

The LPTV Report

News and Features for the Community Television Industry

Vol. 2, Issue 10

A Kompas/Biel Publication

November 1987

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Marshalltown's TV-39 Wins With Local Emphasis



l to r: Jim Hemphill, Steve Watt, and Chuck Carpenter on Channel 39's news set.

—by Jacquelyn Biel

In the middle of Iowa is Marshalltown, home to 27,000 people, a couple of heating and fluid control manufacturers, and the first clinic in the country to perform cataract surgery.

It is also the home of Mark Osmundson's K39AS, on the air since February

and broadcasting 17 hours a day. The Osmundson family began in broadcasting with Osmundson's father, who managed Scripps-Howard's radio properties before launching what is now KGCI-FM in Grundy Center, a little town twenty miles north of Marshalltown. Later the family corporation, MTN Broadcasting, acquired KDAO-AM in Marshalltown. And

later still, it won the CP for Channel 39.

Like others we've presented in this magazine, Marshalltown is a proud community and very proud of its new TV station. It's no surprise that the local programs are the most popular, programs like "Marshalltown Today," hosted by Channel 39 producer Joan Cordt and featuring guests from around the community. Airing twice every weekday, "Marshalltown Today" brings viewers news of current community events and concerns.

Then there's "Fine Tuning," which offers interviews, features, and—something different—locally produced music videos. There is the very popular local news, weather, and sports, hosted by news co-anchors Jim Hemphill and Steve Watt, and sports director Chuck Carpenter.

Elaborate Specials Spice Local Fare

But Osmundson is proudest of his local specials—the Civil War battle reenact-

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483 Window Permits to be Granted Before New Year

On October 16, the Federal Communications Commission issued a notice proposing construction permit grants for 483 applications filed during last summer's LPTV/translator window. Barring petitions to deny, they will be granted "by the end of this year," according to Keith Larson, chief of the FCC's LPTV Branch.

The LPTV applications break down into 211 new and 67 major change applications. The remaining 205 are television translator applications.

According to the Commission's release, the massive grant "may represent a breakthrough for a young and emerging industry....many stations can now be

quickly awarded to applicants while their enthusiasm and resources are fresh. This could dramatically increase the number of operating LPTV stations within the next year or two and could lead to substantial growth in all aspects of the industry." (See "At the FCC," page 3, for a complete list of the proposed grants.)

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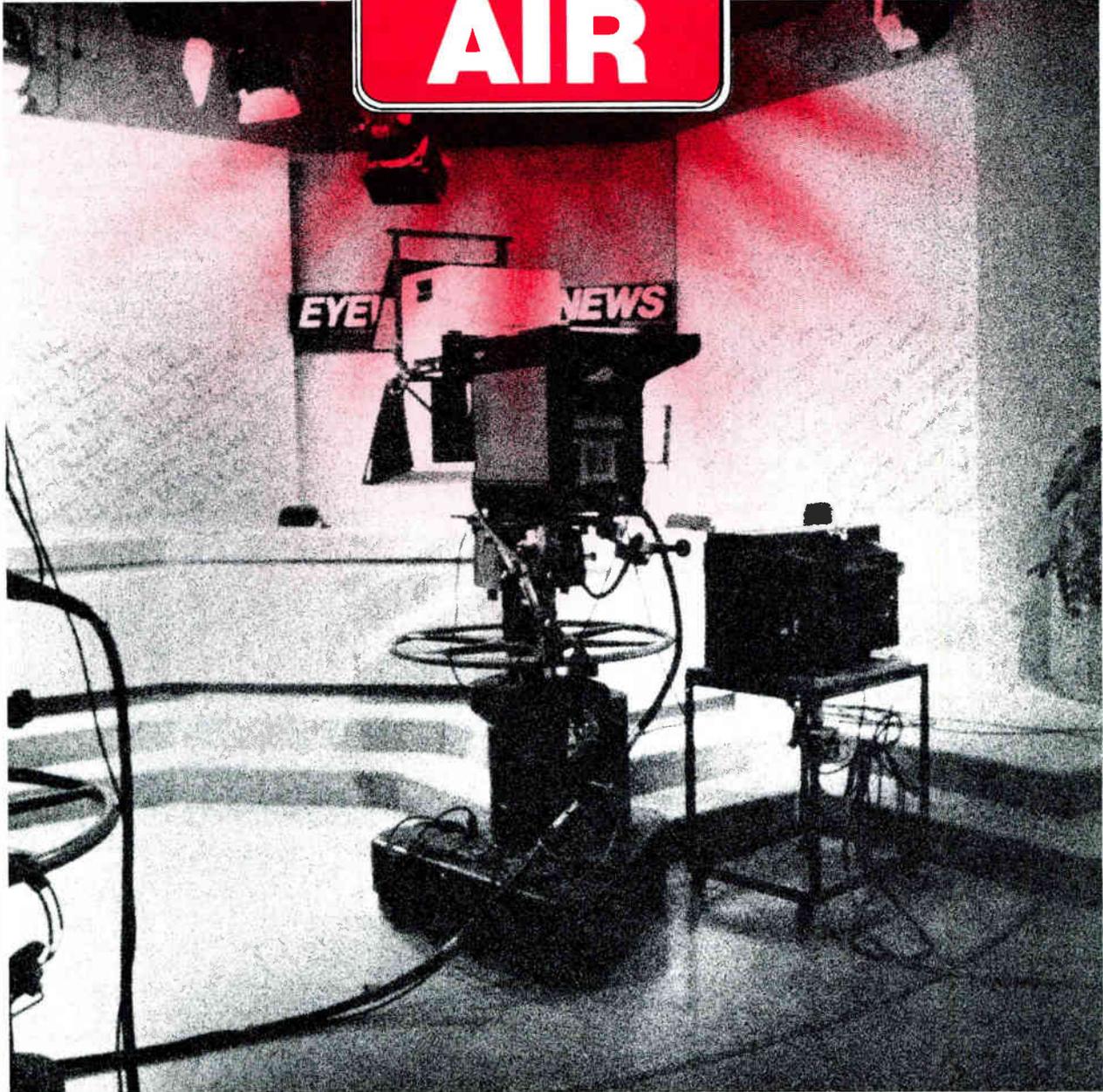
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In Our View

A round of applause, everybody!

Let's hear it for Keith Larson and his very hard-working staff at the FCC's LPTV Branch.

During the past two years, they have slogged their way through over 25,000 backlogged LPTV and translator applications. It was mainly their efforts that made possible the June application window in which, for the first time in more than three years, LPTV and translator entrepreneurs could file almost 1,400 new applications. This October, 483 of the new applications were cleared for grant. And next March, the first of several 1988 windows will open.

As those on the eighth floor at 1919 M Street will surely agree, such a task is no small feat of organization...and patience.

Thanks are also due to Barbara Kreisman, Larson's predecessor, who set up the lottery procedures, and to Roy Ste-

wart, chief of the Video Services Division, who has more than once defended the LPTV service to the rest of the Commission while defending the Commission to the LPTV industry.

When LPTV was first authorized in 1980, predictions were that some 4,000 stations would eventually serve the country, changing forever the look and the direction of broadcast television. The new window, and the first grants from that window, signal that we are smoothly on our way to making those predictions a reality.

Thank you, Keith, Barbara, Roy, and all your helpers!

...at the FCC

Ed. Note: Because we wish to publish the following list of proposed LPTV construction permits, we will not be including information about new LPTV license and CP grants this month. All such grants will be reported in next month's column.

PROPOSED LPTV CONSTRUCTION PERMITS

The following LPTV applicants filed in the June-July 1987 LPTV/translator application window. Their applications pose no potential interference to any others and, barring petitions to deny, will be granted.

