PRE-FLIGHT CHECK YOUR FLYER

# VIDEO TOASTER® USER™

YOUR GUIDE TO VIDEO FX/LIGHTWAVE 3D®/TV GRAPHICS

NOVEMBER 1996

## JUMPING OFF THE PAGE
Bringing Comic Books to Video

## VTU EXPO PREVIEW

## WEVA Convention Report

a Miller Freeman, Inc. magazine

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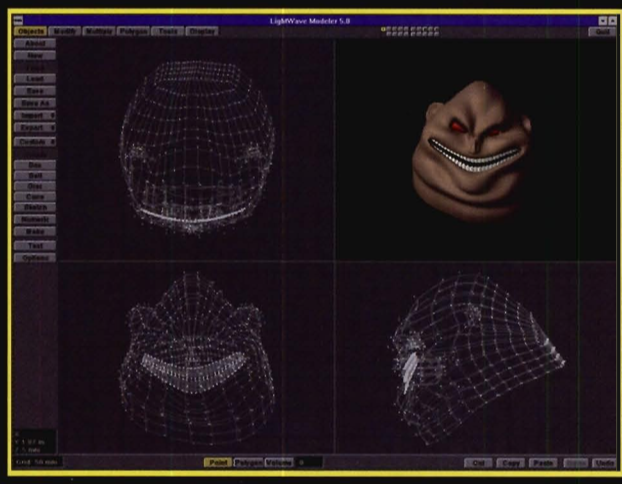
# New! . . . from ProWave, Inc.

# Volume III: Advanced Character Modeling

Mark Thompson's latest tape in the *in.focus* series, Volume III: Advanced Character Modeling. This is the definitive guide to creating complex organic models. In this tutorial, Mark takes you from pre-planning sketches to a final character. Learn how to create bodies, limbs, and faces. He shows you how to use LightWave's powerful new tools to clothe your character, create complex wrinkles and lapels, and seamlessly attach these objects to your figure. Finally, Mark will show you how to properly prepare your character for adding bones and animation.

Mark shows you: Rail Extrudes • Rail Clones • Spline Patches • MetaNurbs™ • Bevel • Smooth Shift • Magnet • Drag • Weld Points • Merge Points • Background Images • Spline Curves • Metaform • MetaformPlus • Subdivision • Surfacing • Hide/Unhide • Layers • Macros • Modeler Setup • Display Options • Curve Subdivision....*Get the point?* This is a must-have tutorial.



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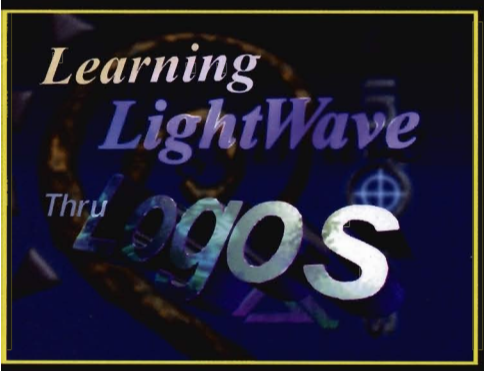
DON BALLANCE FLIGHT NOTES




## Advanced Series featuring Mark Thompson

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ProWave, Inc. has developed a suite of Audio tools that can greatly simplify your Flyer projects. Your creativity will be unleashed by the removal of the Flyer's audio limitations. With our tools users can import and export a wide variety of audio formats, mix multiple audio clips down to a single clip, add audio to video, join clips (without slow paint packages), and edit audio clips with a professional waveform interface.

- AudioBlackBox
- ProMix
- WaveEditor
- Converter!

## AudioBlackBox - $49.95*

This handy utility will let you import and export a wide range of audio formats including: AIFF, 8SVX,AU, RAW, WAV, Studio 16, and CDDA. You can batch process files and AudioBlackBox works directly from the Flyer interface or. if you prefer, from the Amiga Workbench. Perfect for Studio 16 and TuneBuilder owners.

## ProMix - $99.00*

With ProMix, you'll never run out of audio tracks again. ProMix will mix your selected audio clips down to a single clip, while preserving audio levels, pans, balance, fades, and timing. You can layer, and layer, and layer audio—with perfect digital accuracy.

ProMix is a set of three audio tools. In addition to mixing you can: add/replace audio on a video clip or animation; replace/mix audio from one video clip to another—perfect for those multiple camera shoots; join video clips or audio clips to make a single clip.

Co-Pilot users will benefit by making extremely complex audio sequences just one clip. We also give you all the functionality of Audio Black Box free.

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WaveEditor™ is a powerful utility that lets you edit Flyer audio clips using a waveform interface. This allows you to see your audio clips in a waveform presentation for frame accurate edits. You can copy, paste, insert, or append audio clips nondestructively.

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When finished, WaveEditor writes a new clip with all of your parameters. WaveEditor includes all of the features found in Audio Black Box.

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Converter is a simple utility that allows you to make your old toaster CG books, Framestores and Wipes compatible with the Toaster 4.1 upgrade. Convert CG books to the latest Toaster CG with ease. Remove the numbers and extensions from your old Framestore directories and add an icon. You can convert a wide variety of wipes (e.g. Toaster Toolkit, T-Rexx, etc...) to the latest Toaster Wipe format. Plus you can strip the audio off of your old effects and convert them to Flyer audio clips.

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FOR INFORMATION CIRCLE 127

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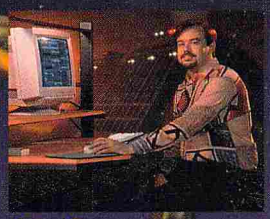
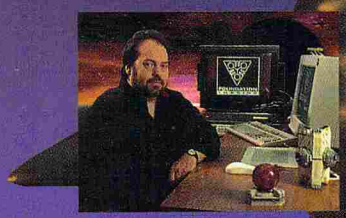


**John Gross**
Top animator for Star Trek Voyager, Sliders, seaQuest DSV and founding editor of LightWave Pro magazine.



**Ron Thornton**
3D innovator and Emmy award winning CGI design and effects artist for Babylon 5, and creator of the Hypernauts television series.

**The Creative Magic of Ron Thornton**

Explore cinematic CGI as the wizard of 3D animation reveals the secrets of digital special effects. Learn award winning techniques with LightWave 3D and Adobe Photoshop for modeling, surfacing, image compositing, creating photorealistic scenes and adding special effects,This expose offers incredible insight into computer generated imagery and special effects.

