STANDALONE TIME BASE CORRECTOR SYSTEMS FOR CATV PROGRAM PRODUCTION, DUPLICATING, AND CABLECASTING

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Several VTR formats incorporating both monochrome and color performance are now being used in CATV systems for program production, duplication, and playback. (Figure 1.) The 1/2-inch and 3/4-inch formats offer the benefits of relatively low cost, portability, operating simplicity, reasonable reliability, long tape and head life, and subjectively satisfactory picture quality, compared to 1-inch and quad "broadcast standard" VTRs. The three-quarter inch cassette format is also attractive because of the availability of libraries of "software" for purchase or rental, as well as its simple slot loading and automatic programming features.

1/2-inch EIAJ and 3/4-inch U-cassette

PROGRAM PRODUCTION – MOBILE

Battery-pack camera/VTR combinations
Transportable cassette VTRs
Mini-wagons and maxi-vans

PROGRAM PRODUCTION – STUDIOS

All formats including 1-inch helical and 2-inch quad

IN-HOUSE PROGRAM DUPLICATION

Any format to any other format

CABLE CASTING

Public Access Channels – 1/2-inch EIAJ – B/W
Company Channels – Anything available
Pay Program Channels – 3/4-inch cassette

Figure 1.
New Video Tape "Standards" in CATV.

However, these VTRs have well-known time base instability and head switching dropouts or discontinuities. And to get a share of audience on the company free or pay-program channels (a necessary prerequisite for making money) the operator must distribute as stable a signal on these local origination channels as is available on the TV station originated channels.

Up to this year, the only solution to the problem of unstable pictures was to buy a stable (much more expensive) VTR. And if you wanted to do any fancy program production mixing tape and camera pictures, you bought an even more expensive VTR with a built in time base corrector.

"Broadcast quality" VTR costs--their size and complexity--the need for highly skilled technicians and lots of maintenance time--no interchangeability among 1-inch VTR formats--all these factors worked together to foster the CATV industry's "standardization" on the 1/2-inch EIAJ and 3/4-inch U-matic formats. But now you've discovered a new set of problems, which require a time base corrector in these VTRs for their solution.

What's Time Base Correction?

"Time Base Correction" is a new technical term for most people in CATV/CCTV/MATV operations. Up until recently a Time Base Corrector was an expensive electronic gizmo that was built into the expensive broadcast video recorders. If you knew about it at all, perhaps you understand it was required by the FCC to fix up a video tape playback so it could be put on the air.

How Does That Help Me?

Those assumptions used to be true about TBCs, but Television Microtime, Inc. changed all that starting a year ago. Now there's a DELTA Series Time Base Corrector from TMI to work with every kind of Video Tape Recorder from broadcast quad to quarter-inch, and all the tape widths in between--1", 3/4", and 1/2"--(Figure 2). They handle signals in "NTSC direct color" --"NTSC type" (heterodyne) color--and gray old black and white--from back pack

portables, cassettes, and elaborate studio teleproduction VTRs.

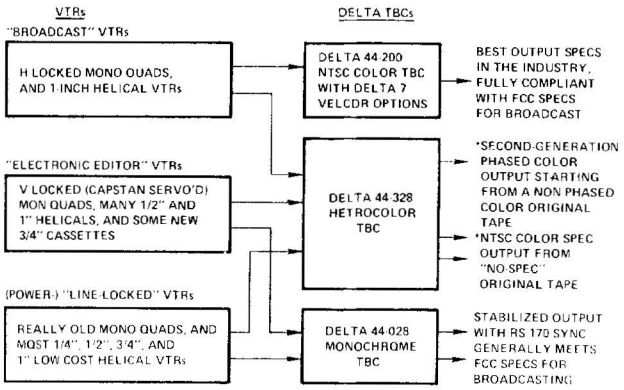


Figure 2.
Categories of VTRs and DELTA TBCs.

Two of these Delta models in particular elevate the low-cost VTRs to co-equal status with much more expensive 1-inch and broadcast VTRs in CATV applications. The CATV operator can now select a time base corrector system tailor-made to work with his VTRs in either monochrome or color. One system, the Delta 44-328 HETROCOLOR™ TBC, can process the jittering signal of any VTR fed into it for stable distribution throughout the system. All the models also permit VTR playback integration with other picture sources for post-production processing. The low-cost Delta 44-028 system works with EIAJ 1/2-inch VTRs playing tapes made on battery powered portable VTRs. The -028 and -328 models both accept tape playbacks containing sync generated by either an EIA specification RS-170 sync generator or a camera with built-in 2:1 interface sync. The -328 color system will accept either NTSC or "NTSC-type" color signals and heterodyne color signals (recorded with "color under"). Depending on the system selected and the techniques used, the output signal from the Delta 44 system may either be a phased color signal with coherent sync and subcarrier, fully compliant with FCC specifications for broadcasting, or a non-phased color signal whose burst frequency and stability meet FCC specifications for broadcast, and whose sync information is in accordance with EIA specification RS-170 but containing a low frequency drift component generated by the source VTR.