- Ch. 27 Palmer, AK. Word of Life Fellowship, Inc.
- Ch. 8 King Salmon, AK. State of Alaska.
- Ch. 55 Jasper, AL. Video Image Productions, Inc.
- Ch. 28 Athens, AL. Athens Broadcasting Company, Inc.
- Ch. 23 Nashville, AR. Samuel A. & Etheline W. Westbrook.
- Ch. 18 Phoenix, AZ. Ellen Bloom.
- Ch. 18 Phoenix, AZ. Ellen Bloom.
- Ch. 18 Bullhead City, AZ. Howard F. Roycroft.
- Ch. 32 Jacob Lake, AZ. Tedford E. Kimball.
- Ch. 40 Shonto, AZ. SW Indian Media Ministries, Inc.
- Ch. 36 Parker, AZ. Richard J. Washington.
- Ch. 32 Show Low, AZ. Tedford E. Kimball.
- Ch. 25 Page, AZ. True Way Radio Communications.
- Ch. 44 Yuma, AZ. Richard J. Washington.
- Ch. 41 Fortuna, AZ. Dennis Macey.
- Ch. 33 Sierra Vista, AZ. Richard Richards.
- Ch. 28 Mammoth Lakes, CA. BJM Communications.
- Ch. 6 Salinas, CA. Jeremy D. Lansman.
- Ch. 20 Palm Springs, CA. Robert H. Gray.

- Ch. 22 Blythe, CA. Palo Verde Valley TV Club, Inc.
- Ch. 43 Redding, CA. Kidd Communications.
- Ch. 47 Ventura, CA. Ojai Assembly of God.
- Ch. 26 Lancaster, CA. Robert D. Adelman.
- Ch. 20 Grass Valley, CA. Sierra Joint Junior College District.
- Ch. 57 Blythe, CA. John F. Craven, Jr.
- Ch. 34 Willow Creek, CA. California Oregon Broadcasting, Inc.
- Ch. 26 Blythe, CA. Palo Verde Valley TV Club, Inc.
- Ch. 25 Klamath, CA. California Oregon Broadcasting, Inc.
- Ch. 33 Ojai, CA. Ojai Assembly of God.
- Ch. 51 Grand Junction, CO. Penny Drucker.
- Ch. 54 Fort Collins, CO. Echonet Corporation.
- Ch. 10 Hartford, CT. Harvard Broadcasting, Inc.
- Ch. 6 Hartford, CT. Harvard Broadcasting, Inc.
- Ch. 28 West Haven, CT. Paging Associates, Inc.
- Ch. 12 Perry, FL. Manuel A. Cantu.
- Ch. 11 Islamorada, FL. Lloyd A. Moriber.
- Ch. 47 Orlando, FL. Beach Broadcasting.
- Ch. 6 Jacksonville, FL. Carol E. Schatz.
- Ch. 65 Jacksonville, FL. Guenter Marksteiner.
- Ch. 44 Key Largo, FL. David J. Stein.
- Ch. 4 Orlando, FL. Charles Woods.
- Ch. 24 Defuniak Springs, FL. Ashley Norman Davis, Jr.
- Ch. 53 West Palm Beach, FL. Richard & Ann Vermillion.
- Ch. 4 Fort Myers, FL. Shoreline Broadcasting.
- Ch. 14 St. Augustine, FL. William Y. Tankersley.
- Ch. 46 Big Pine Key, FL. Edward R. Tinari.
- Ch. 9 Port St. Joe, FL. Manuel A. Cantu.
- Ch. 14 Big Pine Key, FL. Lloyd A. Moriber.
- Ch. 22 St. Augustine, FL. First City Broadcasting, Inc.
- Ch. 59 Fort Myers, FL. Beach Broadcasting.
- Ch. 28 MacClenny, FL. Baker County Family Television.
- Ch. 13 Waycross, GA. Mary L. Rivers.
- Ch. 7 Dublin, GA. Manuel A. Cantu.
- Ch. 2 Thomasville, GA. A T Productions, Inc.
- Ch. 13 Valdosta, GA. NewSouth Broadcasting Corporation.

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WorldRadioHistory

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(414) 462-7010

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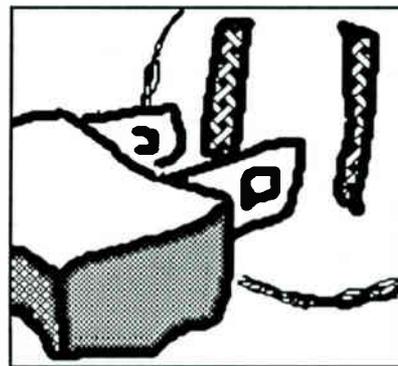
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The LPTV Report, ISSN 0892-5585, is published monthly by Kompas/Biel & Associates, Inc., 4434 Glenway, Wauwatosa, WI 53225-4449, or P.O. Box 25510, Milwaukee, WI 53225-0510. © Copyright 1987 by Kompas/Biel & Associates, Inc. All rights reserved.

Subscription price: 1 year, \$25.00; 2 years, \$45.00. Outside USA: 1 year, \$31.00; 2 years, \$57.00. POSTMASTER: Please send address changes to: *The LPTV Report*, P.O. Box 25510, Milwaukee, WI 53225-0510.

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The TBC Market:

A Buyer's Guide to Time Base Correctors



—by Steve Olson

You've got your CP, and now you have to build your station. Advice is flowing fast and free from dealers, manufacturers, and friends. One of your more expensive purchases will be a time base corrector. And you need information—fast.

In this article, I'll be giving you an overview of the products on the market now, as well as explanations of some of the technical details.

A time base corrector allows you to use a video tape recorder or player as an integrated part of your production or playback system. The function of a TBC is relatively simple in theory, though complex in execution. A TBC takes a reference input from your house sync generator or switcher and uses that signal to properly "steer" the video tape machine into time with the rest of the system. This is necessary because mechanical wear to the video tape machine and other factors cause changes in the speed of the video tape.

Because of the way a TBC functions, it is also able to change the color phase, saturation, brightness, and contrast of the picture being processed. Some models have additional features such as freeze frame or field, image enhancement, and noise reduction.

If you're going to make a good buying

decision, you need to understand some of the specifications listed by the TBC manufacturers. These specs relate to the overall picture quality obtained through the device.

3.58 Feedback, or Subcarrier Feedback: This feature allows the time base corrector to pass all 4.2 MHz signal that the VTR is capable of producing by providing an accurate 3.58 MHz reference to the VTR. Subcarrier feedback raises the price of the TBC slightly but allows for the best quality picture.

Frequency Response or Bandwidth: Generally measured in MHz (megahertz), frequency response relates to the ability of the TBC to pass high resolution signals. The higher the number listed, the more resolution the TBC can pass. A full bandwidth NTSC signal has a bandwidth of 4.2 MHz. Remember that the TBC does not increase resolution or sharpness; it can only be transparent to the signal (the ideal) or degrade it slightly. As a rule of thumb, 1 MHz of bandwidth is equal to approximately 80 horizontal lines of resolution.

Signal to Noise Ratio: This spec expresses a relationship between the amount of signal that the machine can handle compared to the amount of noise that the circuitry produces. Obviously, you do not want to add noise to any program that you produce, so this is a critical spec to look at. The spec is listed

in dB's. The higher the number, the better.

Heterodyne or Color Under Processing: This mode on some TBC's allows the machine to correct the color and time base instability of the VTR without the benefit of 3.58 MHz feedback. Because of processing difficulties, the bandwidth of the TBC may be somewhat limited. Some VTR's accept advanced sync to correct time base instability, but not 3.58 MHz feedback. Check the specifications of your VTR.

Quantizing and Window of Correction: Quantizing relates to the number of portions of the picture that are sampled in order to guide the correction capabilities of the TBC. You will typically see 7-bit, 8-bit and 9-bit sampling. The higher the number, the better.

Window of correction tells you how much servo error can be corrected by the TBC. This specification is somewhat less significant today due to the accuracy and stability of the new VTR's. Here again, the larger the number, the better.

• • •

Now that we have established some evaluation parameters, let's review some of the manufacturers whose products serve the LPTV marketplace. We will avoid discussion of frame synchronizers and digital effects systems.