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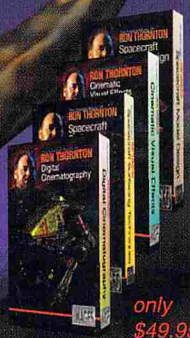


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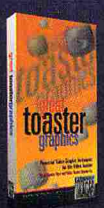


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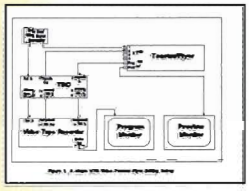

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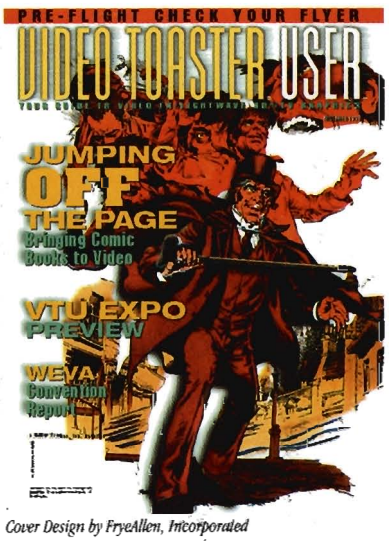


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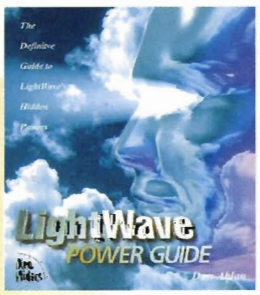


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# VIDEO TOASTER USER

SNEAK PREVIEW

## DECEMBER ISSUE

Preview: LightWave 3D on the Macintosh

Trouble Shooting Your Toaster

Surface Effectors - A Great new plug-in for LightWave

And lots more

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LETTERS TO THE EDITOR All suggestions and comments about *Video Toaster User* are read by our editors. We reserve the right to edit your submissions; letters must include your name, address and phone number. Direct all correspondence (by mail or electronically) to Letters to the Editor.

QUESTIONS AND TIPS Direct your Toaster-specific questions or tips to *VTU* Questions.

NEW PRODUCTS & UPDATES Direct your press releases and new product literature to New Products Editor.

WRITER'S GUIDELINES Write to *Video Toaster User*, Attn: Writer's Guidelines.

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**FOR INFORMATION CIRCLE 107**

# TOASTER TALK

## Do You Own A Portable Flyer?

### "Digital Video" Without a DVC

by Joe Tracy

When I purchased my Video Toaster Flyer system in January, 1995, I was determined to learn its power and do what was necessary to take my video production business to new heights. The .9 software release was initially difficult because of bugs and limitations, yet it forced me to discover unique ways around the "beta bugs" and beyond the manual. I put my foot down and said, "I'm going to take what I have and make a profit." It was time to stop taking out loans for new equipment and to begin making a profit with the Flyer. Besides, that's half the reason I bought it.

The biggest money makers in the video production business seem to be loan companies. It's easy for a producer to accumulate a large debt and see little light at the end of the tunnel. But I've also learned that when you don't see the light, you must create it.

#### DVC and Portable Flyers

Shortly after my new found revelations, I read about NewTek's idea to build a "portable Flyer." I was amazed at the concept of taking a small unit out onto the field and recording directly to the drives for the highest possible quality. About this time, digital video camcorder talk was pretty hot. I thought, "Wow, think of the improved quality. It'd be like recording to a hard drive." Suddenly, it hit me. Why couldn't my current Flyer unit be portable? Why couldn't I record to my drives with my high-end S-VHS cameras and achieve true digital video? I could.

I put all thoughts of new digital video cameras aside. I'd been investing long enough, and with NewTek I had all the tools I needed to succeed. It was time to make a profit. With this in mind, I worked on making my Flyer unit portable. It was quite simple, actually. I unplugged all the appropriate cords, carefully packed the system and hard drives, then took it on my shoots. Everywhere I went, I had a *true* digital set-up. I was achieving the quality I needed, without waiting for a $4,500 to $20,000 digital camera. But I still had a few surprises coming.

#### Portable Flyer = Attention

Our past work, dedication to quality, demo video and concentration on strong production was beginning to land my business some big jobs. One job was to produce a TV commercial for one of the largest grocery stores in the state of Oregon. We showed up with our Amiga 4000 Flyer system, complete with two 9 GB drives and a 1 GB audio drive, and went to the produce department to get one of their large produce carts. Within minutes I had the Flyer system set up on the rolling cart, complete with a monitor, mixer, and wireless microphone system. I ran my video and audio signals into the Flyer and was set. For two hours, it was easy to roll the cart around the store, find a plug, and shoot awesome HQ5 digital video! People shopping were impressed and enjoyed peeking at the monitor. Business people were asking for my business card. What happened next really shocked the client.

#### Any Changes?

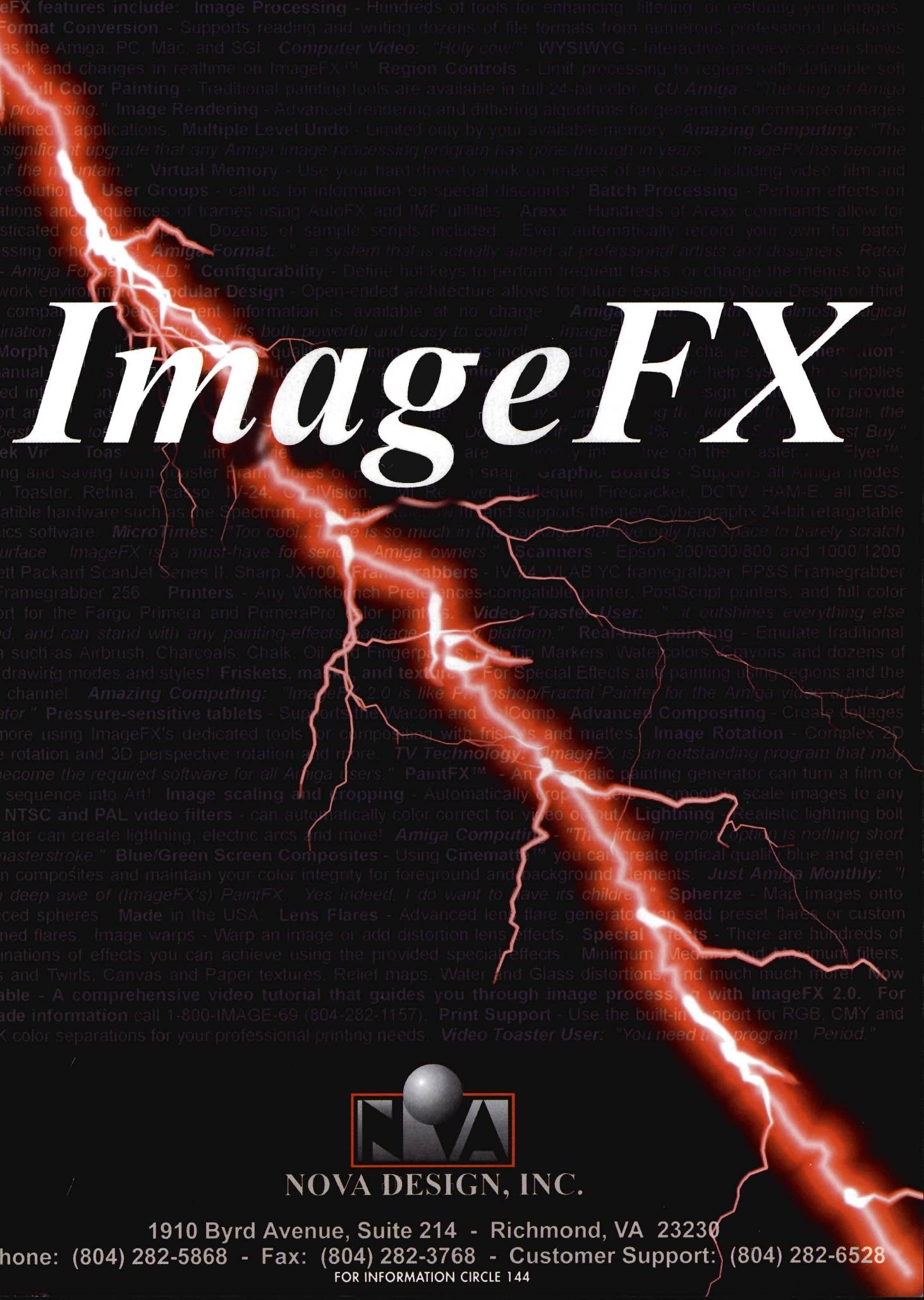
After we had finished doing the *generic* shots, we recorded a large Thanksgiving table that had been set-up by the store for the shoot. After that, they decided to add one additional shot and notified me it would take about an hour to prepare. "No problem," I responded. I immediately began editing the commercial, making sure there were no peering eyes to see how "easy" it was. I already had the audio, music, overlays, and 95 percent of the clips, which they were aware of. I also had previously created a LightWave 3D custom logo animation that they absolutely loved. As the end of the hour drew near, I placed a black box at the point where the last shot would go and timed out the finished product. Soon, I had the final shot and with a few clicks, put it into the commercial. The store manager and ad agency director asked when they would be able to see the rough draft of the TV commercial. "How about now?" I replied. I hit the play button and watched their reaction as they saw their TV commercial play back perfectly. They were stunned. They were impressed with the hard work that had been put into it the past many days. "Any changes?" I asked.

