickups, commercials, and other uses where daylight colour balance is required. Colour temperature is rated at 5600 degrees K. (Circle **191**)

**GREGG LABORATORIES** — Audio processing was the emphasis at this booth that featured an AM peak limiting amplifier and a tri-band audio processing amplifier. The 2640 limiter is totally modular, with plug-in electronics, a transformerless input/output, variable limiting slope, sequential LED indicators, and asymmetrical operation to 200%.

The 2530 tri-band audio proc amp allows variation of crossover frequencies, attack and release times, and input/output levels. It also includes a gate control with hysteresis and variable delay and pre-emphasis and de-emphasis before and after processing. (Circle **179**)

**HM ELECTRONICS** — New at this booth was a wireless microphone "Flat Pac" portable receiver, the model WM 152. The WM 152 features extended dynamic range (95 dB); compact size and weight; battery operation from four 9V Alkaline or four NiCad rechargeable batteries; external power capability; autolock detection; and meter indicator for VU, RF, and internal battery status condition. (Circle **190**)

**HALLIKAINEN & FRIENDS** — Their new digital telemetry TEL 171 converts your Moseley TRC-15AW or TRC-15AR to a digital metering transmission with a method that eliminates the offset and gain drift in analogue metering. The system consists of PC boards which substitute directly for the audible metering generator, the audible metering demodulator, and the meter. A replacement front panel and liquid crystal display is included. A local display in the transmitter control unit duplicates the readings displayed by the studio control unit. (Circle **172**)

*(Photo by Michael Scheibach)*

**HARRIS** — Long known for a wide range of audio products, Harris highlights included the M90 modular audio control console, the MSP-100 audio processor for AM/FM/TV, the MSP-90 audio processor, and the 9000 programme control.

The model M90 is an expandable, completely modular audio control for the radio and television broadcaster. It provides 2- or 4-output channels with up to 26 mixing positions (52 inputs), or up to 24 mixing positions (48 inputs) in the 8-output channel version. Customising the M90 is easily accomplished by selecting from a wide variety of plug-in modules. In addition, a number of console functions may be "programmed" by use of jumper wires to create a broad choice

of operating characteristics. The M90 fills the gap between conventional broadcast consoles and sophisticated recording consoles to meet demanding requirements of quality conscious broadcasters. (Circle 143)

The MSP-100 audio processor is an extremely flexible audio control package designed to allow the highest possible modulation levels with minimum distortion. This single unit incorporates a tri-band AGC and broadband peak limiter with pre-emphasis compensation to permit "tailoring" of sound to the station format. The MSP-90 is an advanced audio processor using plug-in modules to provide various configurations for FM or AM use. Reflecting the latest in design techniques, including computerised testing, a main frame includes power supply and will accept two of the three available modules (AM limiter, FM limiter, AGC amplifier to provide the various configurations.)

*(Photo by Ron Whittaker)*

The Harris 9000 programme control is a microcomputer programme automation that provides independent files in programme memory for commercial schedules, music rotations, repetitive format elements, and special programmes which are then integrated to create the broadcast day. Innovative use of graphics such as highlights in the look-ahead display and bar graphs of upcoming schedules provide operator assistance and minimises operator training. With its many exclusives, from live assist to the advanced MULTI-FILE™ programme memory, the Harris 9000 is the next generation in programme automation. (Circle 145)

Continuing their solid-state transmitter line, Harris showed their FM-300K, and 300 Watt all-solid-state transmitter.

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## NAB REVIEW Hits

**HITACHI DENSHI AMERICA LTD.** — Hitachi displayed their new HR-100 portable one-inch helical VTR. The ultra-compact machine is based on the Type C, high-band standard. The machine has low power consumption (90 minutes operating time with built-in battery), excellent environmental characteristics, and an automatic assemble-edit function. (Circle **240**)

Another one-inch machine, the HR-200 table model helical, was also being demonstrated by Hitachi. This machine offers the best in 1-inch broadcast-quality video and post-production features.

Three Hitachi colour cameras were also on display: the SK-100 colour studio camera; the SK-96, incorporating three ⅔-inch Saticon high-resolution tubes; and the FP-20S, a self-contained ENG/EFP broadcast quality camera. Tetsuo Ohnishi, the chief engineer of the broadcast division of Hitachi Denshi America, Ltd., also noted that Hitachi has a complete line of portable oscilloscopes, the V-151, the V-152, the V-301 and the V-302. And, according to Ohnishi, a new Saticon camera tube was introduced at NAB, the H9336. (Circle **209**)

**IGM** — In automation circles, IGM has been a big drawing card with their Go-Cart in 42 or 78 cartridge capacities. They were claiming the worst access time is six seconds for the 42-cart unit, and eight seconds for the 78-cart unit. You can run two or more Go-Carts back-to-back for all programming (including music), or add one to handle commercials, ID's, and public affairs, leaving your music on reels or discs. And, yes, it will interface with most automation systems. (Circle **71**)

**IKEGAMI** — Take your pick at this booth! Well established already with several colour video cameras, Ikegami came to the convention with a number of new cameras, too numerous to detail here. Notably, they added a studio camera that also works with triax cable. It's the HK-312D, and it has an optional

minicomputer for 45-second automatic setup. Of course the triax feature means this camera probably will see its share of field assignments. It uses three 1¼-inch Plumbicons® with a better than 56 dB signal-to-noise ratio, and it has automatic black level and balance correction to handle lens flare.

On the other end, Ikegami introduced what they say is the lightest, smallest prism-optics ENG/EFP camera anywhere. The HL-79A, with viewfinder, weighs in at 11.2 pounds. At f/1.4 it will still work on 2 footcandles. The power consumption is only 23 Watts.

The new HK-357A studio/field camera head contains everything needed to deliver a standard colour video signal to broadcast standards. It can be set up remotely automatically with the touch of a computer activitating button. S/N is 53 dB, and picture resolution can be as high as 60% modulation at 400 lines.

The company also showed two new remote base stations that convert Ikegami cameras for complex field work or studio production. (Circle **93**)

**IMAGE VIDEO LIMITED** — Image Video's contribution to the new products offerings at this year's NAB was the model 6010 self-contained routing switcher. Specifically designed for broadcast applications in VTR source selection and monitor selection, the 6010 features vertical internal video switching; selection of audio-only, video-only, or audio-follow-video configurations; serial remote control; and LED status indicators. (Circle **230**)

**INDUSTRIAL SCIENCES** — A matrix wipe generator (model 2031) was the key to this booth. Using a microprocessor, this generator allows the use of a switchable 64 by 64 or 32 by 32 matrix without an unusual amount of electronics.

Included is a pattern multiplier which takes the selected pattern and places it in the four quadrants of the raster and then wipes the quadrants simultaneously with the chosen pattern. The 90 degree rotate switch changes the direction of the wipe. These features, in conjunction with the 16 basic wipe patterns, will add 64 patterns to your present switcher. (Circle **171**)

**INOVONICS** — Drawing the most attention at the Inovonics booth was the new model 377 dual-channel automation preamp. Designed to interface with a wide variety of tape heads and transports, the model 377 is pin-compatible with Ampex and Schafer equipment. It is fully RFI-proofed, and offers high stability, low noise, and wide-range response.

Also attracting viewers was the MAP II, an expansion of Inovonics' first multi-band audio processor. The company kept the most popular features of the original MAP, and added a new "integrated" peak controller, a built-in pink noise source, and provided a selectable high-pass filter with three low-end cutoff frequency choices. (Circle **225**)

**INTERAND CORPORATION** — Interand introduced their model 660 TAPAS System at this year's NAB exhibit. The TAPAS (Telestrator Automatic Programmable Animation System) includes a Telestrator with all standard modules and features; a symbol generator with 12 standard systems and Mark II symbol control; a scan converter with three independent memory planes, three masking planes and cursor; a modified colour encoder; and TAPAS control unit. Attendance at the Interand-Chicago TAPAS training school is included in the basic cost, and additional options are available. (Circle **227**)

**INTERNATIONAL TAPETRONICS** — The Series 99 cartridge machines signify a shift to crystal-referenced DC servo motor as well as improvements in solenoid latching, head module, and cartridge positioning. This improved tape handling combined with an exclusive ITC head design provides reel-to-reel sound from cartridge tapes. In addition, the machines offer new operator control and convenience, including microprocessor control of the electronic functions.

The cartridge positioning mechanism puts the pressure on the outer rails of the cartridge to minimise cartridge distortion and a side pressure spring assures proper side location. The DC servo motor reduces wow and flutter and improves long-term speed stability. The DC servo motor also results in much cooler operation. A new positive mechanical latch assures consistent pressure roller positioning and an advanced pressure roller compound provides twice the pulling power of ordinary rollers. A removable head module has the rotational axis on the

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# Convention hits

exact vertical and horizontal centerlines of the heads. Height, azimuth and zenith adjustments are made independently and have individual locks. The 8048 microprocessor controls all electronic functions such as record head bias frequency, cue detection, cue tone generation, and all record and playback logic functions. (Circle 146)

The 1K library storage system has been updated with the Series 99 cartridge machines. Twin storage cylinders file 1024 cartridges which are transferred to up to 24 single-deck cartridge playbacks to serve up to four stereo audio channels simultaneously. The unit may be used in a variety of roles from "live assist" to supporting walk-away automation. (Circle 147)

**INTERNATIONAL VIDEO CORP. (IVC)** — The big news at IVC was the introduction of two new video cameras and a 10 MHz video bandwidth version of its IVC 815 VTR.

The newest cameras are the 7005 and 7005P, and they'll be using the new diode gun tube, which accounts for their high resolution and sharp pictures. The 7005P uses automatic beam control for elimination of comet-tailing, and since this essentially is an EFP camera, it's an important feature.

The new VTR uses a writing speed of 723 ips. Its signal processing techniques allow 800-line horizontal resolution and 40 dB signal-to-noise. Other features are its slow and stop motion playback, 2-second start time, two independent audio tracks, and the ability to any standard 50 or 60 Hz field format. (Circle 177)

**JVC** — This booth was highlighted by the showing of a variety of components, such as the CY-8800 camera series, the 8500 series editing system, and the CR-4400LU portable videocassette recorder.

While the CY-8800 was essentially designed for ENG and EFP applications, it can be used in the studio. Any camera that can be used this way will be cost effective, and JVC has done it with three ⅔-inch Puumbicon or Saticon tubes, a built-in CCU (for portable applications) in a lightweight self-contained design. It can be genlocked with the JVC GN-8800 genlock unit, allowing video signals to feed back to the viewfinder during field production. For studio use, its connected with the JVC RS-8800U remote synchronising unit.

Their CR-8500LU is a fully electronic editing videocassette recorder. Combined with the RM-85U automatic editing control unit, it gives JVC a fast, economical editing system. The system offers fast and automatic forward/reverse searching to find edit points at a variety of speeds, all the way down to 1/20 normal speed.

Their videocassette recorder, the CR-4400LU, is a ¾-inch VTR that already has found broadcast and professional applications. And then answering the growing need for high-performance, low-cost cameras, Herman Schloss (VP and GM of the Professional Video Division) introduced their latest entry — the GC-4400U. Schloss said, "We feel our new camera is ideal for the new breed of professional and industrial users." The camera is designed to complement such recorders as the CR-4400LU and the HR-4100U.

Among a myriad of products, JVC also showed the industry's first 2-tube Satican camera. One is for luminance, the other for chrominance. And an extended chrominance bandwidth coupled with a newly designed colour-stripe filter system (and a new aperture correction current) gives sharp chrominance and luminance signals. (Circle 257)


**JAM CREATIVE PRODUCTIONS** — The topic of interest at the Jam Creative Productions's booth was the company's new "Best on TV" ID package. Hailed as the package which will give your station a contemporary sound, the "Best on TV" consists of one 59-second version with several donut mixes, one 29-second version with several donut mixes, one 4.5-second logo, and one instrumental news intro. On the audio side, Jam Creative Productions introduced three new packages: "Dance To The Music"; "Grease Weekend"; and "Mixmasters."

**JATEX INC.** — The new product attracting attendees at the Jatex booth was the company's new VSEC-42T automatic editing control unit. Featuring plug-in compatibility and time-code accuracy, the VSEC-42T generates duplicate masters and will intermix with any VTR. The professional teleproduction quality unit has a crystal-controlled stopwatch timer, VTR remote control, autosearch, and a self-checking capability. (Circle 231)

**KAMAN SCIENCES CORP.** — Business managers and operations personnel found this booth an important stop on their tour through the convention floor. The reason: The BCS 1100 automatic traffic/accounting system, a total information retrieval and management system.

The BCS 1100 includes KARTS, a new computing system that inventories tape cassettes, reel-to-reel tapes, and commercial films. This capability allows business managers to always know the subject availability of every cassette, along with the pull date and disposition of every commercial, PSA, programme, or promotion.