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The ALTA Group
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FOR-A Corporation
320 Nevada Street
Newton, MA 02160
(617) 244-3223

Fortel, Inc.
2985 Gateway Drive
Norcross, GA 30071
1-800-241-5046

Harris Video Systems
960 Linda Vista
Mountain View, CA 94043
(415) 969-9100

Microtime
1280 Blue Hills Avenue
Bloomfield, CT 06002
(203) 242-4242

Prime Image
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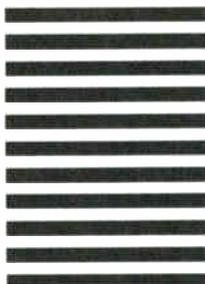
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THE ALTA GROUP

Pyxis: The Pyxis is a dual-channel (two complete TBC's) TBC with a four-input stereo audio mixer with 13 transitions, three of which are digital effects. The device also contains posterizations for each channel. This is a heterodyne only device that will not provide 3.58 subcarrier feedback to the VTR's. The unit lists resolution at 270 lines, with 7-bit sampling and 16 lines of correction. Signal to noise is greater than 50 dB. List price is \$6,250.

Pyxis E: The Pyxis E is an upgraded version of the Pyxis with the addition of freeze field or frame on each channel. New resolution specs of 290 lines and a new 8-bit processor are the other upgrades. List price is \$8,450.



The ALTA Group's Cygnus.

Cygnus: The Cygnus is an infinite window, 290-line resolution time base corrector that can accept just about any stable video source that you can imagine. The Cygnus signal to noise ratio is greater than 55 dB. Features include a 4 x 1 stereo audio and video switcher, picture freeze, strobing, colorization, posterization, and mosaic. The unit, a heterodyne only processor, also has an internal drop-out compensator. List price is \$4,990.

FOR-A CORPORATION

FA-400: The FA-400 is a heterodyne only full frame correction digital TBC with 8-bit processing and a signal to noise ratio of 58 dB. This TBC has a luminance bandwidth of 4.2 MHz and features freeze field or frame. A remote control is available as an option. List price is \$5,450.

FA-410D: The FA-410D handles either heterodyne or 3.58 MHz full bandwidth feedback. It has a 16-line window of correction and 56 dB signal to noise ratio. It operates in the 3.58 feedback mode at 4.2 MHz total signal bandwidth. The TBC processes the signal in its component environment and samples eight bits on

each component. This unit will also handle slow motion VTR's such as the Sony BVU-870 and Panasonic NV-8950. List price is \$6,950.



The FA-420 from FOR-A.

FA-420: The FA-420 is identical in features to the FA-400 except that it also operates in the full bandwidth 3.58 MHz feedback mode, providing a frequency response of 4.2 MHz for the entire signal. The unit also includes an internal drop-out compensator. List price is \$6,950.

FA-430: The FA-430 is identical in features to the FA-410D except that the 3.58 MHz subcarrier feedback has been eliminated in lieu of several image processing circuits that include RGB color correction, image enhancement, noise reduction and VTR "dub" inputs and outputs. List price is \$9,950.

FA-440: The FA-440 is a full field digital TBC with drop-out compensator, field or frame freeze. The TBC operates in heterodyne mode only with 8-bit processing at a greater than 55 dB signal to noise. The FA-440 has a 3.2 MHz luminance frequency response. The unit also features many digital effects capabilities that are accessed through the VEC-440 video effects controller. List price is \$9,450.

FA-740: A new product, the FA-740 will feature two full frame digital time base correctors in a single frame. There will also be programmed memory and RS-422 interface capability to editors. 8-bit sampling and 55 dB signal to noise with a frequency response of 3.5 MHz luminance are listed in the preliminary specs. This unit operates only in the heterodyne mode. Numerous effects will come standard on the device, including freeze, strobe, pushes and pulls, wipes and dissolves, as well as paint and mosaics. There will also be compression and multi-move effects. List price is \$14,950.



The Fortel DHP 525.

FORTEL INCORPORATED

DHP-525S: A full frame digital TBC. The DHP-525S complies with the new CCIR specifications for sampling and quantizing with a bandwidth of 2.2 MHz. The unit operates in heterodyne mode or S-VHS mode only, with a signal to noise ratio of 57 dB. The unit also has an internal drop-out compensator. Additional features include freeze field or frame, luminance noise reduction, and horizontal image enhancement. An optional remote control is available. List price is \$6,495.

Turbo 2: The Turbo 2 is based on the DHP-525S except that it operates also in the full bandwidth "dub" mode, taking the FM signal from VTR dub cables. Bandwidth is 4.2 MHz in that mode. This unit will also process slow motion signals through a Sony compatible connector. The unit provides Betacam outputs from standard NTSC inputs. An optional remote control is also available. List price is \$9,500.

HARRIS VIDEO SYSTEMS

540: The 540 is a full bandwidth digital time base corrector designed to operate with VTR's that can accept 3.58 MHz feedback. The 540 utilizes 8-bit processing and provides an average of 59 dB signal to noise ratio. A full featured remote control is available as an option. List price is \$4,325.

550VT: Identical to the 540, the 550VT also provides the capability of operation in the heterodyne mode and dynamic tracking from a BVU-870. List price is \$5,595.

560: The 560 is a heterodyne only TBC designed for 1/2" and 3/4" VTR's that accept advanced sync or that allow the internal servo systems to reference to the video input. The 560 operates with an 8-bit processor, 16-line window, and 56 dB signal to noise. List price is \$2,995.

continued

AC 20AS: The AC 20AS is a modular processing system designed to handle either time base corrector circuit cards or frame synchronizer cards, or a combination of both. In either instance, the frame is designed to be a dual-channel device with individual outputs as well as an effects output if that option is chosen. The time base corrector cards, known as TB-2 cards, are switchable between heterodyne and 3.58 feedback modes with a bandwidth of 4.2 MHz. It utilizes 8-bit processing with a 55 dB signal to noise ratio. An internal drop-out compensator is standard on each TB-2 card. The TBC cards will also handle slow motion from Sony BVU-870 or Panasonic NV-8950 VTR's. Full function dual-channel engineering remote control and a remote control panel for the nine production effects, three of which are digital, are avail-

able as options. List price for a dual-channel TBC with production effects is \$10,225.

MICROTIME

Tx2: Designed as a single- or dual-channel time base corrector, the Tx2 features full frame memory with an 8-bit processor. Wide bandwidth performance of 5 MHz is available when utilizing the FM dub connections. The signal to noise ratio is 58 dB. The Tx2 is delivered standard with Betacam or MII outputs, as well as two composite outputs. An internal drop-out compensator is also standard, as is the capability of handling slow motion from a BVU-870. This unit will also operate in the heterodyne or 3.58 MHz mode (via the dub connectors). 5 dB of luminance noise reduction is possible through dub connectors. A full featured

remote control is an optional accessory. List price for a dual channel Tx2 is \$14,995.

T-220FIT: This time base corrector has been designed to solve problems associated with production in the component environment as well as standard time base correction. Process or full bandwidth dub input modes, as well as component (YUV or YIQ) are standard. Luminance bandwidth is listed at 5 MHz with a 58 dB signal to noise ratio. This unit utilizes a full frame memory with an 8-bit processor and will handle slow motion from a BVU-870. The unit will also process non servo'd video tape machines. An internal drop-out compensator is also standard. A remote control is available as an option. List price on the T-220FIT is \$11,900.

T-320: The T-320 offers both heterodyne and 3.58 MHz operation with a 35-line window of correction. 4.2 MHz bandwidth in the SC feedback mode and 58 dB signal to noise are listed specifications. Internal drop-out compensator is also a standard feature. List price for the T-320 is \$5,995.



Microtime's T-320.

T-320D: The T-320D adds slow motion capability, as well as freeze and full frame memory to the specs of the T-320. List price is \$6,995.

T-300: The T-300 operates only in the 3.58 MHz feedback mode to provide full 4.2 MHz bandwidth with 58 dB signal to noise. The unit has 8-bit processing and a 35-line window of correction. It has no drop-out compensator. List price is \$4,995.