#### The Time is Now

Whether you are using the Toaster, Flyer, or LightWave, the time is now to make your profits. Create a demo video, don't be afraid to go the extra mile, and take good care of the equipment you own. As money comes in, you may want to channel a portion of it to a *new equipment* or *upgrades* fund so that when you need that next cool toy, you'll have the money to pay for it in advance. Also consider a marketing fund. Be sure to invite prospective clients to see your system and them give them the demo of their life.

Earlier I mentioned that a future financial gain was half the reason I bought my Flyer system. So what was the other half? The same reason many of you purchased your system. It is just plain *fun*! I look forward to meeting you at the *Video Toaster User* Expo (415-358-9500)!

VTU

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# NEW PRODUCTS

Compiled by Rosemary Picado

## Power Up

### With Dan Ablan's

### *LightWave Power Guide*

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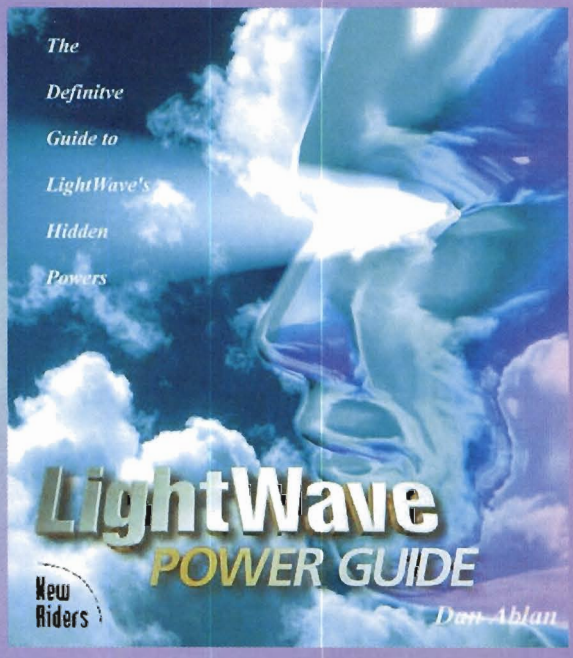
The *LightWave Power Guide* written by *Video Toaster User* and *LIGHTWAVEPRO* author Dan Ablan, is the first commercially available book on LightWave 3D. The Power Guide is 600 pages of practical LightWave information covering topics from the business of animating, to contracts, to MetaNURBS, to splines, to logos, to creating a Tornado, compositing, character animation, and much more.

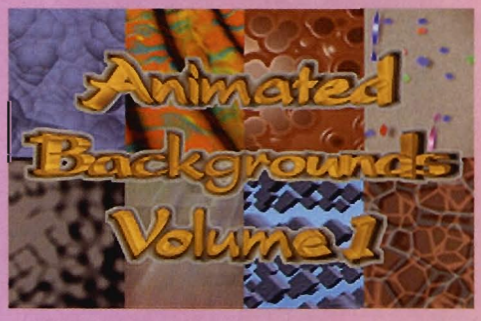
The book also comes with a CD-ROM that has each of the scenes described in the tutorials.

Published by New Riders Publishing, the *LightWave Power Guide* is available in bookstores now. New Riders has published books such as Inside Photoshop, Inside 3DStudio, AutoCad books, and more.

The *LightWave Power Guide* has tutorials for every level of experience, from novices to the working professional.

**FOR INFORMATION CIRCLE 1**




### Don't Fade into the Background

Product: Animated Backgrounds Volume 1
Description: Animated Backgrounds for Video Applications
Price: $39.95 VHS, $49.95 for professional formats.
High Quality Productions
1960 S. Indiana St.
Porterville, CA 93257
Phone: (209) 788-0930
Fax: (209) 783-2556

Animated Backgrounds Volume 1 contains 25 broadcast quality animations. Each animation lasts one full minute or more and is available in several formats. Partial dissolves over video, picture-in-picture effects and compositing with LightWave projects are a few of the uses for these backgrounds.

Backgrounds vary from elegant and subdued to colorful and wild. Several pieces of royalty free background music is also included free of charge. A demo tape is available on request. Animated Backgrounds Volume 1 is also coming soon to CD-ROM in Flyer HQ-5 format.

**FOR INFORMATION CIRCLE 2**

### Back-Up Insurance

Product: Diavolo Standard and Diavolo Professional
Description: Backup programs for Amiga
Price: $69 and $98 respectively, MSRP
Safe Harbor Computers
W226 N900 Eastmound Dr.
Waukesha, WI 53186
Phone: (414) 548-8120
FAX: (414) 548-8130

Diavolo Standard is the newest backup program available for your Amiga and features support for HD/DD floppy disk drives, removable media, and SCSI tape streamers. It also offers password protection, manual incremental backups, and a graphical directory for file selection.

In addition to Diavolo Standard features, Diavolo Professional lets you have multiple partitions in one backup, does data compression (automatic or manual), and has automatic incremental backups. Diavolo Professional works with alien file systems and has direct support for VLab Motion's MovieShop partition format.

**FOR INFORMATION CIRCLE 3**

### The Return of Studio Printer

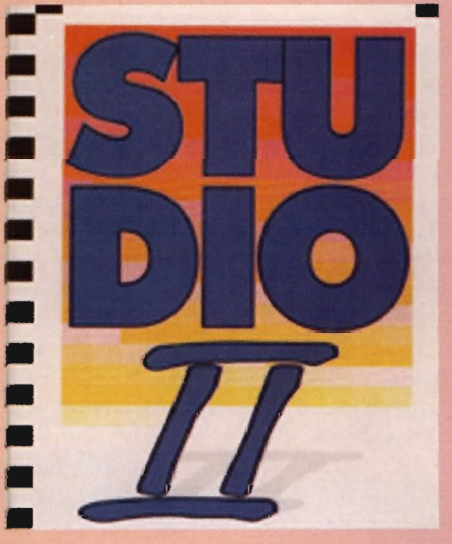
Product: Studio Printer 2.12
Price: $80.00
Description: Studio Printer

Upgrade for use with ImageFX
Safe Harbor Computers
W226 N900 Eastmound Dr.
Waukesha, WI 53186
Phone: (414) 548-8120
FAX: (414) 548-8130

This new version of Studio Printer from Wolf Faust contains two new drivers, as well as a fix for the problem found in version 2.11: printing two color IFF ILBM images.