News directors will also find the BCS 1100 an important tool, since it gives them complete control over news inventory and fingertip access to all news stories aired. With this system, they will have instant recall of past stories on specific persons, events, or organisations. (Circle 256)

**KLEIGL BROS.** — Kleigl was demonstrating their new Performer Memory Control System, a compact,

table-top unit with a high memory capacity and a comparatively low price tag. The system is available with 32, 64 and 96 control channels with 100+ or 200+ memories, according to director of marketing Ronald Olson. The visual display mimic shows dynamic operating status and channel levels in both the stage and preset modes.

Also new this year was the Aimslite series 1000 and 2000 variable-beam spotlights. Seven models are available from 500 to 2000 watts. Kleigl also has a new line of HMI lights, which range from 200 to 4000 watts. These Kliegl/Kobold HMI lights are available with either the standard or the flicker-free, low-modulation ballast. (Circle **247**)

**KNOX VIDEO PRODUCTS** — The headlining product at the Knox booth was the K128 television titling system. A unique character generator, the K128 offers smooth, high-resolution characters; true lower case letters; foreign letters and math symbols; expandable two page memory; variable line length; and four font variations. Rear panel plugs permit full remote operation, and an optional ROLL/CRAWL card is available for factory installation. (Circle **229**)

**LPB INC.** — A new type-accepted educational FM transmitter was introduced. It was designed to meet the FCC's new requirements of a 100 Watt minimum for educational broadcasting. In fact, the FM-150SS FM transmitter will hit 150 Watts. This allows the station the economic advantage of being able to use a 2-bay circularly polarised. Offered along with the companion LPB FM10SSE exciter the total transmitter system is $5,295. And for use with a Class D station's present exciter, the power amplifier portion only (the FM-150SS) is $3,000. (Circle **178**)

**L-W INTERNATIONAL** — The highlight of this booth was their "easy way" to freeze frame and slow motion. Of course they were showing the Athena 4000 and 5000 projector systems. The main points of interest was their freeze frame, instant start/stop, animation slo-mo — all direct from film to tape by TV film chain. Then enter digital in CMOS control circuitry for complete low-voltage remote control and/or computer control. A real plus is their extended 2-3 year warranty. (Circle **72**)

**LEITCH VIDEO** — Completely new, the CBG-230N encoded colour bar generator was unveiled at the Leitch Video booth. Featuring the SMPTE ECR-1 alignment colour bar test signal, this unit is specifically intended for dedicated use in the alignment of control room, studio, and VTR picture monitors.

Designed for rack installations, it has one output each of colour bar, colour black, and R, G, B. The R, G, B outputs may be changed (by internal selection) to Y, R-Y, and B-Y signals.

Among the other Leitch products on display were their ACO-131 automatic changeover unit and the SPG-130N sync pulse generator. The ACO-131 is a compact, self-contained quality switching device designed to operate with two synchronising pulse generators for "fail safe" continuity of synchronising signals. The SPG-130N sync pulse generator is primarily used as a slave generator at picture source locations. When genlocked, the TCXO is phase locked to the processed burst derived from the incoming video signal. (Circle **277**)

**LENCO** — Dick Lawrence, Lenco's general manager, reported an "outstanding" show, with a great deal of interest in the company's high-resolution colour video monitors, the 500 Series.

Using a modern type of CRT, the PCM-500 Series provides excellent reliability; 625 lines of resolution is achieved by the use of a black matrix, shadow mask precision in-line gun that, according to Lenco, all but eliminates the need for convergence controls. Up to 24 operational amplifiers and their controls are eliminated by the use of this advanced type tube, as well as the need of a built-in cross hatch generator.

The design concept of the PCM-500 Series colour monitors was to provide a universal device that can be used for any situation. A switchable comb filter, two NTSC inputs, and an RGB input were incorporated as well as differential input amplifiers for maximum hum rejection and eliminating interfering ground loops.

Three models are available: the PCM-514, a 14-inch monitor de-

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# Convention hits

signed for VTR over-console mounting; the PCM-519, a 19-inch CRT with optionable rack-mounting slides; and the PCM-522, a maximum viewing area device. (Circle **92**)

**LIGHTNING ELIMINATION ASSOCIATES** — The Kleanline electronic filtering system, introduced at this booth, is designed for total elimination of surges, transients, and noise. The MB-10 Electronic Power Line Filtering System is used on balanced 120-volt, single phase, 3-wire power lines; and units are equipped with male and female connectors for simple plug-in installation. Features include instant response, absolute protection, self restoring, EMI suppression, fail-safe design, no interruptions, neon status indicator, bipolar/bi-directional protection. (Circle **259**)

**LISTEC TV EQUIPMENT CORP.** — "Excellent reaction to the development of new mounting equipment especially designed to take advantage of small size of full-production EFP cameras." That was the comment of Listec president, Jack Littler, who also reported that NAB '79 was the best show ever for Listec, with more orders taken on the floor than any previous NAB.

The featured new product at this booth was the Vinten 3078 post-pan and tilt head. With a capacity of 50 pounds, the 3078 features full 360 degree pan and tilt rotation about center of gravity for weightless operation. The 3078 is especially useful for long zoom lenses and EFP cameras. (Circle **261**)

**LOGITEK** — The DIMARC 30/15 is a broadcast remote-control system combining solid-state reliability with ease of operation at an affordable price. Designed to operate over a single voice-grade phone pair, the DIMARC 30/15 provides 30 control functions along with 15 simultaneous metering functions, plus 40 on/off status indicators.

Each metering function is individually displayed at both ends of the system, so that calibration can be performed at the transmitter without voice communication with the studio. Calibration is accomplished by thumbwheel controls, completely eliminating problems with noisy or temperature-variant calibration pots . . . according to Logitek. (Circle **262**)

*(Photo by Michael Scheibach)*

**LIPSNER-SMITH** — According to reps at this booth, the new Micro-Perfect™ CF200 film cleaning and conditioning system delivers the cleanest film possible. Ultrasonic cleaning action removes dirt and surface contamination from both sides of the film, but does not change the photographic qualities or colour properties of the film itself. The cleaning medium is CF2 Solvent, developed by Lipsner-Smith.

The CF200 features automatic stopping; six motors; soft-start; continuous fluid filtering; extra-capacity air filter; thermostatically-controlled air and solvent; adjustable speed; simplified maintenance; no fuses; and automatic fluid fill. (Circle **260**)

**3M COMPANY** — Microprocessors were in command in this booth, and they came on as examples of meaningful circuits, rather than being added to hype sales. One of the many examples for 3M was their studio production switcher that uses a microprocessor to provide sequence setups. In fact the built-in memory allows preparation and storage of up to eight panel setups for recall during difficult production sequences. And more than 20 effects can be selected by a 10-key input bank. Twelve inputs, including black burst and colour background, are available. The effects are generated in hard-switch, soft-switch or border-wipe form, and a chroma-key feature is optional. It can do wipes behind key, dissolves or cuts to key, dissolves to effects, fades to and from black, and dissolves behind chroma-key.

The expanded flexibility of the microprocessor-assisted circuits actually can simplify system operation, and as Frank D'Ascenzo put it, the dual microprocessor character generator is "one of the few machines to approach freedom from obsolescense because it can be upgraded by software to meet future requirements." The D-8800 offers internal storage of up to four complete type fonts and 12,000 25-character rows of title information, and more can be stored on external floppy discs. It has pre-programmed roll/crawl and selectable mask position, speed and direction, and automatic centering. There's more, but let's take a look at the new D-2500 character generator.

The D-2500 is a low-cost quality generator that includes three type fonts in upper- and lower-case characters. Selling for well under $6,000, this model has a four-page internal memory that provides random access to 40 lines of titles. And if needed, an unlimited memory capacity, using cartridge storage, can be added.

Further microprocessor involvement was evident in their model 6500 microprocessor controller for use with any of its model 40X or 20X series routing switching systems. The 6500 incorporates a microprocessor,

associated software, and a series of unique control panels to provide extra capability and system configuration flexibility.

The Magnetic Audio/Video Products division showed their "Scotch" hanger storage system that stores and protects videocassettes. The system is especially designed for U-matic and mini-U-matic videocassettes. And the division has totally redesigned the package labelling of all their products so the user has more marking space available for marking and filing info. (Circle 207)

**McCURDY RADIO INDUSTRIES** — McCurdy has a new audio compressor module and a four-band variable equaliser for use in their standard or customised audio consoles and systems.

The ST 1910/1911 spectrum translator system provides a 60-2760 Hz frequency response when used over voice-grade lines having typical response of 300-3000 Hz. The 60-2760 Hz spectrum is translated up to 300-3000 Hz for transmission and then recovered at the studio, for a gain of over two octaves of information normally lost in transmission. The system is capable of providing a bandwidth of 60-5000 Hz of the transmission path response extends out to 5240 Hz.

The new MTPL 0L1930 is an open-line talk show system designed to overcome the problems of interfacing switched telephone systems. A fully automatic system, the 0L1930 adjusts all the parameters required for maximum isolation of studio feedback and line switching. Conferencing of up to eight incoming lines can be accomplished in either two-wire or four-wire configurations. Preset muting automatically lowers the level of the incoming caller whenever the "talent" speaks. Elliptic filters are used to ensure a uniformity of sound quality. (Circle 151)

**MCMARTIN INDUSTRIES** — McMartin's new MAXI-1 dual-channel audio processor has been designed to precisely control modulation in FM stereo or mono. The MAXI-1 utilises very sophisticated circuits to provide natural-sounding gain control without the unpleasant and annoying distortions frequently associated with audio processing. The BFM-1514R is a rack-mounted stereo audio processor and stereo generator combined suitable for use with virtually any FM exciter. The stereo generator in this unit is electronically similar to that used in the BFM-15 exciter. The BFM-1514 is a plug-in module for use in the BFM-15 exciter.

The McMartin BFM-15 can be used as an exciter for higher power FM transmitters, or as a 10-watt transmitter. The unit incorporates a unique C-MOS phase-locked direct FM modulator to provide ultrastable and precise frequency control. All circuitry in the exciter is housed in front-accessible, plug-in modules. Front panel metering, monitoring and full-remote-control provisions are included.

Expanding into higher transmitter power, McMartin's BA-5K2 5,000 watt plate-modulated AM transmitter uses only three tubes; one in the final amplifier and two in the modulator section. The RF exciter and audio drivers are completely solid-state. The BA-5K2 features two hinged-down front panels for accessibility to low level AF and RF stages, incorporation of many metering functions, solid-state overload protection circuitry, interface capability with all standard remote control systems, and 125% positive peak modulation capability. (Circle 152)

**MCI INC.** — MCI's complete line of professional recording equipment was on display at NAB, but interest was focused on two new innovations: the JH-32 3-speed, 3-inch 32-track recorder; and AutoLock, a SMPTE/EBU generator/reader/synchroniser for audio-audio, video-audio, and film-audio (sprocketed and unsprocketed) applications.

The JH-32 has 32 tracks on 3-inch, and 16 or 24 tracks on 2-inch tape; improved crosstalk and cross-erasure specs due to increased track spacing; better signal to noise; more head room; and 20 ips, offers optimum MCI standards for EQ and tape economy.

AutoLock has microprocessor-based electronics for more flexibility, resulting in a single unit capable of providing all the functions of previous multi-unit synchronising systems at a much lower cost. (Circle 263)

**MPB TECHNOLOGIES** — A desk-top model of the VISTA 80 Graphics System was new this year. Like the rack-mounting model, the desk-top version is a two-channel microcomputer-controlled character generator and graphics system. It permits flex-

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ible keyboard control of eight-colour, multiple-style character displays, graphics, logos, etc., and their storage and recall from discette. Two channels can be used independently, or as preview and on-air channels, or they can be mixed to produce special overlay effects. Both channels can be controlled by a remote computer.

The operating programmes and fonts are stored on discette. The operating system discette includes a basic font load consisting of two equally spaced and two proportionally spaced alphabets, in addition to the operating programme. Other font loads are supplied on separate discettes. (Circle **264**)

**MACH ONE DIGITAL SYSTEMS** — The MACH ONE editing system, already well-known in the industry, is now capable of switching between and editing 24, 25 and conventional (NTSC) 30 frame per second formats. The mixed format editing was demonstrated at the booth, with excellent response.

According to Jim Adams, Mach One president, this video editing system is able to operate in all formats. The 24 fps format, with a scanning frequency of 655 lines of resolution, enables edited tape to be directly transferred to 35mm motion picture film for theatrical release. The 25 fps format has a scanning frequency of 625 lines, and allows editing of alternate phase format tapes (PAL) for European broadcast transmission. Another key feature of the MACH ONE system is the ability to switch, with one keystroke, either drop frame or non-drop frame time code. (Circle **265**)

**MARCONI ELECTRONICS** — A news set was used by the company to show off their Mark IX cameras, the only second-generation cameras with automatic registration, automatic centering, automatic colour balance, automatic master black, automatic iris, and automatic dynamic gain. Included in the demonstration was the portable Mark IX electronic field production camera, which converts into a studio camera. The CCU for both of the Mark IX cameras is the same.