PRIME IMAGE

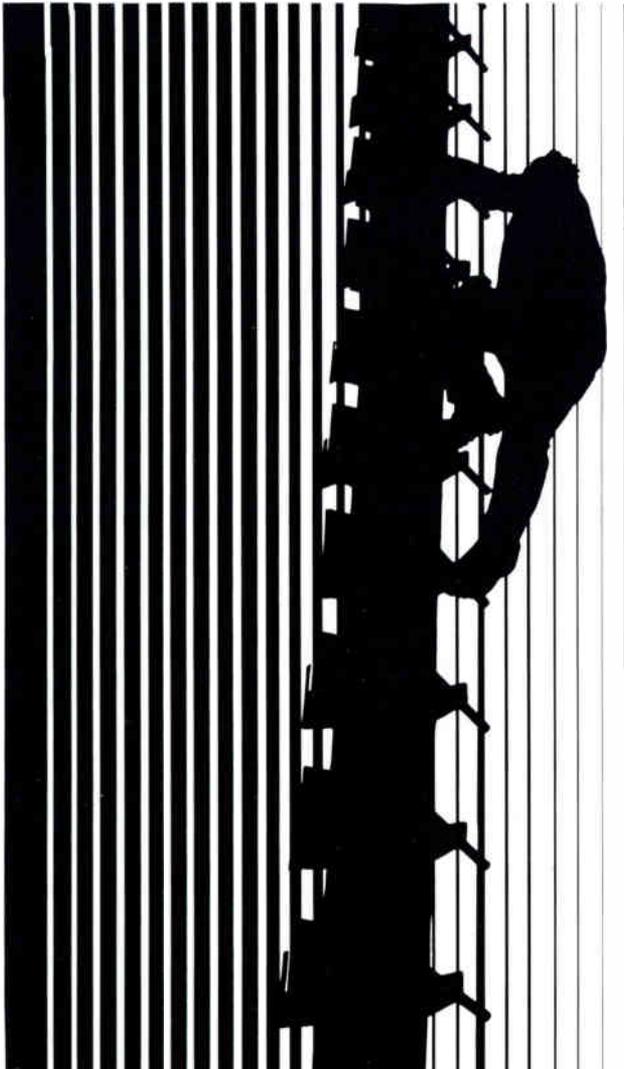
TBC+ (without effects): The TBC+ is the basis for the Prime Image line of TBC's. The unit processes with an 8-bit processor, 16-line window, and a signal to noise of 58 dB. This unit will handle slow motion from Sony BVU-870's and Panasonic NV-8950 VTR's. List price is \$3,990.

TBC+ (with effects): This version of the TBC+ has all of the features of the unit listed above plus posterization, sepia, and mosaic. List price is \$5,555.

DUB TBC+ (without effects): This unit is identical to the TBC+ (without effects) but adds dub input and output for full bandwidth (4.2 MHz) processing without the normal signal degradation of heterodyne processing. List price is \$5,200.

DUB TBC+ (with effects): As above, this version combines effects capability with dub processing. List price is \$6,200.

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TBC SYNC+ (limited effects): This device is a full frame synchronizer with a 16-line window TBC. The TBC SYNC+ will handle slow motion, as well as "hot switching" between the TBC input and a synchronizer input (i.e., a microwave or satellite feed or camera input). The unit will also freeze a frame or field (selectable field 1 or 2) with picture strobe. Specifications are the same as those for the TBC+, 8-bit processing, 58 dB signal to noise ratio. List price is \$6,666.



Top to bottom: The TBC+, the TBC SYNC+, and the DUB TBC+, all from Prime Image.

TBC SYNC+ (full effects): This unit has specifications identical to those of the TBC SYNC+ with the addition of posterization, sepia, and mosaic effects. List price is \$8,888.

SONY CORPORATION

BVT-810: 15-line floating window of correction with dynamic tracking capability and chroma noise reduction are two of the features of this digital time base corrector. This TBC operates with or without 3.58 MHz feedback to the VTR. 55 dB signal to noise is a listed specification, with an internal drop out compensator. The unit also functions with Sony BVU series studio machines via a single multi-conductor cable. A full function remote control is available as an option. List price for the BVT-810 is \$11,550.

• • •

So now that you know a little bit about the specifications and features of time base correctors, how do you go about purchasing one? The first thing you should do is identify the purpose of the TBC. Is it just to allow playback of a VTR through a switcher, or is it going to be a production tool for freeze frames, or perhaps will it be used for the correction of poor quality tapes.

Next, call the dealer that you are familiar with, outline your needs and ask for his/her recommendations. Then carefully evaluate those suggestions. If you have never seen a time base corrector in operation, ask for a demonstration of one or two. A good dealer will be happy to accommodate you.

After looking at one or two TBC's that meet your needs, you should be able to make a decision. Keep in mind the support a dealer will be capable of giving or willing to give you, the warranty on the

product, and the service record of the manufacturer.

Steve Olson is Milwaukee district sales manager for Video Images, Inc., in Waukesha, WI. Video Images is one of the largest turn-key builders of LPTV stations in the Midwest and is a member of the Professional Systems Network, Inc. Questions about TBC's may be directed to Steve at (414) 785-8998.

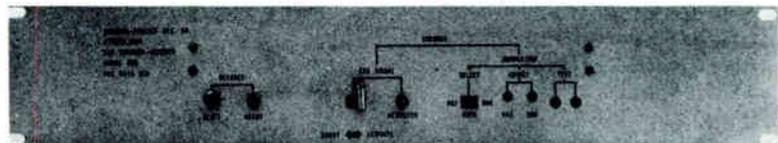
KJ/B

BON MOT

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Coretta Scott King

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Model CEB Encoder-Decoder	Price
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Model CD Decoder	330.00
Encoder FCC Type Accepted Decoder FCC Certified	280.00
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Receiver can be supplied to drive Decoder	\$100.00

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LPTV Distribution by State and Territory

November 1987

	Licenses	CPs*
ALABAMA	4	25
ALASKA	12	37
ARIZONA	9	44
ARKANSAS	3	47
CALIFORNIA	27	51
COLORADO	11	63
CONNECTICUT	0	2
DELAWARE	1	2
WASHINGTON, DC	0	1
FLORIDA	17	72
GEORGIA	4	49
HAWAII	1	9
IDAHO	5	50
ILLINOIS	3	21
INDIANA	5	24
IOWA	5	45
KANSAS	5	101
KENTUCKY	3	14
LOUISIANA	3	34
MAINE	4	11
MARYLAND	1	4
MASSACHUSETTS	3	7
MICHIGAN	3	32
MINNESOTA	15	58
MISSISSIPPI	8	31
MISSOURI	4	75
MONTANA	13	128
NEBRASKA	3	76
NEVADA	16	48
NEW HAMPSHIRE	0	3
NEW JERSEY	2	4
NEW MEXICO	9	67
NEW YORK	12	29
NORTH CAROLINA	2	28
NORTH DAKOTA	2	65
OHIO	3	24
OKLAHOMA	10	64
OREGON	14	74
PENNSYLVANIA	5	16
RHODE ISLAND	0	1
SOUTH CAROLINA	0	14
SOUTH DAKOTA	1	73
TENNESSEE	6	35
TEXAS	27	132
UTAH	15	62
VERMONT	1	5
VIRGINIA	3	28
WASHINGTON	6	40
WEST VIRGINIA	0	4
WISCONSIN	9	37
WYOMING	18	62
GUAM	0	1
PUERTO RICO	1	3
VIRGIN ISLANDS	0	2

TOTALS: Licenses: 334
Construction Permits: 2,034

In addition to the stations listed above, ALASKA operates a 241-station LPTV educational network.

*Construction Permits

Source: Kompas/Biel & Associates, Inc.

Understanding Time Base Correctors

—by Michael J. Havice, Ed.D.

Imagine drawing 525 horizontal lines 30 times in one second. And the time you spend drawing each line must be exactly the same as the time you spend drawing every other line. The problems you would have doing this are somewhat similar to the problems machines have reproducing video images from tape.