The first new driver is for PageStream 3.0i and allows printing from the DTP program using the Studio printing program, improving output quality and functions.

The second driver is for ImageFX, and allows user to print 24bit directly from ImageFX improving output quality. This driver is also much faster than the previous driver. The addition of a printer spooler allows users to continue working with ImageFX seconds after starting to




print.

Studio Printer 2.12 supports all of the newest Canon, HP and Epson printers, as well as other models.

**FOR INFORMATION CIRCLE 4**

### It's Monumental

Product: Monument Designer v2 and v2f
Price: $249.99
Description: Titling and CG program for Amiga
Safe Harbor Computers
W226 N900 Eastmound Dr.
Waukesha, WI 53186
Phone: (414) 548-8120
FAX: (414) 548-8130

Monument Designer 2 from ProDad offers a wide range of graphic possibilities, even picture composition. Graphic elements can be created as free single objects so that the use of graphic formats,

antialiasing and manipulation is no longer a problem. Spotlights and other light sources can be set, fading is smooth, and even transparency quality is simple.

Jitter-free endlessly scrolling titles is just another of the numerous new features. Call your dealer for more details.

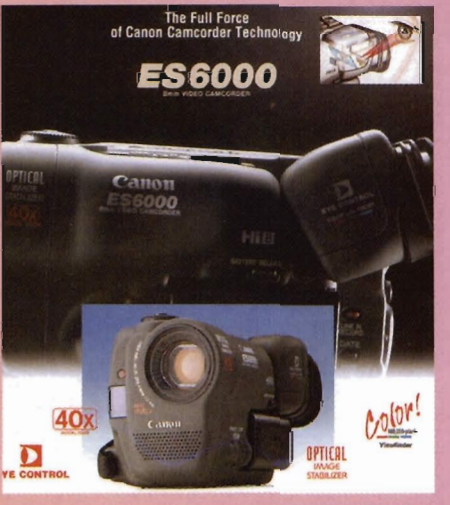
For the VLab Motion owner, there is Monument Designer 2f. In addition to the features of version 2, version 2F allows real-time preview on digital video and Alpha channel, as well as on the video signal.

**FOR INFORMATION CIRCLE 5**

### Eye Control and More

Product: ES6000
Description: Canon Hi8 Camcorder
Price: $1,699
Canon U.S.A. Inc.
One Canon Plaza
Lake Success, NY 11042
Phone: (516) 328-5145
WWW: www.usa.canon.com

The new ES6000 includes Canon's exclusive Eye Control technology; a unique Auto Editing




Function and RC Time Code for frame accurate editing; a 20XOptical/40X Digital zoom with optical image stabilization; digital special effects and the ability to transfer film and slide images to video with the optional FP-100 Adapter (see New Products, October 1996).

The Eye Control System enables the consumers to control focus and activate a variety of switches, including record start/stop, digital effects, fade in/fade out, image close-ups, and others, by moving the eye.

Eye controlled focus helps to eliminate the problems associated with conventional autofocus systems designed to only focus in the middle of the frame. ES6000 tracks the movement of the user's eye and automatically focuses on subjects anywhere within the viewfinder frame. Creative focus shifting from one subject to another within a desired composition can be achieved by shifting one's gaze.

**FOR INFORMATION CIRCLE 6** VTU


**PRODUCT ANNOUNCEMENTS**

Announce your new products in *Video Toaster User.*

Simply send a press release describing your product with a photo, or a Mac or PC disk with a JPEG or TIFF image to:

Video Toaster User
attn: New Products Editor
411 Borel Ave. Suite 100
San Mateo, CA 94402

***For more information, call (415) 655-4175.***

# TOASTER POST

## Tape Deck Gremlins On the Loose?

### Damage Control for Unruly Guests

by Jay Gross

A guest column is never about guests. This one is. It's about those nasty ol' gremlins that make life eventful, to say the least. Keep fresh batteries in your language purifier, so you'll be ready to receive these uninvited, unwelcome, unruly guests when they inevitably come to call.

Tape decks have special sensors built into their circuit boards, so downtime occurs when you least need downtime. When you really need the decks for an important post project, their Inconvenience Sensor kicks in, the needles redline on their Dependency Meters, the Important Project Proximity counters start spinning. Then it's time to break out the extra bottles of headache medicine, because from here, the tale's too terrible to tell.

*"As long as two of your decks still work—play and record—it's possible to keep posting, and not with just cuts-only results, either. The secret is to create a resting place for Toaster transitions so you can implement them while swapping tapes into a single player deck.*

#### Tape Deck Technical Difficulties

A and B rolling doesn't work if A or B won't roll. Even if the repair service turnaround is only a day or two, a dead deck can put your posting project on hold. Not to fear: Time for some simple damage control. As long as two of your decks still work—play and record—it's possible to keep posting, and not with just cuts-only results, either. The secret is to create a resting place for Toaster transitions so you can implement them while swapping tapes into a single player deck.

Of course, this effect may not be what your script calls for, but if you can get the change of plans by your client and around the scripting, it'll look quite nice. This trick will also get you by while the gremlins hold your second Player deck for ransom. It also works great if you own only one Player deck—although a second deck should be *way* high on your wish list, right after that rent thing, and breath mints.

#### The Double Still Trick

The first step is to snap a still frame off the end of the scenes you've selected to post. For variety or for another interesting effect, you can grab the first frame of the next scene. Grab the frames as close as possible to where you really want to transition to the next scene, so this trick will work seamlessly. Just get the video running and store a still in the normal way. The still frame will be on screen a minimal amount of time—as short as you can make it. Of course, if you like the effect, you can draw it out a parsec to suit your taste. If you dwell on the stills too long, the pace of your program will slow accordingly, but if that's what you want, so be it.

With Framestores in hand—stored to disk, that is—load the first one into the Toaster's DV1 buffer. If you're going to use two of them, also load the second one into DV2. If you have CG to overlay, you might need to reserve DV2 for that purpose instead. Select the DV buffer you need on the Toaster's Preview bus. Next, cue the Record deck and start your lone Play deck rolling. Fade in (or use whatever transition you need) as it rolls, and when you'd normally switch to Deck Number 2, transition instead to the DV1 Framestore.

So far, so standard. You can choose any of the Toaster's many transitions, plain or fancy, short or quick, sound or not, Falling Sheep or simple fade, with which to slip into the DV1 Framestore. One cool effect is to slow dissolve the last frame of an action sequence—say, a Little League runner sliding for home—over the last second or so of the action itself. Just as the final frame appears full strength, the action has finally gotten there to join it.