According to Frederick Bones, national sales manager, Marconi now has over 100 orders on the Mark IX cameras, with between 60 and 70 now in the field. According to Bones, the Marconi approach to auto alignment offers several advantages over other systems. (Circle **246**)

Marconi was also showing their self-contained ENG camera, the B3295, and the new DICE standards converter. Also new was a device which supers electronic waveform information into the video of a colour TV monitor to facilitate video control and analysis.

**MARTI ELECTRONICS** — Marti remains a major supplier of remote pickup equipment for broadcast use as well as studio-transmitter link equipment. The familiar RPT series base/mobile transmitters, R series receivers and RPT-1 portable transmitter have been joined by the ARS-150 and ARS-450 automatic repeater stations. The ARS series provides wide-range communications coverage for remote pickup ENG with broadcast-quality audio and continuous broadcast-duty operation. The system has continuous subaudible tone decoding for security of operation and various antennas and accessories are available.

**Orion**, the congenial robot at the Ward-Beck booth, welcomes a convention visitor. (*Photo by Susan Whittaker*)

The RR series Mobile Relay Receiver extends the range of battery portable transmitters by repeating through higher-powered mobile transmitters. The unit is designed for continuous-duty broadcast service and the subaudible encoding of the portable transmitter with decoding in the relay receiver complies with FCC rule 74.431. (Circle **149**)

**MEMOREX CORPORATION** — The primary cause of edge damage in ¾-inch videocassette tape — improper spindle height alignment — was a problem addressed by Memorex at their NAB booth. The company introduced the Spindle Height Alignment Gauge (SHAG) designed to

allow any ¾-inch VCR user to quickly check spindle height alignment. Memorex claims that a procedure which previously required four hours of a technician's time can now be performed in thirty seconds.

Utilising a gauge assembly the size of a mini U-Matic cassette, a precisely-formed steel base serves as a reference in establishing "zero," or ideal spindle alignment conditions. The SHAG has recently become available through Memorex videotape distributors. (Circle 180)

**MERLIN ENGINEERING WORKS** — Previewing future offerings, Merlin unveiled their conceptual Jupiter System. A new approach to low-cost, high-quality broadcast recording and playback, the Jupiter format is a marriage between the high-volume production Sony Betamax™ tape transport and high-band Merlin signal electronics.

Utilising the Betamax's acceptance of inexpensive ½-inch videocassettes, Jupiter increases the writing speed of the transport and scanner without altering the proven mechanics of the Beta machine. Now in studio version, Jupiter will be available in a portable configuration soon, and later a multi-transport unit for random access of recordings will aid in low-cost handling of short play spots. (Circle 76)

**MICMIX** — DYNAFLANGER™ is a new special effects generator for flanging, doubling, doppier, and other effects. DYNAFLANGER has an exceptional array of features, including manual or modulator control of effects; external control of effects; delay-only and bypass capabilities; reversible control voltage tracking; selectable control voltage decay rate; LED display of applied control voltage; wide dynamic range and response; and balanced and unbalanced input/output.

DYNAFLANGER is especially effective when used in pairs for stereo imaging that can move in and out as well as from side to side, or for dynamic cross flanging which is one of the most pronounced effects available. (Circle 266)

**MICRO CONSULTANTS INC. (MCI/QUANTEL)** — When you could get through to the front of the demo crowds at this booth, you could see just how flexible and dramatic digital video effects have become. Their already successfully introduced DPE 5000 system has been further enhanced by AUTOFLEX™. AUTOFLEX includes a special-purpose minicomputer and a small control panel that connects to the DPE 5000. Among its capabilities are special titling effects like those used in *Star Wars*. The small control panel includes 16 shape and preselect buttons, an invert switch to reverse the shapes, and what they call Take and Ooze™ functions. Take makes the effect appear immediately, while Ooze causes a gradual change from one shape to another at a preselected rate. In fact, your own customed shapes can be programmed at the factory.

Another interesting option for their DVE system is MULTILINK. It's a time-sharing option that allows DPE 5000 users to install DPE control panels in each of their switchers and allocate DPE 5000 time as demand dictates. For multiple point users, the MULTILINK assignment panel permits the linking of two, three, or four DPE 5000 units and production control panels. (Circle 204)

In their hospitality suite the company demonstrated a unique digital still-store library system. It's called the DLS 6000 with a 700 still-frame capacity. It uses a disc drive system that, when placed in its BROWSE™ mode, will group up to 64 frames at one time, so you can browse through your takes stored. Of course additional 700-frame increments are possible by adding to the number of disc drives. The unit also features zoom and positioning, so you can do much more than call up frames in the library. This allows slides or still frames to be re-framed and/or re-sized for direct insertion. Size and positioning storage features permit immediate recall at the precise position specified. Multiple picture output is possible, and the editing system allows the running order to be specified, reviewed, edited, and stored.

**MICRO CONTROLS INC.** — A new STL headlined the offerings at the MCI booth. With an operating range for the STL of 940-952 MHz, and 88-108 MHz for the receiver output,

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## FOR MORE INFORMATION

To obtain additional information on the new products featured in the NAB Review, simply circle the number on the Reader Service Card that corresponds with the boldface number following each company listing.

# NAB REVIEW — Convention hits

the company claims harmonic distortion levels of 0.4% or less. The specifications quoted included stereo separation of 40 dB or better, modulation capability of ± 150 kHz, and input impedence of 600 ohms. (Circle 228)

**MICROTIME** — Introduced by Microtime was a new frame synchroniser/time base corrector, the 252 Video Signal Synchronizer.

The 2525 VSS, designed in the tradition of the 2020 Series TBC, includes line error detection; field 1, field 2, or frame freeze for digital video effects applications; a new RS-170A sync generator for improved lockup and easy interfacing with any switcher; and unique HETROCOLOR™ processing to provide optimum performance for colour under signals. The 2525 will correct VTR signals from no-lock or V/H lock, non-synchronous or synchronous, direct or heterodyne, ½-inch helical through 2-inch quad.

Standard features also include H phasing for output timing control; auto freeze or black selectable; output H sync and burst level control; and a reliable low-error-rate computer memory.

The 2525 VSS passes VITS with the same processing as active video, can be remotely controlled, and is transparent to input signals from any source. (Circle 267)

**MICRO-TRAK CORPORATION** — In an expansion of their product line Micro-Trak introduced its new model 6618 six-channel stereo/mono audio console. The versatility afforded by a built-in headphone, monitor line and 10-watt per channel studio monitor amplifier headline the features of this new console. Ease of operation is assured by plug-in electronics, conventional control layout, pushbutton input selection, and latch logic line switching with LED indicators. (Circle 169)

Micro-Trak also showed their popular "S" system audio control center, which includes the 6618, turntables, preamps, and interconnecting wiring in a functionally designed, contemporary style 80-inch operating desk.

**MICROWAVE ASSOCIATES** — An entire line of portable 2 GHz rod-type ENG antennas were introduced by Microwave Associates. The Disc-Rod line is available in one-, two-, or four-element arrays with gains from 11 dBi to 23.7 dBi. The antenna features a choice of polarisation options including fixed linear or circular, switchable left or right circular, a continuously adjustable (including even elliptical) for long-range bounce shots.

Another new ENG-related product shown for the first time as Flight Pack I, designed to permit ENG teams to reduce their response time to news events or to greatly extend their microwave range. The Flight Pack I system includes 2 GHz transmitter and receiver as well as a 12-watt power amplifier, power supplies to permit connection to the aircraft power system, and an aircraft 2 GHz antenna. (Circle 170)

**MOSELEY** — If you had an eye for STL and remote control, this was a "must" booth to visit. The company showed their new model MRC-1 microprocessor based broadcast transmitter remote control unit and their model DCS-2A transmitter digital control system. In fact, their MRC-1 and TRL-1 450 MHz return link are industry firsts.

Of course there was much more at the booth, including the ESC-10. It's an earth station control. And it was displayed along a row of hits that included their aural transmitter links (PCL-505 and PCL-505/C), stereo generators, stereo-AM and FM STL model PCL-101 that hits 148 to 960 MHz bands, and remote pickup links for the 150 and 450 MHz bands. (Circle 241)

**NEC AMERICA** — NEC continued its strong showing in the U.S. market by drawing heavy booth traffic with their deep product lines. R. Dennis Fraser was on hand to demonstrate their new 1-inch Type-C TT-7000 VTR. It features a full six-head drum including video, audio, and control track confidence heads. The 7000 has an extremely fine jogging feature and variable shuttle to search editing and starting points. A complete tape-slackening mechanism for accurate 3-second cue starts by constant drum rotation.

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Two tape timers are built-in, indicating time accumulated from the beginning, allowing the second timer to be set to zero at any selected point. The timer pulse can be calibrated to the control track with an optional SMPTE address code.

NEC also demonstrated multi-freeze at the convention. It's an optional unit for the DVP-15. This option allows the user to freeze 4, 9, or 16 different images within a single raster. This action may occur from a continuous sequence of frames (sports, for example) or with 4, 9, or 16 different images to represent multiple scenes for production applications. Once frozen, one of the images can be returned to live action for more visual variety. This unit also provides a colour border and background generator. A microprocessor control system allows the operator to use a touch-pad to control the effect with memories for sequence, placement of the image on the screen, and timing for the effect.

announced new generations of compact, lower-priced VHF and UHF transmitters. The PCN-1200 series and PCU-700 series complement the company's already wide lineup of transmitters. The PCN-1200 uses IF modulation, and they feature a broadband matching system for full spectrum coverage of Band III without adjustment, a surface acoustic wave filter as a VSBF and low pass filter, and plenty of IC circuits. It's available in 1, 2, 5, 10, and 25 kW models.

By using IC's they've reduced total parts in the PCU-700 series by 70%. The series uses high efficiency klystrons, includes a high-performance non-linear distortion compensation circuit both DG and DP, pedestal AGC, and flat group delay response without correction. They're available in 10, 30, 40, 55, 60, and 110 kW models. (Circle **233**)

**NORTRONICS** — New at the Nortronics booth was a broadcast cartridge head degausser designed specifically to remove residual magnetism from recording heads in cartridge machines.

The QM-380 develops a magnetic field of 400 gauss, which according to Nortronics, will completely degauss heads regardless of the type of material from which they are fabricated.

The QM-380 operates on standard 110-120 VAC, 60 Hz power, and incorporates a thermal protective device which, upon a temperature rise from prolonged use, will shut off the unit until temperature returns to normal. It also features a high-impact, Cycolac case, and is activated with a high-quality microswitch that requires only fingertip pressure. (Circle **219**)

**NOVA CORPORATION** — The NOVA Block is a tape-cleaning device for 1-inch, 2-inch, ¾-inch U-Matic, ½-inch, and ¼-inch formats. While reducing operation costs, oxide buildup, head clogging, and dropouts, NOVA Block increases tape life as well as head life. The original Block is a complete unit ready for easy installation. The blade itself is four-sided for long life and can be rotated and replaced. (Circle **218**)

**NURAD** — Three antennas were introduced by a company long established in the ENG/EJ business: Hemi™, Slimline™, and Quadrod™.

The Hemi is a hemispherical antenna designed especially for airbourne TV microwave systems. Slimline is a directional circularly polarised antenna that operates in the 2 GHz band. It is especially useful with the new microminiature portable ENG/EJ transmitters.

Quadrod is a 7 GHz counterpart to the Goldenrod™ antenna. It features a 22 dB gain, and its primary use will be as a mobile, low-windload transmitting antenna operated in conjunction with the 70 QPI Quad or 70 QP-series Superquad™ quad-polarised receiving antenna system. (Circle **70**)

**OKTEL** — These folks drove right into their booth! They featured an instant replay "Slo-Mobile." It's a van that can be driven in and hooked up to interface cables in 15 to 30 minutes. The van can be purchased, rented, or leased, And it a host of field applications, because it's based on the Oktel BDR400 broadcast disc recorder.

The BDR400 itself sells for just under $40,000. And it features a full 30-second programme storage capacity; continuously variable slow motion in forward or reverse; stop action, single field or frame record; and the heads may dwell indefinitely on a track without fear of damage. (Circle **206**)

*(Photo by Ron Whittaker)*

Oktel also has a broadcast disc recorder (BDR-300) slide file that includes a digital frame counter; frame playback — two fields — full vertical resolution; and two buffer channels for programme continuity (this is optional).

**ORANGE COUNTY ELECTRONICS** — Among several products on display here were three versions of Orange County's parametric equaliser.