To understand time base correctors, you must remember that a TBC's primary job is to eliminate timing errors created by video tape machines. They do this by standardizing the length of the horizontal lines that compose the video image. Each horizontal line of video is supposed to be 63.5 millionths of a second in length. Otherwise the picture will reflect timing errors on playback.

Frequently, the observer recognizes time base error as "jitter." Some of these timing errors will be visible, while others are not. Whether the error is visible depends upon circumstances of playback. No error may be present while the tape is being played. However, if you try to dissolve to the same tape you could get scrambled video.

Why Do I Need A TBC?

The consequences of time base error depend upon how you use the tape source. For example, time base errors will prevent you from dissolving to tape sources in production or editing. They will also prevent you from meeting NTSC broadcast requirements. Or you may be unable to dub your 3/4" tape to a 1" master. Although each of these problems may seem to have a different cause, you must remember that the same time base error manifests itself differently in different situations.

TBC's are necessary because of the mechanical nature of video tape machines. While the electronics are accurate and

stable, the mechanics of tape transport are subject to error. The tape can stretch; the video head speed may be a little off; tape speed may vary during a recording. Each of these conditions affects the horizontal line length of a video signal.

In professional production, TBC's are required when video tape sources are incorporated in a "normal" studio configuration. To create special effects such as keys, dissolves, and wipes—cameras, special effects generators, switchers, and character generators are locked on to house sync. There is no problem with time base error in a non-VTR studio configuration because each piece of equipment is synchronized with every other piece. However, when you add a VTR to the system, you find that you cannot dissolve or take smoothly from tape to system or vice versa. This occurs because the time base synchronization between the VTR and the system are not coordinated. The time base error causes jitter in the signal, which prevents inclusion in the TV system.

The problem—jitter caused by time base error—occurs when a signal must be preserved on video tape. Because the video tape machine records a signal mechanically, horizontal line error occurs even though the video tape machine is connected to house sync. The problem is the way line length is affected by the mechanics of recording, not whether the machine has house sync. The TBC corrects the time base error received from the signal and coordinates the new video output with the studio signal.

Editing and Dubs

TBC's are also helpful in video tape editing, allowing for two-source editing with effects, while at the same time reducing the accumulation of time base error on the recorded tape. Time base errors accumulate during the recording and edit-

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ing process like this: The machine error recorded by the original tape machine is read during playback by the source machine in the editing configuration. Then the output of the source machine, with source error added to the original errors, is sent to the record machine where new record machine errors are added.

Because so many tape machines are involved in this situation, there is plenty of opportunity to increase time base error. Adding a TBC between the source machine and the recorder in an editing configuration reduces the potential for accumulated time base error. Also, if you have two source machines, you will be able to do special effects between the two.

TBC's are also helpful when you make copies, or dubs, of video tapes. Remember, the recorder that copies your error-free system video introduces horizontal error as it records the material. And the playback machine will duplicate that error, and add its own, during the dubbing process. If you use a TBC when making copies, however, you can produce error-free, quality dubs.

Line Lock and Vertical Lock

TBC's are available in two configurations — line lock and vertical lock (V-lock). The line lock mode is the least expensive—and the least effective; but for some machines, it is the only mode that will work. This mode averages the lengths of the lines, thus correcting most, but not all, of the horizontal error. The advantage of line mode TBC's is that you can use them with almost any 3/4" or 1/2" machine. And they are inexpensive compared to other TBC mode configurations. The disadvantage is that you cannot use line lock and do special effects on a switcher because it does not synchronize the TBC signal to house sync.

The V-lock mode does more than the line-lock mode and has some special requirements. First of all, the V-lock mode can only be used with capstan-servo circuit VTR's with provision for external sync. You have to be sure your tape recorders will properly match the TBC you purchase. Secondly, some V-lock TBC's operate in the process, or heterodyne, mode; others operate in the direct mode. To simplify a very complicated matter, the V-lock direct mode provides a theoretically better picture than the V-lock process mode does.

You should know that a V-lock TBC requires a 3.58 MHz subcarrier input on the VTR to which it is connected. You should also be aware that 1" video tape machines require V-lock direct TBC's. Such TBC's are usually purchased along with the 1" recorder. If you can justify the need, a V-lock direct line TBC is the better choice for a broadcast operation and for serious video production. It is more

expensive, but worth it. In the end, base your choice on matching your system needs and VTR's to the TBC that will do the job.

One TBC mystery is the window. What does it mean and what size should you get? In short, the window is the correction range under which the TBC operates. Frequently, this range is referred to as the size of memory. In TBC terms, that memory is called the window which indicates the number of horizontal line corrections the TBC is capable of handling. What you have to remember about horizontal error and window size is that actual correction is half of the number designating the window size. For example, a window size of eight lines corrects four lines. Why? The horizontal error can be advanced or retarded, that is, the line can be too long or too short. Since the error can occur in either direction, room must be allowed for both directions.

In most reasonably maintained production facilities, a window of eight lines should be large enough. Most newer video tape recorder/players operate within reasonable limits. Time base errors requiring more than four lines might be considered unusual. However, you may want to purchase a 16- or 32-line TBC, because they are the most common models.

How To Choose A TBC

The appropriateness of a TBC for a particular facility is a function of several factors. The type of equipment you will use with the TBC is an important consideration. If you are using a mixture of recorder/players, you may consider purchasing more than one TBC to meet your needs. Or you can purchase a TBC with several operating modes. Your choice should be made with the advice of a competent broadcast engineer.

Another consideration is expense. Remember that your purpose in purchasing and using a TBC is to eliminate time base error in your system. Therefore, if you must spend less, drop features like noise reduction and image enhancing, which are nice but not necessary. Your video engineer can help you decide which options will contribute most to your production effort.

Your engineer is especially valuable when you consider the impact of component video in future broadcast operations. Component video machines will require component TBC's. At any rate, your studio will have to keep up with technological advances in video production and distribution.

Consider this, the TBC you use will check and adjust 28,350,000 lines of video in a half hour television program. If you consider the job a TBC does, you can't help but appreciate the technology of it.

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production values. The TBC is a production tool designed to remove video signal errors created by recording and playback machines. The TBC does not correct flaws in picture content.

Michael J. Havice, Ed.D. is assistant professor of broadcast communication at Marquette University. He is a specialist in production and interactive video technologies.

K/B

NAB Solicits Research Grant Proposals

The National Association of Broadcasters is seeking proposals for its 1988 Grants for Research in Broadcasting. The deadline is February 1, 1988. The program, now in its 22nd year, awards some four to six grants of up to \$5,000 each. Winners have 12 months to complete their projects from the time the award is announced.

The competition is open to all academic faculty, graduate students, and senior undergraduates.

K/B

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NOW

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A viewer interactive game where viewers pick up rub-off entries at merchants and play Blackjack, or "21" against the TV host.

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NOW

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A game show for youngsters. Jr. High School students are living checkers on a giant board, where they answer questions in order to move or jump.

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FALL 88

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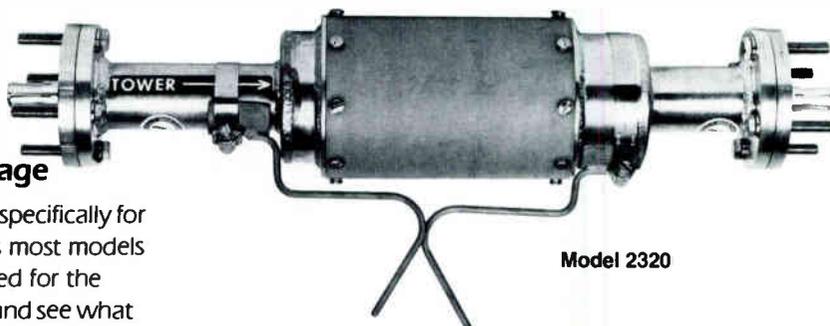
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TTC Riding Crest of LPTV Boom

Eighteen months ago, Bill Kitchen, president and owner of Quality Media Corporation, a Columbus, GA, radio licensee, acquired an option to purchase majority control of Television Technology Corporation. With the acquisition, Kitchen assumed the presidency of the Colorado manufacturer of TV and radio transmitters and translators; and Dr. Byron ("Doc") St. Clair, who founded the company in 1967, became chairman of the board.