If you've opted for the double-still trick, you can either cut or transition to the second Framestore, which is the first frame (as close as possible) of the next scene. Stop the Record deck. Time to change the tape in the Player deck to Scene Number Two. Reload DV1 if you've occupied DV2 with something else, and cue up the next scene in the Player Deck. Start the Record deck rolling, and let's go!

Because the second Framestore is the first frame of the new scene, you don't want it on screen for very long. Visually, however, if the Framestores go away too quickly, the result will look choppy, especially if your transitions to them are fast.

To finish off the effect, simply transition from the ending Framestore of Scene One to Scene Two (or from the second Framestore to Scene Two, if you're using the two-stills method). Record to the end of

Scene Two and repeat the whole process (one or two steps, as you choose) to move to Scene Three.

If your Record deck is reasonably precise, you can nearly simulate a three-deck edit. And if your Record deck is truly frame accurate, you can cut in extremely tight on the recorded Framestore, but beware of the choppiness problem already detailed.

Here's how the two-stills sequence goes together:

- Roll Scene 1.
- Transition to frozen last frame of Scene 1.
- Transition (or cut) to frozen first frame of Scene 2.
- Transition to moving Scene 2.

And this is how it'll look:

- Motion Scene 1 transitions to frozen, then transitions to frozen Scene 2, which begins moving.

The simpler variant is:

- Roll Scene 1
- Transition to frozen last frame of Scene 1
- Transition to moving Scene 2

It would look like this:

- Motion Scene 1 transitions to frozen, which transitions to moving Scene 2.

The one-deck transition will look nice over just about anything—even talking heads. However, in a production with many scenes, you might want to mix and match the two schemes as appropriate to your material to introduce some variety. Also, you should experiment with changing the speed with which you bring in the still frames.

**"The one-deck transition will look nice over just about anything—even talking heads. However, in a production with many scenes, you might want to mix and match the two schemes as appropriate to your material to introduce some variety."**

## More Damage Control

Insert lecture about spare parts here. With the standard lecture out of the way, take a look around at some of the things that really could shut you down if they go out—or get taken out by a nefarious crook—at a critical time. Some of the things you depend on are now quite cheap on the used market. Those fabulous decks that cost a bundle when they were the hot new video toy? Used ones are nearly free now, and new ones are a pittance of their former price.

You'd probably rather have new equipment, of course, but keep the old stuff for damage control purposes. Even if the old goods aren't as nice as the new ones, a backup deck, computer, Toaster (even Toaster 2000), might be a welcome sight in your "extra stuff" closet, if the gremlins drop by.

With used Amigas plentiful and cheap, it wouldn't be very expensive, and might be quite wise, to beat the bushes for a backup system. A spare Amiga 2000, fitted out with a new 68060 accelerator and plenty of memory would stand in for an Amiga 4000-T just fine. And having the spare 2000 around might mean being unable to post while a new Amiga is shipped in. Keep in mind that Murphy, not Newton, defines the laws of gravity that apply to video equipment, and gremlins work especially well in electronic circuitry.

## For Beginners

Most of the time, this column has assumed the reader has a working knowledge of the Toaster and post-production. Since this isn't necessarily always true, let's stop for a brief overview of some elements of Toaster posting for the benefit of people who are new to the Toaster camp. To begin, the very process "post" can be defined as putting the video and audio portions of a video production into their final distribution order. Simple enough. The Toaster assists this process by performing the electronic blending of images from one to the other.

To edit video, scenes must be copied sequentially, in real time, from the original camera tapes to a destination tape. You cannot physically edit videotape as you would do for audio tape. After all the copying is done, the destination videotape becomes the Master, from which distribution copies, known as *dupes* or *dubs*, are then made. If the purpose of the video is broadcast television, the master itself might be shipped instead of a duplicate of it.

Every time you copy a video signal, you change the electronic characteristics of the signal, usually downward, but sometimes with only a shift in some subtlety. So, the fewer times you edit, the better your final product will look. If your aim is broadcast, you should definitely stay only one level down from the original tapes. (Indeed, if you're recording LightWave 3D animation, the Toaster's output is the original "camera" footage).

A video deck cannot play and record at the same time, obviously. To edit video, you need at least two tape decks: One to play while the other one records. However, to mix (that is, transition) scenes in the Toaster's inimitable way, you'll need two or more (up to four) video sources to mix from. Sources can be tape decks, cameras, videodisc players, whatever. All of these must share a common sync which matches the video sync signal of the source connected to Toaster Input 1 (That's the top one, if the board is mounted vertically). The best sync comes from a video camera, since a video camera has a little computer in it for producing sync. Lousy sync comes from mechanical contraptions like VCR's, camcorder decks that are playing back, not in camera mode. The Toaster will not work with lousy sync, hence the need for Time Base Correctors (TBC's) to not only match the sync among multiple video sources, but to fix the inherent sync problems with decks' signals.

With everything synced up and ready to roll, the Toaster's job is to perform the transitions between any

Toaster Post continued on page 19

# THE FLYER SUITE

## Flying Your Clip on A Plane

### Answers to Your Questions and More Cool Tips

by Joe Tracy

I've been very encouraged by the number of e-mails I've received from people who experimented with LightWave 3D for the first time because of my July article. Mixing your Video Toaster Flyer clips with LightWave can really help make your work shine. I'd like to take a moment to answer a few questions I received based on July's column:

**Q:** I rendered a video clip to the RegImagePanel as you demonstrated in your July article and it worked great! My problem is that before I rendered the clip, it had audio; after the rendering there was no audio. What happened?

**A:** LightWave only renders the video images and ignores audio. Here's how to get the audio to work with your animated clip now:

**1)** Move the original clip into the Project window.

**2)** Select the clip and open up the control panel by clicking the Control button.

**3)** Click the Fine Tune button in the top right hand corner.

**4)** At the bottom, click Process Clip.

**5)** Give the clip, which will be audio-only, a name and hit return.

**6)** Hold down your mouse button next to Destination and select your audio drive.

**7)** At the bottom, next to Include, select Audio.

**8)** Click Perform.

You've just duplicated the audio portion of that clip onto your audio drive. Now you can move it to just after your "animated" clip, in the project screen, and match the two.

Why did we select Process Clip instead of Cut Clip in the Fine Tune of the original clip? Because had we selected Cut Clip, it would have erased the original. Process Clip keeps the original.

**Q:** After completing all the steps in the July column, I get an error message during rendering which says, "Can't add frame to anim file". Am I doing something wrong?

**A:** The error message means that your Render Display is improperly set. At the top menu of the Layout screen, select Record. Select the scroll box next to Render Display and highlight Video Toaster. This will solve your problem.

**Q:** When I went to select my Flyer Clip, in the Images panel, I noticed that there were two versions. One had a .i after it. What is that?

**A:** The .i is the Icon file for that clip. It is responsible for the picture you see on each clip. You can change the picture displayed by using the Change Icon script in your ARexx drawer.

**Q:** When I hit F9 to render a frame, it won't do it after frame 30. How do I fix this?

**A:** Go to the Scene panel (very first button on the top menu bar in Layout). You'll see an area that says First Frame, Last Frame, and Frame Step with numbers after each of them (probably 1, 30, 1). Change the number in Last Frame column (which says frame 30) to the ending number in your animation. Now when you hit F9, it will render any frame you select up through the number you have placed in the Last Frame column.