The DEQ parametric equaliser features a "constant-Q" characteristic which is capable of creating 60 dB narrow band notches in each of four independent sections. The depth of the notch is continuously adjustable. Each section may also be used as regular programme equaliser with a full 20 dB of available boost per section. An overload indicator warns of excessive levels in any stage of the module. Also shown were the SEQ and PEQ parametric equaliser modules. The SEQ features a 40 dB control range in each of four separate sections, while the PEQ features a powerful 20:1 selection of bandwidth and 40 dB control in each of four independent sections. (Circle **217**)

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# Convention hits

**ORBAN ASSOCIATES** — A new product designed to solve the old problem of sibilance was the show stopper at the Orban booth. The Dynamic Sibilance Controller, model 516EC, is designed to end the sibilance problem long associated with sound recording. The 516EC provides the de-essing function with quality commensurate with contemporary studio electronics. It offers optimised attack and release times; excellent noise and distortion characteristics; simple operation; and unusual economy.

Orban also introduced their new model 622 parametric equaliser, a successor to the model 621. The 622 offers eight key improvements: a standard active, balanced input, plus optional transformer-coupled output; RF-suppressed input, output and power leads, making the 622 ideal for broadcast use; built-in 115/230-volt 50-60 Hz AC power supply; an IN/OUT switch in each equalisation section, in addition to the master IN/OUT switch; tuning range to 20-20,000 Hz; new FET-input op amps offering improved power bandwidth; harmonic distortion reduction at 20 kHz by two orders of magnitude; newly designed proprietary Parametric bandpass filter; hermetically-sealed semiconductors in all critical circuit stages. And while adding these important new features, Orban retained the numerous features of the 621, already an industry standard. (Circle 232)

**ORROX CORP.** (See CMX and Videomax)

**OTARI CORPORATION** — The Otari MX-7800 one-inch 8-track centralises all electronics modes into a single control. The unit features full-servo constant-tension tape drive; dynamic braking; 30/15 ips; coarse and fine pitch controls; DC capstan servo; automatic monitor switching; and built-in test oscillators.

The upgraded MX-5050B has added new TTL/IC logic for noise free punch-in and punch-out; three speeds in field selectable pairs; 24 dBm headroom; DC capstan; peak readings LEDs plus standard VU meters; and return-to-zero memory for mixdown to all the proven features of the MX-5050. (Circle 153)

**PACIFIC RECORDERS AND ENGINEERING** — Recording studios and production houses, as well as broadcast stations, will find the new Digitimer PT family of timers an important complement to their present equipment.

The PT-1 is the main timer of the PT system. Its keyboard time entry capability provides the right combination of features: CMOS-type logic; up/down LED indicators; last entry memory; overflow on down count; read/display hold; and tenth of second resolution. The PT-1 uses a crystal time base as reference.

The PT-1 can also be connected with the two available slaves, the PT-1C and PT-1S. In addition, it can be connected with other PT-1's to provide a complete timing system between control room, studio, producer, and director. (Circle 210)

**PANASONIC** — John Merrick, sales promotion administrator, felt Panasonic received one of the best receptions of the year at the NAB. This enthusiastic response was a result of the introduction of several new products from Panasonic. First among these were the new solenoid operated videocassette recorder/player and a solenoid operated player. The Omnivision II NV-8200 recorder/player and the NV-8170 player both feature the unique capability of two separate audio channels, and permit the addition of the optional NV-A800 auto search control and the NV-A810 remote control unit. Other features include unattended auto-repeat of a programme or programme segment; variable playback speed from 1/5-1.5x (with audio); plus 2X speed (with audio); still frame and single advance; a video muting circuit when playing unrecorded portions; and a damped eject mechanism. In addition to these features the solenoid controls provide reliability and easy feather-touch, non-locking pushbutton operation.

In a first for the company, Panasonic also unveiled three new lines of high-quality, precision-engineered microphones at the NAB. The broadcast-quality Professional Series is comprised of five models, as is the General Purpose line. All are dynamic type, and feature unidirectional directivity. The videotape recorder microphone line also offers five models designed to handle a wide variety of applications. Additional information and specifications on Panasonic's wide product line is available from the company. (Circle 78)

**PERROTT ENGINEERING LABS** — An assortment of power packs was featured at this booth, with emphasis on the Minicharger® and Minipacks®.

Minicharger comes in several models. The PE-74-1 is designed to charge the battery for the Ikegami 35, or any double system. The PE-76 will provide charge for two 30-volt units simultaneously, including double RCA's, double Thomson CSF's, double Toshiba's, or a double-belt power system. The PE-74-2 is engineered to charge any two single-belt systems: two Toshiba's, two RCA's, or two Thomson CSF's.

The Minipack silver-zinc cell batteries will provide no less than three hours of camera power for the Sony, Hitachi, Ikegami, RCA, Thomson CSF, and others, as well as at least three hours for the JVC-4400, the VO-3800, and all other VTRs. (Circle 211)

**PHELPS DODGE COMMUNICATIONS** — The company showed their answer to the need for high-power antennas using a minimum number of bays. Each of the three models in

their new series of circularly polarised FM antennas features much lower Q than the previous designs. Each has massive 3⅛-inch two-tube baluns that give much wider match bandwidth. What's more, these antennas offer a VSWR of 1.1:1 for about 500 kHz. That's about two and a half times the bandwidth of standard low and high power CP antennas. According to the company, the increased bandwidth minimizes the impedance change due to icing. (Circle 68)

**PHILIPS BROADCAST EQUIPMENT** — The highly professional touch was evident again this year at the Philips booth. And again to standing-room-only crowds, they showed the LDK-14 ENG/EFP camera that was first unveiled last year. According to Philips president Paul Berquist, the company completely sold out its 1978 production allocation of cameras long before the end of the year. In fact, Berquist said their newly introduced transmitters have been accepted at a sales level that makes the company one of the major industry suppliers of UHF and VHF transmitters.

But the limelight was shared by the introduction of a dynamic automatic noise reducer. And according to Philips, the unit is believed to be the first totally automatic noise reducer offered. It's fully digital, and does its noise reduction work automatically by assessing input noise, picture content and movement in order to compute optimum noise reduction action for each individual portion of the processed picture. Noise and movement are analysed element by element, then fully adaptive detection circuits automatically adjust the operating threshold for input noise levels over a wide range. During movement, an auxiliary side chain detector bypasses a recursive low pass filter to preserve picture detail in a manner that eliminates subjectively noticeable and objectionable noise transactions.

But the theme of the Philips booth was their total systems capability. The availability of its total videotape systems is a part of the company's concept of providing production systems for the television industry. So they displayed several configurations of equipment, including the Philips format 1-inch videotape recorders, tape synchronisers, and other components that would provide a totally integrated systems operation. (Circle 289)

**PHILIPS TEST & MEASURING INSTRUMENTS** — The PM 5539 TV colour analyser was the hit of this booth. Always a booth to watch for quality instrument developments, this time around was no exception. The 5539 was developed to meet the need for measurement and adjustment of colour white of TV-sets and colour monitors.

Once and for all it gives the user an objective practical setting for colour monitors. It has three LED displays so that the intensities of the three primary colours emitted by a colour tube can be measured simultaneously. White is obtained by addative mixing of these colours in appropriate porportions. Pushbuttons allow adjustment of several different colour temperatures.

Also featured was their PM 5533 TV signal generator. Performing up to all broadcast standards, the 5533 generates all the most commonly used test signals, can be genlocked to external TV signals, and contains a complete colour sync pulse generator. (Circle 287)

*(Photo by Ron Whittaker)*

**POTOMAC INSTRUMENTS** — The pace-setting Potomac Instruments ATS-11 Automatic Transmission System not only meets the FCC regulations for ATS operation, but challenges them to with even greater capability. Employing microprocessor technology to provide continuous automatic monitoring and control of multiple AM and co-located FM transmitters, the ATS-11 also has the capability of automatic monitoring, control and logging of AM directional antenna arrays.

The unit automatically adjusts modulation, power and other specified parameters to preset limits; and with the optional autologging operation provides printed logs of the parameters every 10 minutes, 30 minutes, one hour, three hours, or upon command. Autologging may be on the Potomac rack-mounted printer or any customer-supplied device that accepts RS-232 format data (teletype, CRT, etc).

Sign-on, pattern switching, and sign-off times are controlled by a perpetual master clock which compensates for local sunrise and sunset. The system can be programmed to turn on the filaments of a night transmitter prior to pattern switching, do the switching at the designated time, turn on the night transmitter, assume monitoring and control of the night transmitter, than after appropriate delay turn off the day transmitter. Prior to ATS pattern change a flashing lights warns the operator to allow him the option of a one-minute variance to coordinate programme material. Built-in self-test features allow the chief operator to check the operation of the entire ATS-11 system. Data verification and fail-safe circuits alert the operator of any failure and provide sufficient warning to the operator to resume manual control if necessary.

Package in a manner which offers maximum flexibility and reliability to the user, the ATS-11 is built-up with rack-mounted "building block" options. This enables the broadcaster to select those equipments best suited to his particular installation. (Circle 154)

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**QEI CORPORATION** — The QEI 691 FM Multiplex Monitor/Test Set provides the broadcaster or consultant with a reliable, precision instrument capable of monitoring all required functions necessary for stereo/SCA multiplex transmission.

The 691 can be set to any 100 kHz increment of the 88 to 108 MHz FM band by means of a front-panel thumbwheel. An RF amplifier plug-in option allows precision monitoring of off-air signals. A built-in signal sampler along with an external dummy load allows direct observation of power levels up to 100 watts.

The uniques feature of the 691 is the capability of producing an 80 dB log spectrum analyser display of an external low-cost scope. The sweep width is either ±100 kHz or ±300 kHz and may be centered on any 100 kHz increment in the band. This allows true bessel zero calibration, accurate THD and IMD measurements, and signal strength measurements. (Circle 97)

**QRK ELECTRONIC PRODUCTS** — Convention goers were able to get a closeup look at the new GALAXY, a DC turntable designed for the professional user. The DC motor has an electronic speed control which provides for ±10% speed variation on both 33⅓ and 45 RPM. The turntable, which is instant starting, provides for slip cueing without a loss in speed; it also has back cueing with no motor drag. Direct speed readout on LEDs of the RPM is located on the front panel. Switching is digital with remote start/stop for operator convenience. (Circle 98)

**QSI SYSTEMS** — QSI introduced a new device for television studios and mobile units that originates identified signals to prevent cross-feeds.

The CB 8000 Colour Bar Identifier is a colour bar and character generator combined with an audio signal source to originate an identified television source from any location. When used for microwave transmission, the unit provides a final system check and identifies microwave links in compliance with FCC regulations.

The CB 8000 has a standard ASCII character generator with on-board programming and a 600-ohm balanced +18 dBm, 400 Hz audio tone generator with mike input. The video signal is standard 525/60 NTSC colour sync with bars generated in accordance with EIA-RS-189 specifications. All solid state, the unit operates on 110 VAC at 1.0 amps. (Circle 95)

**Q-TV** — News directors in the market for an easy-to-prepare and easy-to-read prompter found it here. Q-TV's VideoPrompter System eliminates the need for preparing copy on special paper; this larger-size VideoPrompter allows copy to be prepared on standard 8½"x11" bond paper. Prompter copy is fed directly to the VPS-100 or VPS-300 and transmitted to the prompter/monitor mounted on the camera. The prompter copy is then superimposed directly over the taking lens for direct eye-to-eye contact with your viewing audience. (Circle 96)

**RCA** — Demonstrations of the new TK-76C ENG camera drew crowds who also were told that new technical and operating enhancements to its ENG and field production cameras have been accomplished. The new camera weighs less than 14 pounds. A retrofit kit will be available to convert existing TK-76B models to the TK-76C version.

RCA also demonstrated enhancements to the TK-76B and TK 760, including a new system for comet tail suppression, expanded remote control capabilities, and reduced-width blanking. A new Triax method of remote control for these cameras allows them to work at distances up to 5,000 feet.

But transmitters came on strong, with the introduction of the TTG series. The VHF lowband and highband TV rigs have gone further into solid state, ending up with just two tubes. The elimination of tube amplifier stages means that the solid-state circuitry runs up to the 1600 Watt visual and 100 Watt aural driver. Broadband techniques eliminate all tuning requirements, except for the final stage. These transmitters will be available in NTSC, SECAM, PAL-B, and PAL-M. A single lowband or highband rig in this series can hit 30 kW visual and 6.6 kW aural, but there a broad range of power classifications and a choice of 20 models.

Among the other new products at the booth were a TV frame synchroniser system (with built-in TBC and freeze frame), two new circularly polarised TV antennas, and 1-inch VTR and a companion TBC. (Circle 163)

**RCA AMERICOM** — Satellites continue their invasion, and dishes outside the NAB convention halls are almost commonplace now. And part of the satellite action this year was RCA's demonstration of a proposed distribution system for supplying movies, sports, features, and syndicated programmes to U.S. commercial TV stations.

Later this year, RCA Americom, Viacom International, and Post-Newsweek Stations Inc., will conduct a field test of the satellite distribution system to access the economic and marketing aspects of the concept. Of course the target of this effort at the NAB was to test the interest of broadcast stations. Reportedly, they came away with as many commitments as they needed to call it a hit, not a miss.