Since that time, TTC's stock has risen from \$.29 to \$1.89 a share, an increase that Kitchen attributes to "a decided turnaround in company operations." (The recent market tumble dragged it down to \$1.00 but, said Kitchen, "We're bouncing back. It's up to \$1.45 now. Like all the other over-the-counter stocks, we lost quite a bit, but we're rebounding.") The company's new aggressive marketing stance, the development of a broader range of products, and overall improvement in market conditions are some of the factors contributing to the performance surge.

"The 1987 fiscal year showed a profit on operations for the first time in two years. Sales were 61% higher than fiscal 1986 sales," Kitchen said. "Moreover, the aggregate gross margins grew by 88% while operating expenses grew far more slowly at only 33%."

TTC manufactures radio and television high and low power transmitters and translators—"everything," said Kitchen, "from a 1 watt U to a 240 kW U. We also make VHF low power transmitters and AM and FM radio transmitters."

Kitchen feels confident that the growth trends established in fiscal 1987 will con-

tinue. He pointed out that the international market for TTC's products is at least as large as the domestic U.S. market, and that both are expected to grow significantly over the next few years.

One target market is the Pacific rim nations, especially China, in which TTC does the majority of its overseas business. According to Kitchen, China has been responsible for "several million dollars in sales for fiscal 1988."



William J. Kitchen

Kitchen said the company plans "to remain the technological leader in LPTV" and to that end is spending "significant amounts of capital" on research and development. Based on the company's research of existing LPTV stations, Kitchen sees a "bright future" for the LPTV industry and feels that it will "continue to accelerate as LPTV owners develop new marketing strategies." Kitchen, personally, is planning to acquire a number of LPTV stations over which he will offer what he would describe only as "specialty" programming. K/B

BROADCAST Hedging on LPTV Investments

Broadcast Capital Fund, Inc., whose vice president, Ken Harris, said in July that the minority investment firm would "certainly consider" LPTV proposals, now appears to be having second thoughts about such investments.

When asked about the firm's reported refusal to consider funding the construction of stations owned by Northcoast Broadcast Corporation, Harris said, "LPTV is a new industry that has not demonstrated profitability." John E. Oxendine, president of the firm, expressed doubts about the service's ability to attract advertisers or support a large staff. However, subsequent questioning revealed that neither Oxendine nor Harris were aware of the fact that LPTV station advertisers comprise a different group than those of high power stations, or that LPTV station budgets were markedly lower than those of high power stations.

One problem with funding LPTV stations through BROADCAST, said Oxendine, is the lack of a financial track record for the industry. "We haven't seen many people who are willing to establish a value for an LPTV station. If you can't establish a value, how can you determine a revenue stream?" he asked.

Oxendine denied rejecting LPTV investments out of hand and said that the firm is willing to look at LPTV proposals. However, he said, "The deal has to make sense. The management team should have some experience with radio and TV, and they should have some capital of their own." K/B



CBA Comment

—by Arthur D. Stamler, Ph.D.

A national advertising representative. What a nice ring that has to it! A firm with offices in New York, Chicago, and Los Angeles, or even more. A company that calls on the big ad agencies on behalf of my LPTV station and makes national spot sales for me.

It's so nice to sit here and dream of fatcatland. That's the area where a lot of local businesses think I live. After all, I do own a TV station, and it is on the air, and it does have programs that people all over the area watch. And they do pay for the chance to air their commercials on the station, and, boy, that guy must be coining it hand over fist!

That national advertising representa-

tive. He, or she, could be a reality. He could be the first organization set up to show the big ad agencies what a great buy a mix of local LPTV's can be. And with a central source for dubbing the spots to a format most useable, or a leased uplink for a feed joining a series of spots together, a rep could make quite a sales pitch.

...If there were such a national sales representative.

There are about 100 different organizations that represent high power stations to agencies. They have a powerful story to tell, and they get business. A better story could be put together for our stations, and a concentrated set of numbers so aligned and at such good rates that agencies would be hard pressed not to buy. And then, like the big boys in fatcatland, we could be content to watch UPS or Federal Express bring in the U-Matics for the 13-week flight, and log the spots with little or no effort.

Heck. What's wrong with making it?

If there's a reader who wants to take on about 300 immediate accounts, and who wants to knock on agency doors on our behalf, I'll be your first client. Wherever you are, we need you.

Yesterday!

Arthur D. Stamler, Ph.D. is the managing general partner of W10AZ in Woodstock, VA. He is a director of the CBA. K/B

Magic-8 To Serve Glens Falls, NY

W08CJ signed on the air in Glens Falls, NY in mid-November, according to an announcement by James E. Grich, president of the Grich Broadcasting Corporation and general manager of the station. Programming for "Magic-8," as the station is billed, includes children's animation, movies, comedy, news, and locally produced shows.

Broadcasting in stereo and utilizing state-of-the-art production and master control video equipment, Magic-8 offers complete commercial production and plans several local programs, one of which is a talk show to be hosted by Grich's wife, Peggy. Also part of the facilities is a complete mobile production unit for live coverage of area events.

Before founding Grich Broadcasting, Grich was chief engineer/production director of a high power Schenectady UHF. He has also owned and operated a commercial cable system. His plans for Magic-8 include a heavy concentration on local programming. "I'm putting this station on the air to serve Glens Falls and the surrounding communities. It will give the people their own local station that they can be proud of," he commented. K/B



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- **XL 10U and XL 20U**—These "power flexible" 10 Watt and 20 Watt units are TTC's most affordable, featuring VHF, UHF, or modulator input.

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Marshalltown's TV-39

continued from front page

ment celebrating the 100th anniversary of the Iowa Veterans' Home (reported in last month's *LPTV Report*), the State Rodeo finals, parades, the fall Ocemberfest (so named because it is held alternately in September and October) that this year featured Grand Prix style go-cart races through downtown Marshalltown, and—the favorite of Marshalltown viewers—high school sports.

"In our town, high school sports are like college sports to a bigger community," Osmundson pointed out. "We do boys' softball all summer. We do all the home and away football games. We do both girls' and boys' basketball. We have superb facilities—our basketball coliseum seats 5,000—and we get in there with two cameras and shoot the games. The people love it!"

Advertisers—car dealers, home improvement retailers, restaurants, the community college—are rallying to the support of all this local flavor. "The biggest task we had was educating the advertisers on how to use TV," said Osmundson. "Actually, if I had to do it over, I'd start educating them sooner. It takes time to get them comfortable with the medium. But once we get a spot produced for them and it starts running, they continue to advertise."

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l to r: Jim Cagwin and De Swartzendruber in TV-39's editing suite.

Osmundson packages his local programming with the movies and syndication he gets from such companies as World Vision, SFM Entertainment, Group W, Tribune, and Gaylord, using the popular local fare to support the imported shows. Ad rates for local programming generally run between \$25-\$30/30, whereas they drop to \$12-\$20 for the rest.

Account execs Tom Batty, Jolene Heikens, Nancy Uchtyl, and Steve Watt offer discounts for combination radio-TV buys. Production charges average \$75-\$100, a stumbling block sometimes for advertisers who aren't used to paying production fees. But new advertisers get "production credits," whereby the cost of production is deducted from their ad invoices, and that helps ease the way into the new medium.

Cable And Radio Competition

There is some competition from Heritage Cablevision's local 28-channel system (which carries Channel 39 free). "They really didn't do much in ad sales until we got on the air," said Osmundson. "Then they came in with really low rates—\$2.50 and \$3 spots." But, he says, that competition doesn't really hurt his sales, which he bolsters with billboards, newspaper ads, supermarket flyers, and of course cross-promotion on his own radios.

Other competition for ad dollars is posed by the daily *Times Republican* and an AM/FM combo. The nearest high power TV's are at least 50 miles away—in Waterloo, Des Moines, and Cedar Rapids—so they pose no threat to ad sales, although, because Channel 39 is in the Des Moines ADI, Osmundson finds that some desirable programming is unavailable to him.