**Q:** Can I put Flyer Clips on other objects besides RegImagePanel?

**A:** Yes! You can do some really cool stuff! Here's an example:

**1)** Follow the steps in July's column until you get to loading the object. Instead of loading the RegImagePanel, load the SmallPlane from the Aviation drawer.

**2)** Once the plane is loaded and you're back in the Layout screen, select Camera from the View area (left hand panel, near top). Just under that is the Edit area. Select Objects. Note that your plane should be highlighted.

**3)** Just under the Edit area is the Mouse area. Select Rotate.

**4)** At the bottom of the Mouse area you'll see three small buttons in the same row marked H, P, B (Heading, Pitch, and Bank). You want only Pitch (P) to be highlighted. If the others are highlighted, click them to deselect them. P should be the only button highlighted.

**5)** Place your arrow cursor over the plane and hold down the left mouse button. Now move the mouse slowly upward on its pad and you'll see the plane rotating so that the nose is in the air. Get at an angle so that the wings are clearly facing the camera and the nose of the plane is directly facing upward.

**6)** Hit Create Key and then OK.

**7)** Open up the Surface Panel. Next to Current Surface, scroll down until you have highlighted Wings.

**8)** Next to Surface Color, select the T that appears after the numbers. The "color texture for wings" window opens. Next to Texture Image, scroll down until you find your Flyer Clip name. Select it. If you don't see it, then you haven't followed the directions in July's column. Go back and start again. If you do see it, highlight it. Now select the Automatic Sizing button. When the Warning message comes up, telling you it is going to adjust your clip to fit the wing span, click Yes. Now click Use Texture. Hit Continue.

Congratulations! You have now placed your Flyer Clip on the wing of the plane! To see it, hit F9. Follow the instructions in July's column to record it to your drive.

Last year, we were hired to create a TV commercial welcoming Country star Mark Collie to Douglas County for a benefit concert for the local Jaycees. The Jaycees logo looks exactly like the Plaque in the Household objects drawer, so in no time at all I had footage of Mark Collie, legally obtained, playing within the frame of the Jaycees logo! They loved it! I also loaded four RegImagePanels and had a different clip of Mark Collie playing in each one as his name came flying through the screen in a cool, 25 percent transparent, 3D design.

## FlyerProc Editing Techniques

**Regular to Slow**—Many TV shows like *Baywatch* and *New York Undercover* are using editing techniques where they begin a clip playing in normal speed and at a specific moment suddenly make it slow motion. An example of this would be a little girl running to give her dad, who had just gotten home from the war, a hug. In regular speed you see her running to her dad, but as soon as he begins to pick her up, the clip is suddenly playing in slow motion to capture more of the emotion of the moment. Here's how you do this with the Flyer:

**1)** Select the clip you want to use and move it to your projects window.

**2)** Open the ARexx drawer and double-click FlyerProc. It will ask you for your Source Clip. Select the drive the clip is on, then select the clip. Hit OK.

**3)** Next it will ask you where you want to save the clip. Give it a name, slightly different from the original, then select the drive you want to save it to. Hit OK.

**4)** It will now ask you to choose the in- and out-points that you want to turn into Slow Motion for this project. Choose your points and hit Continue.

**5)** It will ask you to choose the clip process. Select Slow Motion and hit Continue.

**6)** Leave it at the default number 3 or increase the number to make your clip slower. Hit Continue.

**7)** It will ask you if you still want to continue. Click Continue.

**8)** The next screen asks you if you want to process another clip. This is great to use if you want to process a bunch of clips overnight. For this project, we don't need to so hit Cancel. It will now render out the portion of the clip you selected in slow motion.

**9)** When it is done, a screen will appear asking you to choose a frame for the icon. Move the slider to choose one. Hit Continue.

**10)** Click the tab representing the drive the clip was saved to. Now move the slow motion clip up next to the original.

**11)** Move the out-point of the original clip to the place where you want the slow motion clip to begin. Now adjust the in point of the slow motion clip to begin where the out point of the original leaves off. Play it back and adjust it until it is perfect. For a slightly smoother transition, move a fade between the two and set it to four frames.

You can also create some cool effects by reversing an action clip and putting it into a project playing forwards then flawlessly backwards. When I was working on a promotional video for a summer camp, there was a clip that had a kid riding a BMX bike off a ramp and into a lake. I made a reverse of the clip and put it into the project with the original. It showed the kid flying of the ramp with his bike, hitting the water, and as soon as he went under it perfectly reversed, bringing him back out of the water and onto the ramp with his bike. It went beautifully with the music and the client loved it!

## Flyer Quick Tips

**Smooth Audio**—If the audio transitions between your clips seems rough, open up all of your Fine Tune panels and place a check mark in the Auto Fade In and Auto Fade out boxes.

**Bad A/V Temp File Quick Fix**—If you've been plagued with bad A/V Temp File messages on a project and couldn't correct it with Voidall or reformatting, then there is a way to get it to play until you can have the problem diagnosed. First determine which drive your first clip is on. Now make sure the second clip is on the opposite drive. The third clip should be with the first and the fourth with the second, and so forth. If you have to move a clip to an opposing drive, do so. Then move that clip from the drive to the project over the original while holding the Alt key. It will perfectly memorize the settings, keeping your project in sync. When you are done, the project will play flawlessly. Be sure to delete the old clips and reorganize your drives.

**Cool Box Colors**—In Character Generator, select Box as your font and draw a box on your screen. Now hold down the Alt. Key and press F1. This will bring up a Run ARexx Program screen. Scroll down until you come to the AttribScripts directory. Click it. You now have a number of cool colors to choose from. When you choose one and hit OK, it will change the color in the box to that color automatically! This also works on selected text! Do some experimenting with other CG ARexx scripts and I'll cover a few more in the months to come.

Keep experimenting, have fun, and continue making the coolest productions in your city. Be sure to swing by and introduce yourself at the *Video Toaster User* Expo. I'd love to hear about how you use the Flyer in your daily productions!

VTU

*Joe Tracy is Video Toaster User Editor in Chief. His e-mail address is jtracy@main.rosenet.net.*

**EDITORIAL EVALUATION**

**Circle number on Reader Service Card**
I found this article:

| Very Useful | Useful | Not Useful |
|---|---|---|
| Circle 024 | Circle 025 | Circle 026 |

# DR. TOASTER

## Dr. Toaster's Patients Speak Up

### Questions on Third-Party Products, CG and a User's Report Tobly Dan Ablan

We've been talking recently about upgrades, specifically Toaster 4.1. Although it can be a great addition to your production studio, you may encounter a problem or two if you use third-party programs in conjunction with your Toaster. I mentioned before that no word was available from RGB computer about an Amilink upgrade for the Video Toaster 4.1 software. At the time the article was written, no word was available, according to the person who answered the telephone at RGB. By the time the article was published (roughly three months later), RGB had released an Amilink upgrade. So, for those of you who want to upgrade your Toaster to 4.1 but could not because of your Amilink editing software, you can rest easy. The Amilink upgrade makes your familiar computer-based editing software compatible with the latest Toaster release from NewTek. When you upgrade your Amilink, a new dongle will be shipped to you with an envelope to send back your old one. While we're on the subject of upgrades, there is another area that may be trouble to some—audio.