These Delta 44 systems are each packaged in a single seven-inch rack cabinet with front panel controls for complete correction of non-standard input signals. They require no operator attention after initial set up. The completely adaptable Delta 44-328 HETRO-COLOR™ TBC allows all VTRs from two-inch quad to one-half inch EIAJ to "talk to each other" without propagating residual time base jitter from one tape generation to the next.

How Does A TBC Work?

The DELTA TBC is a standalone electronic system you install in a rack at your head end--or master control or production studio. Its specific location is a matter of your local preference and operating patterns. It accepts jittering, tearing signal from your VTR (Figure 3. upper left) analyzes its time base errors (upper right--note blurred stairsteps compared to reference sync), corrects them and processes the signal with new sync information (lower center--note how black to white transition has sharpened). It's extraordinarily useful as a VTR picture processor for program playback, re-recording mixed with new picture material, one-to-one or mass duplication and even broadcasting.

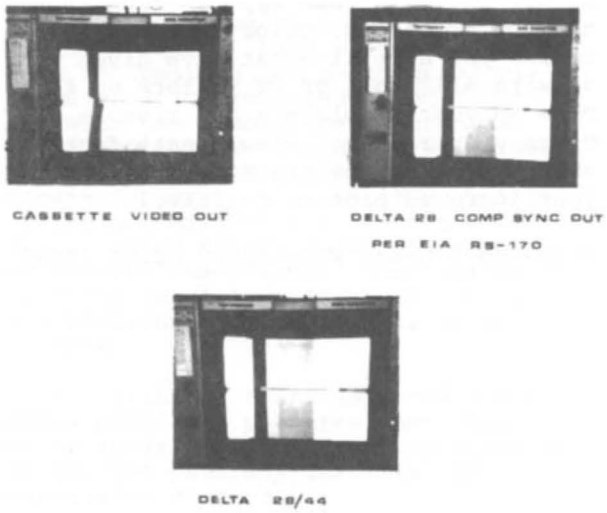
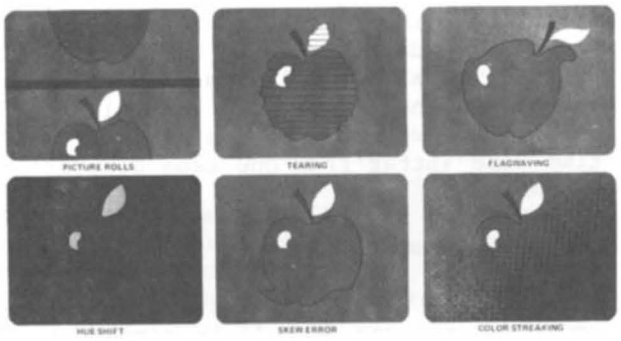


Figure 3.
Pulse-cross monitor photos of
Delta 28 TBD and Delta 44 TBC in action.

™Trade mark of TMI.

How Do I Know I Need A TBC?

The time base errors in the picture, created during its recording and playback on a VTR, are like bad apples in a barrel. It doesn't take many to spoil the whole barrel (Figure 4).



How do you like them apples?

THESE TIME BASE ERRORS – I.E. PICTURE PROBLEMS ARE CREATED EVERY TIME A TAPE IS

RECORDED OR PLAYED BACK

WHY? 1. THE TAPE IS ELASTIC

2. THE VTR IS FULL OF ECCENTRIC ROTATING MOTORS, PULLEYS, AND PARTS.

Figure 4
How do you get rid of them bad apples?

There's a DELTA Series TBC to get rid of all those bad apples--flagwaving, tearing, wobbling, color changes, vertical rolls--you name it--that have given your viewers all kinds of TV jitters up to now. Down go your complaints and trouble calls. Up go your ratings, viewer satisfaction, and sponsorship billings, right along with your improved picture quality.

Where Do I Learn More About DELTA TBCs?

All the models described and several accessories to add further performance improvements to your VTRs are in production (Figure 5) at TMI's headquarters at 1280 Blue Hills Avenue, Bloomfield, Connecticut 06002. They are sold, installed, and maintained throughout the United States by a competent organization of factory authorized distributors. Demonstrations of all DELTA Series capabilities will be scheduled at your facilities at your convenience, by these distributors. They are also qualified and equipped to supply your varied needs for cameras, special effects, switchers, and other TV production hardware and services.

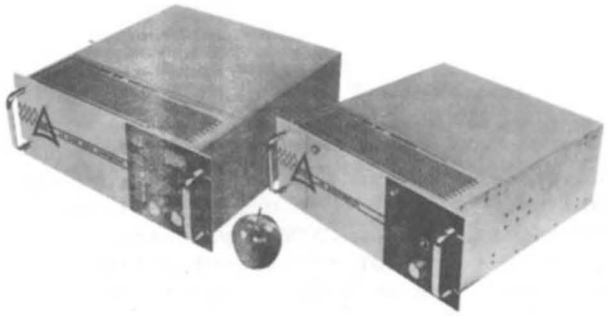


Figure 5
The Delta 44 TBC Cabinet (left) and Accessories Cabinet are 7-inch rack units with front panel controls.