Osmundson declined to give specifics on his budgets, saying only that sales so far have met projections. And like other LPTV owners who also own radios, he finds that he saves considerably on staff and operational expenses. Sixteen of

Channel 39's employees, including all four account executives, also work for KDAO. Only four work full-time for the TV.

As for long-range plans, "We'd like to expand on some of our local programming—more news, a local kids' show," said Osmundson. "A Marshalltown furniture refinisher wants to do a home improvement program. We want to do more sports—expand into some of the smaller towns and do an 'Area Game of the Week.'"

"I'm optimistic about LPTV. It definitely serves a need. In our community, we can provide local news and services not available anywhere else. The local things have been our strength." K/B

Equipment List: K39AS, Marshalltown, IA

- Bogner B4UO antenna
- Acrodyne TLU/1KACT transmitter
- 2 Beech Craft receive dishes
- 2 Norsat JR-300 satellite tuners
- 2 Hitachi FP-22 cameras
- 2 Sharp XCA-1 cameras
- 5 Sony VO-5800 VTR's
- Panasonic NV-9240 VTR
- Sony VO-6800 VTR
- 2 JVC CR-4700U VTR's
- 2 Sony VO-5850 editing VTR's
- 2 Sony RM-440 controllers
- Crosspoint Latch 6112 switcher
- 2 Fortel CCD-HP time base correctors
- Quanta QCG-400 character generator
- Kliegl lighting
- Ramsa WR-130 audio board
- 6 Electrovoice microphones
- Videotek VSM-5A vectorscope
- Videotek TSM-5A waveform monitor
- 9 Panasonic TR-932 line monitors
- Sigma CSG-335A sync generator
- 2 Sigma VDA-100A video DA's
- Sigma SDA-110 audio DA

Supplier Side

Try spicing up your program log with a viewer interactive game show from **Bencro Productions**. On "Beat the Experts" for example, sports fans can prove just how inept your station's guest experts are.

Each Wednesday evening, a panel of sports writers, radio and TV reporters, sports professionals, or other "experts" attempt to predict the outcome of the coming weekend games. Not only do they try to pick the winners individually, but the consensus of their choices is used as the basis for the game board. Then, using entry cards that they have picked up at sponsoring merchants' places of business on the previous Saturday, fans try to out-guess the panel.

The viewer who selects all the winners correctly receives the cash in the Jackpot. Viewers who pick more winners than the studio experts become eligible for merchandise prizes.

Bencro offers several other similar interactive game shows, all of which produce revenue for the station through the sale of game cards to the sponsoring merchants. Ready for airing now are

"Blackjack Bonanza," "Jigsaw," and a game show for youngsters, "Jumpin' Jacks and Jills." Others are in the development stages. The company verifies the legality of all its programs for broadcast.

Contact: Emmett Cronan
President
Bencro Productions
316 California Avenue, Suite 1366
Reno, NV 89509
(702) 789-2616

Broadcast Video Systems, Ltd. introduces MASTERKEY™, a standalone composite keyer that can be operated in a controlled LINEAR mode to create smooth, seamless inlays of digital video effects, paint boxes, and anti-aliased character generators into program video.

For keying situations requiring difficult separations of foreground and background, MASTERKEY may be switched to a FAST mode. In FAST, the unit's "sliding window" can differentiate down to a 5 IRE level difference, anywhere in the gray scale.

The 5" x 7" remote panel contains the fader lever, as well as all the operating controls: RANGE, GAIN, CLIP, SOFTNESS, and switching for MIX/CUT, INT/EXT, and LINEAR/FAST.

An optional Auto Mix provides four selectable speeds of MIX to KEY initiated

via a control panel pushbutton or an external GPI.

The MASTERKEY sells for \$2,900; the optional Auto Mix is \$525 additional.

Contact: Broadcast Video Systems, Ltd.
40 West Wilmot Street
Richmond Hill, Ontario, Canada
L4B 1H8
(416) 764-1584

To further broaden its appeal to cost-conscious video buyers, **The ALTA Group** has reduced the price of its popular Pyxis dual channel TBC/switcher to \$6,250 from \$6,990. This reduction coincides with the shipping of the 1000th Pyxis.

In addition, ALTA has just begun shipments of its Pyxis-E dual channel infinite window TBC/switcher with dual channel freeze frame. Pyxis-E, which sells for \$8,450 in NTSC, was formally introduced at the SMPTE Conference in Los Angeles in October.

A ten-minute tape demonstrating the capabilities of both the Pyxis and the Cygnus systems is available from the company in VHS and U-Matic formats.

Contact: The ALTA Group
535 Race Street, Suite 230
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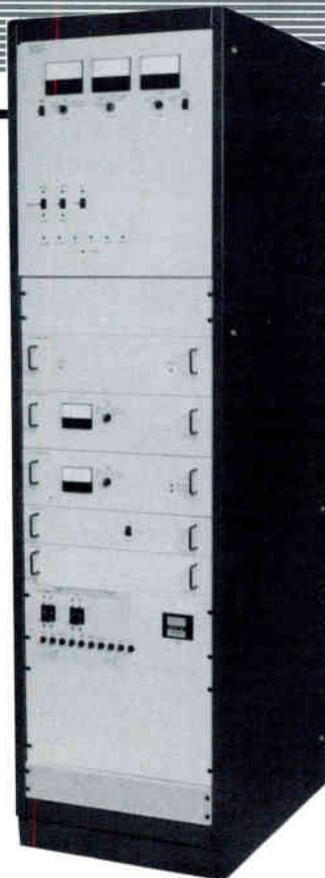
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LPTV and the LAW

Children's Programming in the Spotlight

—by Peter Tannenwald

Children's television programming is back in the spotlight in Washington, with the FCC inviting comments as to what, if anything, it should do to protect young children against what some think are abusive commercial practices on television.

In the regulatory heyday of the 1970's, the Commission had a lot to say about children's programming. In 1974, it published a Policy Statement that limited advertising to 12 minutes per hour on weekdays and 9:30 on weekends. These limits were not written in the Communications Act or the FCC's Rules, but if you exceeded them, the processing of your license renewal would have been an uncomfortable experience.

Other guidelines, found in both FCC rules and policies and the National Association of Broadcasters Television Code, kept Washington lawyers busy advising their clients how close to the line they could come without getting into trouble.

One idea that enjoyed fleeting popularity was the show built around the product of its sponsor. The first well-known children's show like that was "Hot Wheels," a cartoon series about racing cars sponsored by Mattel, which advertised a toy that looked just like the cars in the show. The FCC held that where the sponsor's message and the program content were too deeply intertwined, some or all of the entertainment part of the show had to be logged as commercial matter along with the formal spots. Such shows were dubbed "program-length commercials." The extra commercial matter, however, made them inconsistent per se with FCC and NAB Code limits on hourly commercial content, so they had to go off the air.

Host Selling Scrutinized

Another problem that caught the FCC's attention was "host selling." Sponsors were delighted to have "Captain Stupendous," the local TV personality who was revered by every child in town, follow up his after-school TV story with a pitch to the kiddies to tell Mommy and Daddy to buy them the newest candy bar or breakfast cereal or fad toy. The FCC admonished TV stations that such practices raised public interest questions. Host selling stopped and clean breaks were inserted between the program and each commercial spot.

Came the 1980's, the pendulum swung toward de-regulation. In 1984, the FCC got out of the program regulation business, eliminating program logs and dropping public affairs minimums and commercial matter maximums. Private self-regulation also went by the boards when the NAB Code fell victim to the antitrust laws. Program-length commercials for adults became popular, especially in the context of real estate selling; but children's programs built around an advertised product also returned to the scene in force.

Recently, a new twist has developed in the form of interactive television programs. Toys are sold that react to spots of light or other signals imbedded in the TV program, so that children can play with the sponsor's toy while watching the show.