**Q:** Dear Dan,

Maybe you can help me. I'm an avid *VTU* reader and look forward to each issue. I recently upgraded my toaster 3.1 to the new 4.1. I kept the old 3.1 version on a separate drive. My problem is this, I have been using a Sunrise sound switcher with the old 3.1 software, but the new 4.1 doesn't recognize the sound switcher and Sunrise is out of business. Is there anyone out there that makes a fix for this. A friend said there might be one on the latest Aminet CD. If not, I'm afraid the new software is useless to me and a big waste of money.

Thanks,

Scott K Stauffer

**A:** Scott,

Keeping your old Toaster software in a separate directory is a smart thing to do. For one, you may want to use older third-party software such as your Sunrise Sound Switch or Amilink without upgrading, but still want to use the new Toaster software. Also, keeping the 3.1 in an old directory keeps the old fonts as well. The new Toaster 4.1 does not ship with the same amount of fonts in Toaster 3.0, specifically, fonts from the Font Bank. When upgrading, back up the Font Bank fonts or move them to a new directory for use with Toaster 4.1, LightWave 4.0, and even LightWave 5.0 on the PC.

When it comes to Sunrise, they are not "officially" out of business, however, they are hard to find. They seem to have quietly disappeared over the past few years. So, as you can guess, there is no available upgrade to the Sound Switch. One option is to get a Flyer and solve your audio-follow-video problems. When it comes to your Toaster upgrade being a "big waste of money," you may be overlooking a few things. ToasterPaint is now full screen with a slew of cool new features. CG is better and more powerful, and the Switcher interface is the best its ever been. Sequencing Framestores is a welcome and extremely useful addition. While you search for an audio solution, use both the 4.1 Toaster and 3.1 Toaster from your separate directories to maximize all of your software. As far as third-party, I haven't checked into the Aminet CD, so if anyone has info on this, send me some e-mail.

**Q:** Dear Dan,

Are there any current plans to add a FireWire interface to the Toaster, or are any third-party companies working on a device that can be retrofitted to a Toaster to take full advantage of the new Digital camcorders? Also what is the current status of FireWire with respect to new digital editing decks?

Tim Siefkes

Hutchinson, KS

**A:** Tim,

FireWire, a high speed serial interface, is a pretty cool thing. But no one can say where the Toaster and FireWire stand. Right now, nothing is on the market to do what you're asking. However you can plan on seeing something for PC-based non-linear systems in the future. Remember, these new digital camcorders are just that—new. As time goes by, more and more people will begin to use digital camcorders. With a growing market and ever-increasing desktop video technology, there will most likely be products we haven't even thought of yet, so hang in there.

**Q:** Dan,

In one of the recent issues of *VTU* you mentioned you could try to copy the CG from Flyer 4.1 over to a machine running Toaster 3.1. When I tried this I got an error message saying "Unable to open DOS library CG unable to continue". Could this be

problem be related to the fact I am running Workbench 2.1 and the A2000 Toaster and WB 3.0 on the A4000 Flyer? Or is there some other config file I need on my Toaster system?
Thanks,
Ken Van Brocklin

**A:** Ken,
At the time that was written, the idea was just speculation. After checking it out with the 4.1 Toaster software when it was released and confirming it with NewTek, it seems that only LightWave can be upgraded independently of the Toaster. To use the new CG, Paint, ChromaFX and Switcher, you need to perform a complete 4.1 Toaster upgrade.

**From time to time, I receive e-mail and faxes from people with comments and results of a recent problem or two they might be having. What we're going to do in the Dr. Toaster column is not only include questions and answers for our readers, but start posting a User Report area where you can tell us your success and losses, and hopefully have someone benefit from your experiences. This month, our User Report comes from Steve Ross in Ohio.**

## User Report

*Dan, (Dr. Toaster)*

My name is Steve Ross. I'm the Operations Manager of DATV (Dayton Access Television) in Dayton, Ohio. The reason I'm e-mailing you is to let you know of a problem I've been having with stand-alone LightWave 4.0 and our PAR board. We've had a PAR board for a few years and have used it with our 3.1 version of Toaster. We purchased 4.0 a few months ago and found that the procedure for "Load Sequence" on 3.1 did not work with stand-alone 4.0.

As you probably know, with 3.1, you select "Load Sequence", select the PAR file you want and add a period to the end of the file name. After reading the book for 4.0 and failing time and time again, I went out on my own and typed in several file name combinations and, Eureka, I got it to work.

Well that was a few months ago and I didn't write the process down. Anyway, I was trying to recreate it the other day and couldn't remember how I did it. So I called NewTek and they informed me that it couldn't be done. I told them I had done it a few months ago. I then called DPS and they weren't aware that the process was different than 3.1. So with DPS not knowing there was a problem and NewTek telling me it couldn't be done, the gauntlet had been thrown down.

I went back to LightWave 4.0, fired up the PAR, and within a 1/2 an hour or so I stumbled upon the combination for "Loading Sequence". The combination was Text.001. for example. Anyway, I wanted to let you know and perhaps mention it in your "Dr. Toaster" segment. I'm sure it could help others out there who have run into the same problem.
Sincerely,
Steve Ross
Operations Manager, DATV

*Steve,*

You are right. My Toaster 4.1 with LightWave 4.0 on the Amiga will not load sequences as it did before by adding the period after the sequence name. For those interested, here's the procedure to load PAR animations into LightWave 4.0 on the Amiga.

**1)** Be sure that your PAR software is running, and under the Imp/Exp button, turn Translate On.

**2)** In LightWave, under the images panel, select Load Sequence.

**3)** Go to the PAR (DDR for example) drive and select the animation you wish to load.

**4)** Instead of typing a period after the sequence name in the file requester, enter a period, followed by 001, and another period. The file requester should look like this: MYANIM.001. and that's all.

**5)** Remember that you won't see an image in the thumbnail preview window. The images will be called up during the course of an animation. Only one image is loaded at a time, so don't worry about having enough RAM for an entire sequence.

**6)** Finally, you can load more than one sequence. Thanks for the information Steve.

Lastly, a hearty thank you is extended to John Crookshand at MicroTech Solutions in Oakbrook, Illinois for help on scouting out answers to some old Toaster questions.

VTU

*See Dan Ablan at the* Video Toaster User *Expo at the Universal City Hilton this fall, and on two LightWave training tapes from ProWave. Dan is the author of the first commercially available book on LightWave,* The LightWave Power Guide *from New Riders Publishing. Find it at your local bookstore, available now. Reach him at AGA Digital Studios in Chicago at www.agadigital.com.*


**EDITORIAL EVALUATION**
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# NewTek Makes Addition to Executive Management Team

At Siggraph '96, NewTek announced the addition of Keith Goodman to the executive management team. Goodman fills the role of Vice President of Sales and Marketing with responsibilities including channeling development as well as implementing and developing sales and marketing programs. He will also be in charge of management and recruitment for the growing NewTek sales and marketing division.

"We could not be more excited to have Keith join our management team," said Tim Jenison, Chairman and Founder of NewTek. "The expertise that he brings us with his experience in channel development and marketing, along with his in-depth understanding of computer graphic, desktop video, and multimedia technology make him the perfect person to carry the NewTek product line into the future."