Andrew F. Inglis, president of RCA Americom, said that if the test proves the feasibility and projected cost effectiveness of the new system, "we would offer it to both programme suppliers and their customers, the television stations." The proposed

## FOR MORE INFORMATION

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service would provide programme distributors and broadcasters with a fast and secure method of sending and receiving programme material via satellite. (Circle 144)

**RCA ELECTRO OPTICS** — RCA has a new 30mm (1.2-inch) diameter Vistalite™ camera tube with internal bias light that is designed for broadcast cameras, and especially for live presentations. It replaces most 30mm diameter separate mesh lead-oxide types, and it's microphinic resistant.

Other features include ductile metal base pins, ultra-uniform bias level background, and a dispenser-type long-life cathode. They also showed their 18mm (⅔-inch) Saticon vidicon tubes that are designed for compact TV colour cameras, and they feature low dark current, very low lag, and unity gamma for predictable contrast and colorimetry. (Circle 245)

**RF TECHNOLOGY INC.** — ENG didn't take a back seat at this NAB convention, there just wasn't quite so much noise this time around. Instead, most manufacturers are settling the remnants of complaints that ENG products weren't getting the professional touch. RF Technology showed their 2 GHz microwave ENG/EJ system that will also find applications in sports events coverage.

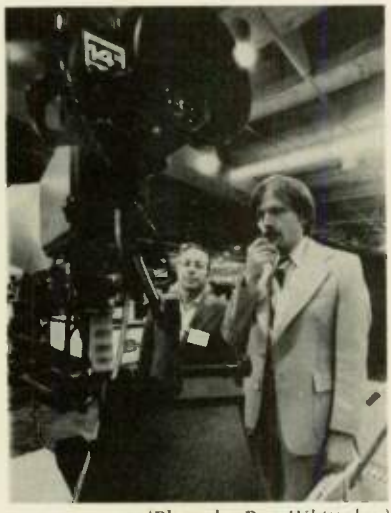
Drawing its share of attention, the system includes a 1 Watt transmitter (WTR-1), a .2 Watt Transmitter (MTR-2), and a receiver (MTR-2). The transmitters and receivers use double hetrodyne designs, with inherent frequency agility, and for quality video transmission. The digital frequency selection is agile over 13 channels without retuning. The 1-Watt system can be equipped with an optional synthesiser for 21 frequency selections.

The lightweight receiver and 1-Watt transmitter can be mounted on an antenna and remotely operated. This arrangement further eliminates power losses from interconnecting cables.

The company also showed their 950 MHz diversity RF microphone system. Among its numerous features are crosstalk elimination through precise channel spacing, crisp audio, and diversity reception with automatic optimum signal selection that virtually eliminates multi-path drop-outs. (Circle 268)

**RAMKO RESEARCH** — Called "the most useful audio tool your station may ever buy," Ramko's ARA-1612 "electronic patch panel" is expected to be one of their best selling products. The ARA-1612 uses the latest CMOS and op amp technology to build a unit that will provide local and remote access to all station audio sources simultaneously or individually. The basis system can feed from 16 sources to 12 different locations at once, with expansion capabilities to 45 in and as many out as needed.

The audio sources are fed to two input cards which feature balanced inputs and individual gain variable amplifiers. These amplifiers then drive 16 different bus lines from which the output cards receive their signals. The ARA also features local and remote lighted output status displays; programmable output cards and dual, instantaneous switchover, power supply. (Circle 155)



*(Photo by Ron Whittaker)*

**RANK PRECISION INDUSTRIES** — Rank's Varotol MRL (multi-role lens) offers the advantage of having the same optics for both standard broadcast cameras and mounted portable cameras. New this year was the Varotol MRL for ⅔-inch EFP cameras. The new lenses accept wide, narrow and standard-angle front elements, and have easily-operated turret rang extenders in 1.4, 2 and 2.8X magnifications with the option of a 4X extender.

According to David Pizio, service engineer, the new line of Varotol lenses offer a .7° to 52° angle of acceptance range at f:5.6. The MRL line of lenses will interface with virtually any camera made. Also being demonstrated was a new line of shock-mounted lens support systems. (Circle 248)

**RECORTEC** — A new high-band U-format recorder was being featured at this booth. Dubbed the HBU-2860, it's a modified Sony VO-2860 that uses ¾-inch standard videocassettes. The major modification is that the normal scanner speed has been trippled while the linear tape speed has been increased by the same factor.

The original low-cost heads are still used, but its all-new signal electronics processes the segmented video and provides enhanced audio. Its features include 7-10 MHz high-band colour, quad quality without banding, two high-quality audio tracks, and full editing capability.

The added colour frame editing of the HBU provides excellent timing continuity during editing. And independent video and audio editing with insert, assemble, and remote control allows you to edit with sophisticated edit controllers. (Circle 105)

**RESEARCH TECHNOLOGY** — RTI's new Data-Film microcomputer system received enthusiastic response. An added dimension to editing equipment, the unit offers automatic timing of film programmes which saves labour and minimises arithmetic errors in timings.

Also introduced was an all-new model of the tape cleaning machine utilising the patented CF200 Micro-Perfect Ultrasonic Film Cleaner with Non-Evaporative Drying. The CF200 process is the only method of cleaning film without touching the film surface; nothing touches the film but liquid and air. The non-evaporative drying process contributes to a decrease in static, and the lubricated film is less subject to damage during projection or editing. (Circle 274)

**ROCKWELL-COLLINS** — If you're looking for a low-cost audio console that performs like a custom unit, you had better take a close look at the new Audio Rock 10.

Those attending the show and fortunate enough to get a hands-on feel for this superb unit should already be convinced. For those who missed out, use the circle number below to get more information.

To begin with, Audio Rock 10 is of modular construction. Using a combination of plug-in amplifier modules with gold-plated connector pins, each broadcaster can customise the console to meet his programme needs

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today, and change it tomorrow. Fully equipped, Audio Rock 10 is a 10-mixer dual-channel stereo console with mono mix-down, accepting 30 inputs, including up to eight mikes.

What's significant about Rockwell-Collins' design approach is that Audio Rock 10 was built not just to meet the spec requirements of the chief engineer, but to meet the audio performance requirements of the programme director. The clean design and ease of operation will also please the jock operating the unit. (Circle 94)

**ROHDE & SCHWARZ** — The complete line of Barco professional colour TV monitors is now available from Rohde & Schwarz, including the CTVM2 Series of monitors designed for continuous 24-hour operation.

The CTVM 2/35 is a compact 14-inch monitor for use where space and power are at a premium, such as in OB vehicles. Also in the series are the CTVM 2/38, 15-inch screen; CTVM 2/51, 20-inch screen size (the largest tube size that fits into a 19-inch rack); and the CTVM 2/66, 26-inch shadow mask tube for group observers. (Circle 269)

**RUPERT NEVE INCORPORATED** — Rupert Neve announced that they are now representing Lyrec Manufacturing of Denmark, makers of the Lyrec TR-532 multitrack recorder. The TR-532 features track solo, spot erase, and vari-speed. The standard remote control gives the engineer full control of both tape deck and all audiotracks. The optional tape position controller uses a microprocessor which can store, recall and search 16 tape positions.

The Neve Computer Aided Mixing system (NECAM) is an integrated system for computer-controlled music mixdown. Using an independent storage medium keyed to a time code recorded on one track of the master tape, the mix process is freed from the bondage to real time. The engineer can interrupt, recycle over short segments, or operate at half tape speed with complete freedom to manage the mix.

Many "mix" attempts may be stored and recalled at will. "Mixes" may be subdivided in time and even by tracks by a simple routine of instructions to the keyboard. A small keyboard provides control of all functions and is backed up by a single line alphanumeric display that informs the operator what is going on. (Circle 156)

*(Photo by Michael Scheibach)*

**RUSSCO** — The Russco Mark V is a value-packed variable speed turntable that will come up to speed with ¾-inch back cue or less. The speeds are precision variable plus or minus 10% at 33 or 45 rmp, wow and flutter under 0.05%, and rumble minus 63 dB in mono and minus 57 dB in stereo. The low-profile turntable also features remote start and stop, digital speed readout, removable tone arm plate, and line voltage operation of 120 or 240 volts, 50 or 60 Hz.

The new Russco tone arm is precision machined of aluminum with ball-bearing lateral pivots and jewelled vertical pivots. Designed to track at one gram or less, the arm tracks at one gram or less and has a built-in stylus pressure scale. It mounts in the same holes as other popular arms and accepts all cartridges in a shell that is secured permanently to the arm. (Circle 157)

**SWR INC.** — This booth may have escaped you because it is in a show biz competition category. Appropriately named SWR, one of their main attractions was a solution to transmission line elbow failures at the top of the tower. According to the company, the problem is that in most antenna installations there are usually a cluster of four elbows. And this in itself can cause a heat block and inner conductor burn up. Their answer is improved thermo conductivity of the transmission line and a new thermo-coupler within each connector. The thermo-connector distributes the heat, eliminating hot spots and minimises the possibility of breakdowns.

**SCIENTIFIC ATLANTA** — Metsat was in the spotlight at this booth. Metsat stands for Meterological Satellite Terminal. It will automatically track the weather satellite through its useable cycle, storing data for as many as 10 polar orbiting satellites. Being a major supplier of earth station terminal equipment, the booth was a popular stopping point because of the increasing interest in satellite communications that has really come down to earth. They showed all you'd need to get started in the satellite game. (Circle 60)

**SCIENTIFIC COMMUNICATIONS** — Satellite video receivers were displayed here, and with more stations turning to satellite TV transmissions, the reception was good. The reason: These satellite video receivers provide quality picture and sound reception of satellite transmission.

The SR-4000 is a fully agile, synthesised 24-channel selectable model. The transponder number is selected by thumbwheel switches on the front panel with LED readout of the selected transponder number. The SR-5000 is the fixed-channel ver-

sion with provision for transponder selection by a crystal change and selection of a binary code on a five-position dip switch. A unique feature of these receivers is the availability of an additional subcarrier demodulator. (Circle **278**)

**SCULLY** — The company displayed and demonstrated the popular 250 series of recorders, along with the 284B-8 eight track recorder/reproducer. Loggers, of course, continues to draw interest, and they showed their Dictaphone 400 series with this in mind. The 255 series also was on display. (Circle **61**)

But the really hot news was that Dictaphone announced it is moving its voice communications logging systems operation to a plant in Florida and selling its professional recording business. Dictaphone has agreed in principle to sell its line of Scully professional recorders to Ram Management Corporation, which also operates Ampro Broadcasting of Feasterville, Penn.

**SERVO CORP. OF AMERICA** — Brand new at NAB '79 was a video editor that's truly portable, totally self-contained, and ideally suited to ENG and off-line applications. The new 712 video editor has built-in SMPTE time code readers and memory with CMOS integrated circuitry, plus an array of outstanding features: add-on, insert and dub capabilities; edit selection capability — video, audio and audio/video; frame-accurate editing; continuous search capability — forward and reverse; programmed machine control; repeatable preview; modular construction; selectable memory points (three per VTR); and more. (Circle **295**)

**SHARP ELECTRONICS** — Two new products headlined the action at the Sharp booth. A new waveform monitor was displayed, featuring a digital readout which shows the exact number of the line being displayed, a function especially useful for measuring vertical blanking. A high-voltage (4kV) tube results in bright display even in ambient lighting conditions. With vertical ranges at 4V and 1V, with X2 and X5 magnification for the 1V scale, the monitors shows two lines, two fields, vertical blanking, and horizontal blanking.

The new zoom lens is a 10:1 lightweight unit designed for the Sharp model XC-530 3-Saticon tube ENG camera. It is a servo iris f1.6 zoom lens with a focal length range of 10.5 to 105mm. (Circle **223**)

**SHINTRON** — Among the new products causing excitement at the Shintron exhibit was the new television production switcher based on an entirely new principle called "SuperBus." Designed to solve the problem of signal deterioration that results when the signal must pass through a series of cascading effects amplifiers, the model 375 has reduced the signal pass length to practically nothing. This is achieved through a combination of a group of cross points and effects amplifiers totally controlled by digital signal-processing commands. With almost no length to its signal path, the signal's differential gain and phase are near zero, and delay is almost non-existent.

Shintron also announced their entry into the television monitor market. Its first monitor is the model 913 13-inch colour monitor, which features an in-line black matrix slot-mask tube of 13-inch diagonal dimension, and can be used as a receiver monitor for industrial and educational purposes. (Circle **224**)

**SHURE BROTHERS INC.** — Big news at the Shure Brothers booth was the announcement that the company has entered the professional condenser microphone market with the model SM81, a cardioid condenser unit with state-of-the-art electro-acoustical performance.

According to Shure, excellent signal-to-noise ratio, and smooth, consistent cardioid pattern at all frequencies provide exceptional off-axis rejection of unwanted sound for improved separation and isolation. In addition to a precise cardioid polar pattern, the electronics section of the SM81 exhibits low total harmonic and intermodulation distortion below its clipping point.