Public interest groups were troubled by the FCC's hands-off attitude toward children's programming. But despite the ensuing legal battle, the FCC announced in 1986 that it was sticking to its guns and would not resume regulation of program

content. The Commission also said explicitly that de-regulation applied to children's programming as well as general programming, even though children's programming had been treated separately in 1974.

Circuit Court Remands 1986 Ruling

The public interest groups took the Commission to court. They claimed it was wrong for the FCC to abandon its prior remedial actions and to subject children anew to the abuses of the past. The U.S. Court of Appeals for the D.C. Circuit decided that the appellants had a point, in that the FCC had made specific findings of harm when it imposed regulation in 1974, but made no comparable findings that harm would not recur when it pulled back in 1986. Because of the lack of findings, the Court remanded the case to the FCC with instructions to think some more about children's programming issues.

On October 20, 1987, the FCC invited comments on what it should do in response to the Court's order. The basic question is whether the agency's overriding mandate to protect the public interest requires regulatory intervention to protect children especially, notwithstanding its overall philosophical view that the private marketplace is the best overall regulator of all programming. Why, the Commission is asking, won't the marketplace adequately regulate commercial content in children's programming; parents will turn the TV set off if they feel a program is too commercial.

The FCC is also concerned about the First Amendment implications of regulating any programming, whether for children or otherwise, particularly since the First Amendment is currently in great favor with the Commissioners and in the courts.

Whatever your views on the children's programming issue, it is important to be aware of the attention the issue has attracted among civic groups and on Capitol Hill. Are you broadcasting program-length commercials, interactive programs, or programs with host selling? These programs may be lucrative, but they may also alienate civic and political officials whose favor is essential not only to your station but also to our young LPTV industry. It is wise to know what is on your airwaves and to plan your program schedule with deliberate attention to both your own and our industry's image.

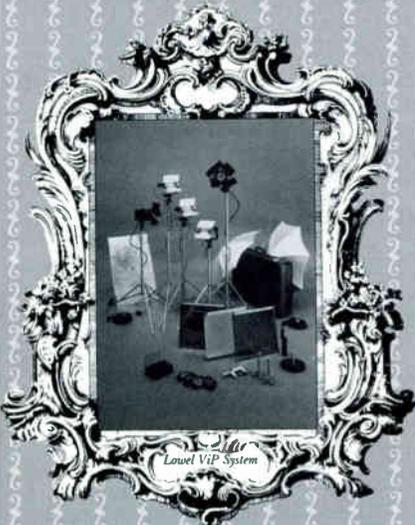
Peter Tannenwald is a partner in the Washington, DC law firm of Arent, Fox, Kintner, Plotkin & Kahn. He is general counsel to the Community Broadcasters Association.

Ed. Note: Parties interested in filing comments on this issue should request a copy of the Further Notice of Proposed Rule-making, MM Docket 83-670. Comments are due January 4, 1988.



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November 1987

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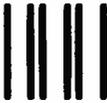
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- Ch. 8 Jerome, ID. William L. Armstrong, III.
- Ch. 13 Blackfoot, ID. William L. Armstrong, III.
- Ch. 36 Carbondale, IL. Robert W. Sudbrink.
- Ch. 46 Belvidere, IL. Belvidere Daily Republican Company.
- Ch. 21 Effingham, IL. Robert W. Sudbrink.
- Ch. 68 McHenry, IL. KAL-TV, Ltd.
- Ch. 30 Plano, IL. Nelson Enterprises, Inc.
- Ch. 36 Palatine, IL. Edwin B. Johnson.
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- Ch. 55 Bonita, LA. TV Northeast, Inc.
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- Ch. 20 New Bedford, MA. Freedom WLNE-TV, Inc.
- Ch. 24 Portland, ME. Neil Portnoy.
- Ch. 55 Saco, ME. Porquoi Pas TV.
- Ch. 30 Iron Mountain, MI. U.P. TV Systems, Inc.
- Ch. 65 Iron Mountain, MI. U.P. TV Systems, Inc.
- Ch. 48 Detroit, MI. Glenn R. & Karin A. Plummer.
- Ch. 7 Minneapolis, MN. White Sage Broadcasting Company.
- Ch. 31 Appleton, MN. Rural Western UHF TV Corporation.
- Ch. 17 Redwood Falls, MN. Redwood TV Improvement Corporation.
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- Ch. 40 St. James, MN. Watonwan TV Improvement Association.
- Ch. 43 Camdenton, MO. Camdenton Broadcast Group, Inc.
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- Ch. 54 Camdenton, MO. Camdenton Broadcast Group, Inc.
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- Ch. 12 St. Joseph, MO. Wendy Feldman.
- Ch. 7 St. Joseph, MO. Wendy Feldman.
- Ch. 47 Cape Girardeau, MO. Calvary Temple Church, Inc.
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- Ch. 28 Colstrip, MT. Rural Television System, Inc.
- Ch. 27 Harlem, MT. Blaine County Public TV, Inc.
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- Ch. 34 Eureka, MT. Rural Television System, Inc.
- Ch. 17 Livingston, MT. Shields Valley TV Tax District.
- Ch. 21 Plains & Paradise, MT. Plains-Paradise TV District.
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- Ch. 53 Silver City, NM. The Church of the Crosses, Inc.
- Ch. 28 Socorro, NM. The Church of the Crosses, Inc.
- Ch. 9 Albuquerque, NM. Leo Kesselman.
- Ch. 32 Battle Mountain, NV. Lander County General Improvement.
- Ch. 35 Carlin, NV. Carlin Television District.
- Ch. 11 Utica and area, NY. Kevin O'Kane.
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- Ch. 26 Marietta, OH. Richard L. Jolliff.
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- Ch. 64 Columbus, OH. James W. Feasel.
- Ch. 27 Broken Bow, OK. Jewel B. Callahan.
- Ch. 27 Muskogee, OK. American Indian TV & Radio Network.
- Ch. 14 Hillsboro, OR. Atwater Kent Communications.
- Ch. 27 Coos Bay, OR. KEZI, Inc.
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- Ch. 7 Wilkes-Barre, PA. Diocese of Scranton.
- Ch. 41 Berwick, PA. Diocese of Scranton.
- Ch. 5 Williamsport, PA. Kennedy Broadcasting.
- Ch. 32 Williamsport, PA. George W. Kimble.
- Ch. 48 Narberth, PA. Stephen C. & Bonnie B. Schmidt.

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- Ch. 43 Columbia, SC. Gregory V. Browning.
- Ch. 67 Rock Hill, SC. Michael Ginter.
- Ch. 7 Sioux Falls, SD. Localvision.
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- Ch. 50 Knoxville, TN. Dwight R. Magnuson.
- Ch. 12 Heiskell, TN. H. Earl Marlar.
- Ch. 48 Harrogate, TN. Kentucky Central Television, Inc.
- Ch. 12 Nashville, TN. Jeanne Conrad.
- Ch. 38 Lenoir City, TN. Knoxville Community Broadcasting, Inc.
- Ch. 68 Lenoir City, TN. Knoxville Community Broadcasting, Inc.
- Ch. 20 San Antonio, TX. Diana Castro Hagee.
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- Ch. 34 Coleman, TX. Landmark Cablevision Associates.
- Ch. 19 Waco, TX. Rene Hinojosa.
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- Ch. 7 Corpus Christi, TX. TV-50, Inc.
- Ch. 43 Santa Clara, UT. MWT, Ltd.
- Ch. 17 Chesapeake, VA. ACTS Broadcasting Company of Chesapeake, Inc.
- Ch. 40 Chesapeake, VA. ACTS Broadcasting Company of Chesapeake, Inc.
- Ch. 62 Chesapeake, VA. ACTS Broadcasting Company of Chesapeake, Inc.
- Ch. 42 Oak Harbor, WA. Natrona Broadcasting Company, Inc.
- Ch. 19 Janesville, WI. Skywave Communications Corporation.
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- Ch. 23 Lac du Flambeau, WI. Charles Francis Gauthier.
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K/18

FCC Begins Inquiry on Channels 14, 69 Interference Problems

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