The SM81 has a three-position low-frequency response switch located on the mike's case. The switch, which is adjustable without tools or disassembly, can provide the option of a flat response, a low-frequency rolloff of 6 dB per octave below 100 Hz, or a low-frequency cutoff of 18 dB per octave below 80 Hz. The switch can also be used to compensate for proximity effect. (Circle **279**)

**SINTRONICS** — One of the highest output power FM transmitters available, the Sintronic SI-F-25 delivers 27½-kW and utilises the new SI-10-E on a frequency-direct FM exciter. A pair of 4CX250B tubes drives the 3CX3000A7 driver amplifier which in turn drives the 3CX15000A7 power amplifier. The interconnection between the driver cabinet and the PA cabinet is by 1⅝-inch rigid line allowing simple connection of the 3½ kW driver to the antenna in emergency conditions. Both the driver and power amplifier operate grounded grid Class C to eliminate the need for touchy neutralisations adjustments. Other features of the transmitter are automatic power output control, 12-pulse power supply, and two control systems providing complete but separate overload protection and recycling capability for the driver and power amplifier.

The SI-10-E direct FM exciter uses only six ICs and nine transistors in its active circuitry. Another three ICs and four transistors are used in a unique front-panel visual monitoring system. Modulation is achieved by linear varactor control of the master oscillator's frequency.

The SI-A-5 and SI-A-10 5- and

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10-kw AM transmitters are conventional plate modulation using a single ceramic/metal Class C power amplifier. The audio driver and RF driver are both solid-state circuitry. The pi-L output network uses a vacuum variable tuning capacitor and a variable inductance loading control. (Circle 158)

**SKIRPAN** — If you've been following the lighting control systems developments in the past several years, you're already familiar with this company's sound approach to pre-set and controlled lighting. The company has announced that deliveries are now being made on their new Type K series solid-state dimmers. They are designed for use in theatres and TV studios.

The new units provide three or six 2000-Watt silicon-controlled rectifier dimmers on one EIA standard 19-inch rack mounting chassis. All fusing, primary circuit protection, adjustment controls, and electronics are available on or through the front panel. (Circle 69)

**SKOTEL** — This company's contribution to the products at the NAB was their new SMPTE/EBU time code reader and generator with intelligent RS 232-C interface. Recognising the potential for use of the data area, Skotel developed a method for encoding real-language messages into the time code with the use of an intelligent interface. Able to communicate with other equipment via a standard serial data channel, the interface encodes or decodes information into the 32 binary user data bits of the time and control code. Applications include captions, programme identification, cues, programme notes, and programme-related data. (Circle 221)

**SOLL INC.** — The design, construction, and maintenance of any broadcast facility is the specialty of CAT Construction, a leader in the construction and architecture for telesystems headed by Joe Soll (of Soll Inc.).

As part of their start-up services, CAT offers station planning; system packaging; system design and installation; supervision of all phases of station construction; and custom RF control and switching systems. Follow-up services include inspection of facilities, system troubleshooting, proof of performance, modernisation, photography, and emergency/maintenance service.

Introduced this year was custom computer-controlled RF control and switching systems with colour graphics display. Prices range from $15,000 to $20,000, with delivery in approximately 60 days.

**SONY CORPORATION OF AMERICA** — Sony had one of the larger exhibits at this year's NAB. Three items were new, the BVH-1100 one-inch, Type C VTR with the new dynamic tracking option; the BVT-2000 digital time base corrector; and the BVM-1200 professional broadcast colour monitor.

The dynamic tracking BVH-1100, when used in conjunction with the BVT-2000 time base corrector, pushes the one-inch post-production to a new level of sophistication and quality, according to John Bailey of Sony. Bailey said that the dynamic tracking function of the BVH-1100 provides video playback from approximately ¼-speed in reverse, to still, and through normal speed to twice the forward playback speed. And when used with the BVT-2000 TBC, the BVH-1100 can achieve recognisable pictures in the search mode at up to 50 times the normal playback speed, according to Bailey. (Circle 244)

Also on display was the improved BVP-300, three-tube, ENG/EFP camera, which can be used in conjunction with either the BVH-500 portable one-inch recorder or the BVU-100 or BVU-50 portable U-matic recorders.

**SOUND TECHNOLOGY** — ST has a new distortion analyser designed to meet the latest needs of stations and companies who need to keep a close watch on distortion. Their new model 1701A meets the IHF standards by allowing you to punch the meter up to read average, peak, or RMS. The 1701A also has improved the distortion range to .001% from 10 Hz to 10 kHz. Of course overall distortion measuring capability continues high over the full 10 Hz to 110 kHz range. (Circle 64)

**SPIN PHYSICS** — The key word for Spin Physics is ferrite. They were on hand to talk about their hot-pressed ferrite quad heads that, according to the company, will give you a superior picture and longer head life. In fact, they claim this head will last from three to five times longer than ordinary heads. The targets are the Mark X, Mark XV, and RCA high band. (Circle 59)

**STAINLESS INC.** — "WHOA" is the answer to controlling each guy wire independent of the others. Although guys are strong, their flexibility combined with adverse weather conditions creates "galloping." But according to Stainless, WHOA absorbs the dynamic energy of each guy cable, thus preventing galloping in its early stages. (Circle 297)

**STANTON MAGNETICS** — The 881S stereo cartridge was among the featured products here. It uses a unique Stereohedron stylus for improved performance. According to Stanton, this cartridge has excellent flat frequency response, handles


*(Photo by Michael Scheibach)*

high-level complex music passages with freedom from mistracking, and it gives superior signal-to-noise ratio from the phono preamp. (Circle **66**)

**STOREEL** — A new storage unit, called STOR-MAX™, is designed to both conserve energy and add efficiency. It saves energy by converting your existing overcrowded film and VTR libraries to the new "Instant Access" high-density systems. Modular Rapid Transit Storage™ maximises units stored per square foot of floor space, minimises retrieval time, optimises energy efficiency. (Circle **296**)

**STRAND CENTURY** — A new "Bambino" line of Fresnel lens spotlights, with greatly reduced size and weight, were featured. According to Keith Gillum, national manager of television/motion picture sales, they achieve this while increasing light output as much as 200%. The Bambinos have an all-steel housing and an improved lens and reflector design. They are available in 2-K, 5-K, and 10-K versions.

Also on display at Stand-Century was the "Light Palette" light control system, known for its great versitility and memory capacity. The Light Palette system makes possible a new level of flexability and creative control for the stage, as well as for motion picture and TV studio applications. (Circle **243**)

**STUDER REVOX** — Studer Revox's Tape Lock System 2000 is a synchronising system to provide fast, economical coupling of sound with picture and sound with sound. Capable of synchronising to any SMPTE code (80 bit/frame) source, the TLS 2000 operates at any frame standard with synchronisation accuracy of plus or minus 50 microseconds. In addition to synchronising the Studer A90 multitrack audio machine, the TLS 2000 can perform deck control of video machine for loop operation, coincident-address starting from up to four playback machines for sound effects, and communication with the video-editing complex. The information to control the A80/VU multitrack machine is from the time code supplied by the video (master), requiring only a symmetrical line with transmission range of 20 Hz to 150 kHz.

Video applications include full integration via interface into video editing system; synchronisations with motion picture projector; coupling of slave to VTR for loop and park operation; and direct control of slave from VTR editing system. (Circle **159**)

*(Photo by Ron Whittaker)*

**SYSTEM CONCEPTS** — For broadcasters shopping for quality teleproduction titlers, this was the booth. The QUANTAFONT™ QII teleproduction graphic titler is already known for its excellent character resolution and multiple-font capability. Now System Concepts has developed Nanolog™, a unique new circuit that produces an effective start-point resolution of less than 20 nanoseconds and effective camera risetimes. To the production director doing the mixing, Nanolog translates as a microcomputer-generated character display with the sharpest and cleanest edges and curves ever seen.

With the addition of Nanolog, the QUANTAFONT VII becomes a versatile, high-performance graphic titler for both studio or remote operations. Features include multiple-resident upper and lower case fonts selectable by character; 24 character size selections by row; shadow or full border edging by row; custom logo capability and graphics; random access to 192 resident, positionable titles; 6,000 character memory, selectable page sizes; and much more. (Circle **293**)

## FOR MORE INFORMATION

To obtain additional information on the new products featured in the NAB Review, simply circle the number on the Reader Service Card that corresponds with the boldface number following each company listing.

**TABER MFG. AND ENGR.** — Taberaser was one of the main attractions at the Taber booth. Taberaser completely erases all audio, video, instrumentation tapes and magnetic films. Audio and video cartridges, ad well as tapes on reels or in boxes, can be efficiently degaussed. Real sizes up to 14 inches can be accommodated.

Another new product at the booth was Taberamp, a low-cost unit featuring VTR stereo audio allowing existing Ampex or RCA 2-inch VTRs to be used for stereo audio with Taber-manufactured audio heads. Taberamp can also be used as a replacement to Ampex tube electronics, Ampex 440 series, Scully 280 series, or broadcast automation reproduce electronics. Taberhead can be expandable for multi-track recorders.

Features include switchable line input for 600-ohm balanced or unbalanced bridging; bias adjustments with two presets; dual-tracking voltage regulator on each channel; and headphone front panel jack with low impedance output to monitor individual channel or stereo. (Circle **288**)

**TANGENT SYSTEMS** — The company emphasised its line of stereo mixing consoles. Tangent claims the line has superior performance in the areas of noise and distortion, and

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# Convention hits

sound transparency and clarity. Included in this offering of consoles were models 2404, a twenty-four channel; 1602a, sixteen-channel; 1202a, twelve-channel; and 802a, eight-channel. Additional accessories are available. (Circle 222)

**TECHNICS (PANASONIC)** — As you'd expect, the company had lots to show, especially their turntables. But one item that might have escaped attention was the model SU-8099 integrated amplifier that offers totally balanced sonic performance. It has straight DC circuitry throughout. High-level inputs bypass the usual preamp circuitry and are picked up directly by the power amp section. In the 8099's power amp section, DC drift is reduced to 0 ±5 mv or less by using an active thermal servo amp. It has a concentrated power block that gives high range reproduction up to 100 kHz with less distortion. The unit has a super linear power transistor which the company says dramatically increases high range linearity. (Circle 62)

**TEKTRONIX** — The emphasis here was on ANSWER, a microprocessor-based automatic video measuring system. It's capable of automatically executing a complete in-service measurement routine and measurement results printout in less than one minute. Larry Kaplan explained that most measurements will show accuracies within a percent or half a degree of phase, and that ANSWER is programmable in BASIC computer language.

Introduced for the first time, the down converters for the 1450-1 demodulator are tunable and for UHF and VHF.

Using a setup in the booth that included the 1450-1, Charles Rhodes demonstrated a procedure for measuring incidental carrier phase modulation. Rhodes also demonstrated a comprehensive signal generator, dubbed the 1410. In addition to genlock or master sync generators, the 1410 mainframe can incorporate up to six test signal generators as well as a combination test signal switcher/convergence signal generator. The switcher/generator (the TSP-1) produces a full-field signal that selects or combines test signals with or without a convergence signal. (Circle 205)

**TELECINE** — TeleCine introduced a new Schneider 15:1 ENG/EFP lens. The lens features a zoom range X15:8.5 — 125mm; a built-in RE X2:17 — 250mm; a constant iris 1.7 :8.5 — 95mm; and weighs only 2.2 kg. (Circle 220)

**TELEGEN/SOFRATEV** — Joe Roizen, president of Telegen, and Jean Guillermin, president director general of SOFRATEV, were on hand to introduce U.S. broadcasters to Antiope, a teletext system developed in France and marketed by SOFRATEV. While teletext is already widely used throughout the world, U.S. broadcasters are just beginning to realise the potential for its use.

Antiope Teletext is a data transmission system using television radio or telephone links for communication. The system shown at the convention included a variety of data banks, vertical interval digital data insertion equipment, display colour monitors and receivers, all equipped with Antiope Teletext decoders and control units. This is one of the systems currently under test at KMOX-TV. (Circle 294)

**TELEMATION** — Several companies featured computer animation systems, but one company keeping the crowds occupied was TeleMation, who introduced their Graphics Compose System (GCS).

The GCS utilises a dual-disc Compositor I™ Graphics System in conjunction with a digitizer tablet and a hand-held cursor to create custom fonts, logos, and graphics. The GCS also uses a direct digital conversion technique to assure the maximum possible reproduction quality in terms of resolution, proportion, and alignment. Artwork is entered only once; stored graphics can be recalled at any time for computerised enlargement, reduction, or rotation.

The animation programme allows graphics to be moved horizontally, vertically, and/or diagonally at operator-selected speed. Graphics can be bounced with operator-defined window; and motion can be paused, stepped forward frame-by-frame, and continued at any time. In addition, the animation programme can be operated on one character generator of dual CG systems without interference to opposite character generator. (Circle 280)

**TELEMET** — Fibre optic communication is rapidly being accepted throughout the broadcast industry. And Telemet is one of the companies leading the way. Telemet has already installed optical communication links at several television stations, and plans more installations in the near future.

The equipment drawing the crowds into this booth consisted of Telemet's video distribution and pulse distribution amplifiers. The standard video model 3310-A1 provides six identical outputs of the input signal. Equalising model 3315 provides equalisation for up to 1,000 feet of 75-ohm cable and simultaneous feedback and back porch clamping. Pulse distribution amplifier, model 3320, features six outputs at 75 ohms ±1% impedance, adjustable output level, and DC coupling. Model 3325 has variable delay. (Circle 281)

**TELESCRIPT** — The chief focus here was on the company's line of monitor prompting systems. The line includes several systems utilising the two basic components, the Telecue® and the Telescriptor.®. All systems feature the Lever Principle® which is characterised by easy mounting and built-in dynamic balancing and counter-balancing. As an added feature, the center of gravity of the camera to which the system is attached remains unchanged. (Circle 87)

**TELEVISION EQUIPMENT ASSOCIATES** — New at the TEA booth was a two-wire amplified intercom system which allows 20 headset units

*(Photo by Ron Merrell)*

to be conferenced on the same line with hot mikes. The BCA System has separate transmit and receive amplifiers at each headset; and it features 20 milliwatts of audio power to the headset for use in high ambient noise. The BCA System provides high-level broadcast quality intercommunications using existing intercom wiring. (Circle 67)

**TELEX** — The Telex/Magnecord MC-Series broadcast cart machine is designed to metric dimensions, and meets or exceeds NAB standards. And the MC-Series is suited for local or remote/automated operation.

Standard features include automation-compatible cue tones with LED indicators; pushbutton edit control allows operator to add stop cues in playback, or delete stop cues in record; cue logging output; muted fast-wind and stop modes to prevent airing of chatter or tones during rapid cueing. The universal mike/line input is selected by an internal switch. Preset record levels (internally adjustable) simplify recording. A front panel headphone jack serves to preview or time new carts.

In addition to these many features, the MC-Series is extremely flexible. The reproducer is field convertible from mono to stereo. Record electronics can be added to convert the unit into a complete recorder/reproducer. The reproducer and the record electronics come in separate housings for a flexible, space saving installation. (Circle 282)

**TENTEL** — Leading the offerings at the Tentel booth was the Tentelometer®. Designed for the thousands of tape machines of constant torque design, the Tentelometer measures the tension of the tape at any diameter. In audio applications the ability to measure this tension results in greater control in such problem areas as wow and flutter as well as tone and pitch variation. The Tentelometer also helps minimise skewing.

In video the Tentelometer provides a fast, accurate method of measuring the range of skew control. Additional applications and information are available from the Tentel application engineering department. (Circle 86)

**TERRACOM** — "Excellent reception" was the word from the Terra-

*(Photo by Susan Whittaker)*

Com booth to the company's model THP-2T20 programme channel multiplexer. The THT-2T20 combines four high-quality 15 kHz programme channels to produce a 1.544 Mb/s data stream for transmission over T-carrier lines or microwave radio. The unit can be operated with a group of two channels and the second group of two added as required. Each audio channel employs an analogue commander for high signal-to-noise ratio over a wide dynamic range. A high-performance analogue-to-digital and digital-to-analogue codec is the heart of the programme multiplexer. (Circle 283)

**THERMODYNE INTERNATIONAL** — Rack-Pack™, a rack-mounting instrumentation case, was introduced at this booth, and Walter Wolf, Thermodyne chairman, reported excellent sales.

Rack-Packs can be used in the field, on the bench, in the studio, or on location. Features include elastometric shock mounts, dent-proof plastic structure, internal frame of welded aluminum extrusion, and front and back covers removed easily with ¼-turn latches. (Circle 272)

**THOMSON-CSF LABORATORIES** — The company has taken its Emmy-award-winning digital noise reducer, added a frame synchroniser, a 4 x 1 input switcher, and a freeze frame, with all operating at four times subcarrier sampling. Dubbed the model 9100 Digital Video Processing System, the unit provides selectable synchronisation and precise automatic timing for multiple picture sources without the need for conventional genlocking. Timing differences of remote signals are of no concern when routed through the DVP-9100. And multiple remote video sources can readily be phased to studio sources.

Thomson really offered a hands-on experience to all takers who wanted a chance to run their main attraction through its paces — the production version of the new one-piece Microcam model MC-601. Both one- and two-piece versions were shown with a new 4½-inch viewfinder and remote-control package for EFP applications. And the set did offer a challenge, because it was continuously lit, with a portion of the set lighting down as far as 3 footcandles to demonstrate the camera's sensitivity and quality under all conditions.

In fact, the hands-on theme carried right over to the Vidofont character generator systems. The added attraction here was a computer interface and software for applications such as elections, news, weather, and sports. (Circle 292)

**TIME & FREQUENCY TECHNOLOGY** — A new highly secure 950 MHz STL was introduced by TFT. The 7700 Series consists of a 12-Watt solid-state transmitter and companion receiver. Both are equipped with optional fully redundant units and automatic transfer capability.

According to the TFT president Joe Wu, the 7700 series is the most powerful and secure 950 MHZ system available today. It features a high-efficiency transistor power amplifier stage, a 70 dB S/N ratio, and 50 dB minimum stereo separation at 1

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kHz for negligible crosstalk. Important test points in its modular design are all brought out to the panel connectors so the system can be interrogated by using the remote control equipment. (Circle **270**)

**TIMES WIRE & CABLE** — Fibre optics were featured here in what the company introduced as their AM/FDM broadband analogue transmission, and FM/FDM broadband analogue transmission fibre optic systems.

Analogue FDM-AM modulation of a light source offers the fibre optic user flexibility and compatibility with existing facilities. The Times Fibre Communications transmitter, OTL 1101A, and receiver, OR-2111 (PIN photodiode) or OR-2111A (avalanche photodiode), is a combination for transmitting vestigal sideband TV signals. Analogue FDM-FM modulation, using 2.5 MHz deviation, offers enhanced signal-to-noise and greater distortion tolerance.

The company also was showing a variety of other fibre optics transmission systems equipment, including capabilities in transmitting diverse signals simultaneously, transmission over long distances, and baseband video linking (using a bandpass from 30 Hz to 6 MHz) with typical repeater spacing of 2 km with the PIN photodiode receiver, and 4 km for the avalanche photodiode receiver.

If you understand the advantages but not the technology, Times can lay in a turnkey operation. (Circle **215**)

**TOSHIBA INTERNATIONAL** — A new name was added to the NAB exhibitor list, and with it comes a company that was founded over 100 years ago. A diversified electronic/electrical equipment manufacturer highly successful on the world market, Toshiba is backed by 110,000 employees and annual sales in excess of $8 billion.

At NAB, Toshiba introduced a number of new products to the North American market, led by their fully automatic PK-40 colour camera. All primary functions for daily setup are handled automatically by computer circuits. The camera also provides for computerised diagnosis and correction of faults as well as for maintenance and quality evaluation.

Extensive use of LSIs and digital circuits adds to its stability, and this is important, because the camera is light enough for field work. In fact the PK-40 can be used with triaxial cable. Back at the station, you can remove the camera cable interface module and in minutes be on line with a multicore cable.

The camera head accepts the largest, highest quality lenses for 1-inch pickup tubes, using a simple quick-change lens mount. It uses 1-inch diode-gun pickup tubes for improved light-handling capability. It also has a high-luminance, high-resolution 7-inch titlable and rotatable viewfinder. Its modular CCU, CCP, and power supply fits into any operational arrangement.

On the field-production side, Toshiba showed their FPC-10 production center. It includes a video switcher and an audio mixer. It will take inputs from three cameras and four microphones, while operating either from a 12-volt battery or AC power.

The FPC-10 includes colour, monochrome, and waveform monitoring, a sync generator; tally system; and an intercom. For genlock operation, the switcher's built-in sync generator supplies phase-adjusted composite sync and subcarrier signals to any or all cameras.

Toshiba also showed their PK-31A, which uses 30mm lead-oxide tubes. According to Ron Fried (VP and GM of the division), this studio camera is already in use in studios and on remote locations around the world. It uses a self-contained microcomputer for automatic centering, size and linearity controls, automatic white level, black level, gamma, and flare controls. According to their booth traffic, they're getting off to a fast start in North America. (Circle **214**)

*(Photo by Michael Scheibach)*

**TRACK AUDIO** — This company came prepared to draw some attention, and they did just that with several innovative new products. The focus of attention was on ROAM-5, a remote on-location audio mixer providing flexibility in a compact unit.

ROAM-5 is only 8"x3"x5" deep with a bar graph type VU display. Each channel has low and high equalisation with line or mike level being switchable. A unique circuit allows extended levels of input without added distortion usually caused by overdriving the preamp stage. When the unit is sitting on a table the adjustments are tilted for eye-level contact.

Another first here was a new compressor/limiter, the LM-1R, designed for use in recording studios, TV and radio, sound reinforcement, or anywhere where control is required.

Track Audio also announced that it is carrying the Amber audio spectrum display, model 4550. The 4550 provides a real-time presentation of the spectral energy content of an audio signal. This information, previously available is more expensive analysers, is now available in this low-cost, compact instrument for applications in recording, mixdown, broadcasting, mastering, maintenance, and audio testing. (Circle **286**)

*(Photo by Ron Merrell)*

**UMC ELECTRONICS** — The new Beaucart audio cartridge tape machines include an "inside out" Beau motor and a propietary cartridge locating feature.

The inside-out design of the motor differs from the conventional with the stator core and windings being the internal part and the rotor the external. Such a design diminishes the magnetising current results in less losses for more efficient operation.

The cartridge locating system consists of spring-loaded rollers for the left corner post and a special tapered cartridge guide that allows each cart to contact the roller squarely every time. An additional locating spring positions the cart against the right-hand guide for positive squareness in relation to the heads; spherical head/conical seat adjusting screws provide uniform, positive azimuth adjustment with the heads immune to movement from external sources.

Entering the audio console field, UMC/Beaucart consoles are 8- to 16-channel stereo units with top plug-in channel modules. Each channel module has three selectable inputs for a maximum of 48 inputs to the console. Three fully metered stereo output busses plus a fully metered mono feed allow four programme sources to be fed simultaneously. Conductive plastic faders have cue detent at the bottom and a momentary select button provides the capability of auditioning without disturbing preset volume levels. (Circle 160)

**UNITED MEDIA INC.** — Bob Ricci, president of United Media, was busy introducing Commander I and II in the United Media booth. Commander I is a complete SMPTE/EBU time code and user bit computer assisted electronic editor designed for controlling any combination of 2-inch, 1-inch, or ¾-inch VTR. It's a desk-top, self-contained editor that features split edits — in or out — or both, servoing for exact frame editing, back timing of edits, automatic assembly capability, complete display for the edit point, duration, show length, and keyboard. It also offers variable search and job.

Commander II is an expandable SMPTE/EBU time code computer assisted videotape editing system. Its standard features involve making it expandable from two through eight simultaneous controlled videotape recorders. Standards include a built-in T/G generator with auto sync capability, 1,000 event storage, automatic switcher control of up to three M/E amplifiers, automatic assembly, split edits, delayed dissolves, staggered starts, continuous roll, and rapid search of all VTRs.

United Media also displayed SMPTE/EBU time code generators, readers, test generators, character generators, and a host of other editing accessory equipment. (Circle 284)

**UNITED RESEARCH LABORATORY** — George Adams, company president, reported an excellent response to URL's new products at the show. These products included the C-5 solid-state, FET switched replacement amplifiers for tube-type recorders; and the ML-6 coated pinch rollers for most professional recorders. The company also displayed various replacement parts for most tape machines.

**UTAH SCIENTIFIC** — This company emphasised its Party Line Control Panels for AVS-1 routing switchers. Each panel connects to the AVS-1 switching matrix via one of the AVS-1's four redundant party lines. Looping connectors permit daisy-chaining panels together on the same party line.

In addition to a wide variety of panels and mounting styles, other features include continuous status readout on all panels; single-bus, multiple-bus, and full-matrix models; either 10-key touchpad or button-per-source data entry; optional encoding; and audio and video select buttons for separate switching and statusing.

Another highlight of the show for Utah Scientific was the award presentation by Lyle O. Keys, president, to the two men who designed the CSP-200 and CSP-300 Series control panels. Recipients of this award were Wayne Caluger, assistant director of engineering for WSM Inc., and Hugh Hickerson, chief engineer at Opryland Productions. (Circle 91)

**THOMAS J. VALENTINO** — The world's oldest and largest sound effects company featured their extensive sound library at the NAB. Offering sounds ranging from a baby's cry to an atomic bomb explosion, the company emphasised its ability to satisfy any sound requirement. Valentino's Major Production Music Library contains over 3000 selections in 32 different categories, and can provide every idiom of music for any type of production. (Circle 80)

**VAN LADDER INC.** — The new "T" Series of lifts was the headliner at Van Ladder booth. Ten years of research and development have gone into this new line of lifts incorporating the rolling fulcrum concept of lift operation. The "T" series emphasises safety, serviceability and high quality.

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# Convention hits

*(Photo by Ron Merrell)*

while maintaining low cost. Another important feature is the adaptability which allows the lifts to be bolted onto service trucks with no special mount hardware or chassis modifications. (Circle 84)

**VARIAN** — From the EIMAC division, some interesting product developments have been taking place. At the show they featured a display of their new grid system which allows larger glass tubes to operate at higher frequencies. But grabbing the attention amid their new and well-known standards was the high-gain tetrode and cavity combination for FM and TV.

The EIMAC 8990 and its companion CV-2200 cavity amplifier are especially designed for single-tube 25 kW FM and TV service. Based on its low loss internal structure, this dependable tetrode is well suited to VHF TV linear service. This tetrode shows a power gain over 20 dB, and it has a rated anode dissipation of 20 kW.

In the same family of tubes, EIMAC introduced their 8989. It's similar to the 8990, but it's rated at 10 or 15 kW FM service in the CV 2210 cavity. It is suitable for VHF TV service. (Circle 107)

**VIDEO AIDS CORP.** — In this booth you could see a multi-phase meter/VIRS inserter. That's right, it's intended to take the sweat out of using high-priced scopes, especially when the person making the measurements isn't an engineer. Anyway, if you are an engineer you'll appreciate the ease with which this unit allows you to make fast, accurate measurements of burst/VIRS/H-phase.

And, with this unit, dubbed the model 4000, you can insert VIRS downstream manually or automatically. In fact, you can insert line 19 video (such as colour bars) to equalise video tape playbacks. The unit is priced at just under $1,300.

In addition, Walt Skowron, Video Aids president, said the model 5000 colour genlock sync generator has been upgraded to include independently-variable horizontal and vertical blanking as an aid to broadcasters and production houses in meeting the FCC limitations on blanking widths. Vertical blanking width is adjustable from 18 to 21 lines, while horizontal blanking can be varied from 9 to 12 microseconds. Thus, the user is able to set blanking widths to the minimum allowed by FCC specifications, in anticipation of the timing errors caused by processing.

The model 5000's helical mode also allows it to genlock to low-stability video sources having up to ±1% horizontal frequency variations and as much as ±10 microseconds of skew. (Circle 300)

**VIDEO ASSOCIATES LABS** — The new PRO-PAK I is a servo system designed especially for ¾-inch VTRs. PRO-PAK I allows full frame synchronisation of the television signal leaving the VTR; and it will stop all vertical blanking problems caused by the VTR. Features of this new system include V-lock, H-lock, stability marks, and a complete compliment of set-up and servo status indicators. (Circle 142)

**VIDEOMAGNETICS** — Videomagnetics, one of the leaders in video head refurbishing, introduced the 7811 material processing technique late last year. But it was still the main attraction at this booth.

According to Videomagnetics, 7811 offers greatly improved head life over other material processes while providing higher reliability. And it is now standard on all heads refurbished by VMI — at no extra cost to the user. (Circle 290)

**VIDEOMAX** — Megamite™ was the high point of interest for a company long established in VTR head refurbishing. Megamite is a new, long life tip material that is resistant to noise-generating microfractures, and it's available now for the Videomax XM series quad video heads.

Megamite is unaffected by varying tape chemistry, thermodynamically stable, and electro-magnetically optimised for quad VTRs. It is currently available in RCA lowband, highband, and super highband configurations. (Circle 65)

**VIDEOMEDIA** — Video editing was the highlight of this booth. They showed their Z6 system, a microprocessor-based system that offers frame accurate editing and a 99-event memory with what they call Microloc. According to the company, it is absolutely "dead lock" accurate and does not require an audio track to operate. The operating programme rides in a software package, which is an advantage against obsolesence.

Videomedia also demonstrated the VMU 95U, a practical approach to low-cost editing while maintaining the features available on any ¾-inch editing console. A big plus for the unit is that no mechanical modifications to the VTR are required. Along

with random search, the editor has auto assemble and return to edit features. (Circle 285)

**VIDEOTEK** — Videotek's featured products included an all-channel demodulator with dual video outputs, dual audio outputs, and dual 4.5 MHz aural outputs; the unit requires onlv 3½ inches of vertical space.

Also introduced was an AC/DC eight-inch professional portable colour monitor with front-mounted drive controls, background controls and gun switches for complete colour balance. (Circle 275)

**VITAL INDUSTRIES** — The password in this booth was Squeezoom, and now they've added PSAS. The PSAS-1 production switcher automation system was demonstrated to large crowds throughout the show. This sytem will simultaneously control positioners, fader handlebars, preset limits, and border width or softness. It also selects modes and sources for three effects/mix units and the Squeezoom. Initiated internally or externally, it has a floppy disc storage up to 2000 events per discette.

Vital also made a big point of the digital video effects capabilities and the interface of their systems to a business computer system. (Circle 63)

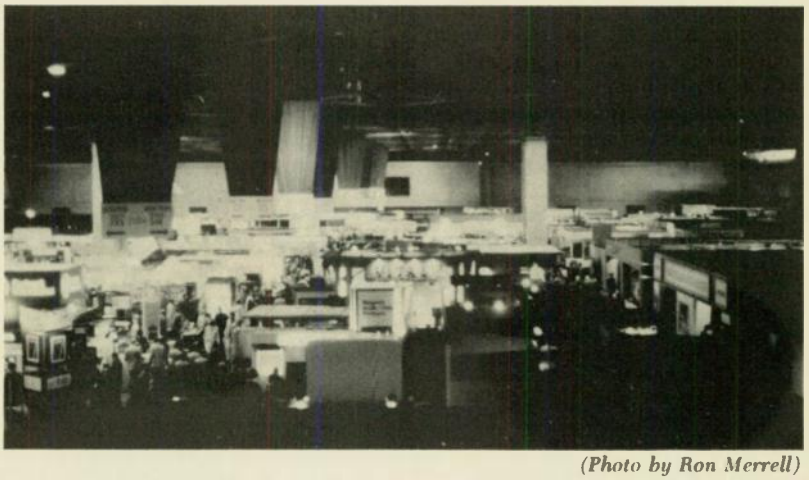
**VITEX CO.** — Among the offerings at the Vitex booth was the 700 Series video production switching systems. All three models (the 700, 701, and 702) are available in NTSC, PAL, or PAL-M standards. The 700 and 701 offer 16 inputs; the 702 has 16 or 24. All include colour black and colour background, and an on air tally system.

Other features include vertical interval switching, mix effect system with colour matte, and self-contained colour black and colour background generation. Options available are shadow chroma keyer, downstream keyer with automatic cut or dissolve, and auxiliary switching matrix among others. (Circle 79)

**WANG VOICE COMMUNICATIONS** — The digital audio delay model 150, called Time Tunnel™, has many excellent features, including wide dynamic range, low noise, no moving parts, digital memory system, directly replaces tape, and transformerless I/O. In addition, the 150 provides a high level of fidelity and performance; allows on-air live mistakes to be caught before transmission, and allows music to be run through, avoiding the direct-to-delay problem.

The six-second delay protects the production and broadcasting staff from an inadvertant slip or an error in programme switching while on the air. Not to mention the protection against offensive or illegal statements made by callers on talk shows or similar live broadcasts. (Circle 90)

**WARD-BECK** — If you visited this booth, you'd have to be prepared to look at a lineup of unique quality audio consoles. But what added to the crowd was the R2D2-type robot that amazed passers by and serious check writers alike. Blowing its lid, blowing kisses, and offering to dance with the girls, he came off as a great entertainer.



*(Photo by Ron Merrell)*

The company's sleek, modular console designs have been doing very well in markets from Las Vegas hotel entertainment productions to TV and radio stations. Interest was centered on the WBS 78038 and the 2042. Their R1200/R2000 radio consoles take advantage of the modular concept, allowing a wide variety of configurations for individual station needs. You missed a lot of fun if you didn't take in this booth.

**WEATHERMATION** — The excitement at the Weathermation booth was generated by the introduction of the company's new colour computer remote radar. Hailed as the state of the art in computer weather information, the system is a complete integrated package for the transmission and reception of six-colour radar images as well as conventional NWS WBRR. Included in the package are a transmitter, receiver, colour graphics overlay system, and animation. The colour computer radar system can provide total weather radar coverage without the problems of dedicated radar. The system offers high resolution six-colour calibrated display, dial-up high resolution six-colour display from any transmitter-equipped radar, and dial-up three-colour display from all 37 National Weather Service WBRR equipped radars. (Circle 85)

**WILKINSON ELECTRONICS** — Transmitters certainly were pushed into the limelight at this convention, and as you'd expect, this booth was one you'd have to plan on visiting. Fortunately, the transmitter emphasis this time around was hitting all power classes, and the Wilkinson AM-250SS is a good example, It's a 250 Watt AM rig that can be combined with a second unit to hit 500 Watts. The beauty of this model is that it is all solid state, with 125% modulation capability.

Also new at the booth was a DLU 80, an 80 kW calorimeter. This is an air cooled, self-contained dummy load with a frequency range from DC to 1.8 GHz. (Circle 291)

**THE WINSTED CORPORATION** — One of the chief attractions at the Winsted booth was the new ½-inch videotape duplicating console that stacks six VTRs and allows for a variety of working arrangements. Designed to aid in fast, efficient dub-

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## Convention hits

bing, the unit provides easy access to all video equipment and has a rugged extended "L" frame of heavy-gauge steel. Pull-out sliding VTR shelves accommodate any ½-inch videotape machine, and shelves adjust at one-inch increments. (Circle 83)

**WORLD VIDEO** — Jack Taylor was on hand to show two new World Video monitors . . . and much more. Starting with the model CP-8000, Taylor described the unit as an 8-inch portable monitor in the true sense of the word. You can take it by the handle and right out into field service where it can operate off any 12- to 24-volt DC source, or you can hit it with 110 AC power. All controls are easily accessible on the front, including setup, pulse cross underscan. Other features include dual inputs, internal or external sync, and full high voltage regulation. It's modular throughout.

Another monitor introduced was an 8-inch receiver/monitor that can fit into a 8¾-inch rack. Taylor said it could be taylored to any application.

Totally different for World Video was a pulse width indicator with front-panel digital readout. Measure any pulse on your horizontal line and you get an immediate readout. You can read blanking, sync, burst, and more. What's impressive is that this unit is totally passive to the TV signal.

Also demonstrated was a model 710 blanking width verifier that generates an outline of useable picture area. It can be displayed on a picture or waveform monitor. This gives the tape operator an immediate go no-go to see if it is within FCC blanking tolerences. (Circle 298) ac

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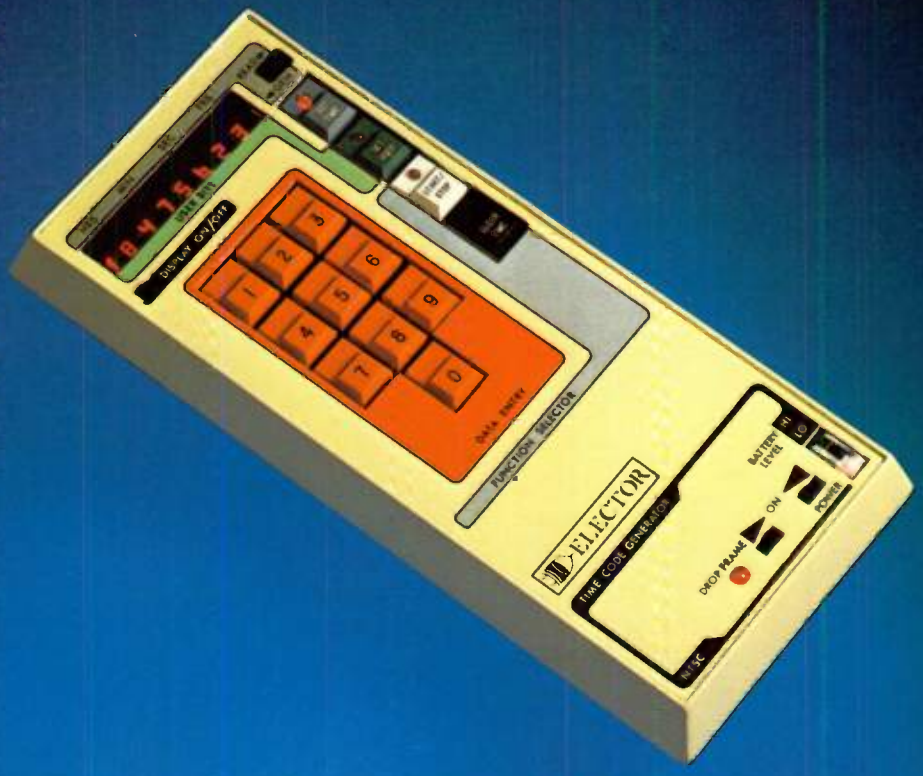


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