Goodman joins NewTek from Access Graphics in Boulder, Colo., the world's leading distributor of high-end Unix-based solutions for the graphics, engineering, and Internet markets. During Goodman's seven year tenure with Access Graphics, he served as the Area Sales Manager for Southern California for three years, and then assumed the role of Business Development Manager Digital Media. In this role he increased Access' sales into the graphics market from $2.7 million in 1991 to over $100 million in 1996. Goodman's most recent position at Access Graphics was Strategic Sales Development where he was responsible for developing the Oracle sales initiative.

"I am tremendously excited about the channel opportunities that I see for NewTek and our technology. LightWave 3D is taking the graphics world by storm and with the recent relationships we have entered into with Apple and Sun Microsystems, the potential is extraordinary," commented Goodman.

NewTek is establishing a new facility in Boulder, Colo., where Goodman will oversee their sales and marketing efforts.

***"We could not be more excited to have Keith (Goodman) join our management team," said Tim Jenison, Chairman and Founder of NewTek.***

# Digital Domain Signs Agreement With NewTek

NewTek, Inc. has announced that Digital Domain, one of the largest full-service digital production facilities in the world, has signed a corporate site license agreement for NewTek's LightWave 3D software. The agreement will enable Digital Domains' staff of highly talented special effects artists, designers, and animators to have access to LightWave 3D for production of ultra-realistic animation for film and television production.

Digital Domain was founded in 1993 by writer/director/producer James Cameron, four-time Academy Award-winning character and creature creator Stan Winston, and Chief Executive Scott Ross. Some of Digital Domain's notable productions include feature films such as *Apollo 13* and *True Lies*. Notable TV work includes the Budweiser "Clydesdales," "Ants," and "Frogs" commercials, and music videos like the Rolling Stones', "Love is Strong."

# Quick Takes from NewTek

In an NewTek Q&A sheet made available to press at Siggraph, the following information was stated:

- NewTek is continuing development on the Video Toaster for Windows.
- NewTek's products for the Amiga computer continued to sell well, even during the Amiga's market turmoil.
- NewTek is continuing development on a version upgrade for Video Toaster Flyer owners.
- LightWave 3D 4.0 runs sluggish on the Amiga because hardware technology for the Amiga is not current with capabilities on other platforms (like development tools).
- NewTek is working on video expansion plans to the internet market.
- NewTek is committed to cross-platform development and solutions.
- LightWave 5.0 should be available to Amiga and Power Mac users by the time this appears in print.

VTU

*Joe Tracy is editor in chief of* Video Toaster User. *Reach him by e-mail at jtracy@main.rosenet.net.*

Toaster Post continued from page 11

two video sources electronically, in real time while you watch (i.e., instead of waiting for them to render), and while you record its output to another video deck. Do this by pointing to the Main and Preview buttons 1, 2, 3, 4, etc., to choose your source and its intended replacement (which shows on the Preview monitor). When you switch (hit the spacebar or pull down the T-bar icon), the Toaster does its trick, blending the video images on the fly, or cutting them in an instant if you prefer, without disturbing the critical video sync to its video "out" spout.

If you have only one deck to play source video, you can do transitions only between video and the Toaster's two DV buffers and BKG (background color). The DV buttons represent single frames of video that have been captured from moving video, re-loaded from disk, rendered by LightWave, painted (or retouched) by ToasterPaint, or created by the Toaster CG program.

**"This whole process (except for the DV part) is the same with the Toaster as it is in video edit suites using tape. The difference is, the Toaster is used to switch, mix, title, and overlay the raw footage onto a video recorder. In tape suites, there would be a video production switcher to do that..."**

This whole process (except for the DV part) is the same with the Toaster as it is in video edit suites using tape. The difference is, the Toaster is used to switch, mix, title, and overlay the raw footage onto a video recorder. In tape suites, there would be a video production switcher to do that—though many suites also use Toasters to add titling and animation. So has desktop video invaded the sanctums. If it's any consolation, the gremlins that inhabit non-desktop video are the same unpleasant guests you wish would stay away from your Toaster suite. VTU

*Jay Gross (no relation to the famous John Gross) is a teller of tales, a writer of books on video, computers, and journalism, and owner of J: Creative Services in Lexington, South Carolina. He is e-mailable at jaygross@shell.portal.com.*

**EDITORIAL EVALUATION**

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## LIGHTWAVE & MULTIMEDIA CD-ROMS

**LIGHT-ROM 4**, a 2 CD-ROM set features all new Lightwave objects and scene files. The bonus CD-ROM is 3,000 Jpeg Textures, a $29.95 value. See below for full description of 3,000 Jpeg Textures CD-ROM. LIGHT-ROM 4 also includes a collection of scene files by Alan Chan, author of Power FX Kit Lightwave 3D book, featuring the Lightwave 5.0 tutorials included in his book.

**100% royalty free! LIGHT-ROM 4 features new material created with Lightwave 4.0 and 5.0.**

***(Available November 10, 1996.)***

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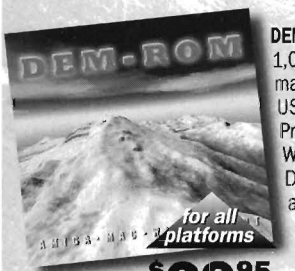


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FOR INFORMATION CIRCLE 195

# TAMING THE WAVE

## Hit the 3D Slopes

### 'Tis the Season for Skiing Cows

by David Hopkins

Welcome once again to "Taming The Wave," your partner in the never-ending war to create the best animation with LightWave 3D. With Christmas right around the corner and the usual joy that comes from the season, I thought we would spend this issue creating an animation that will keep us in the spirit. But this isn't just animation for animation's sake, no, no, no. We're going to learn a few nifty LightWave tricks along the way. Sit down, power up and join me as we explore the possibilities.

Just about everybody has seen the Coca Cola Polar Bear commercials on TV, right? The beautiful work created by Rhythm & Hues in Hollywood inspired a client of mine to incorporate a snowy environment into his next project. "What if," said the glassy-eyed client, "we had the (insert the logo animal of your choice) skiing?" The wheels started turning and what seemed like a pretty simple idea quickly began to show signs of complication. Here's the way we went.

***"The first order of business in creating a skiing shot is, of course, the snow. Because snow can require a pretty serious polygon count, it's a good idea to make only the parts you'll need."***

#### Holy Cow

The first order of business in creating a skiing shot is, of course, the snow. Because snow can require a pretty serious polygon count, it's a good idea to make only the parts you'll need. Enter Modeler and make sure the layers are all cleared out. We'll need to know the size of our skier in relationship, so load up the Cow.lwo from your Objects/Animals directory into Layer 1. Yes, the cow.

In Layer 2, generate a flat, straight ski path using the Box tool. Match my values by using the Numeric entry mode (N-key after activating the Box tool). Box Lows are X=-1.2m, Y=0, Z=-20m. Highs are 1.2m, 0, 20m and Segments should be 3, 1 and 120. Click OK and Make.

Switch to Point edit mode and in the Face view select the center-right hand point (second from the right). You should get 121 points selected. Choose Move from the Modify menu and scoot these points over +150mm on the X axis. Deselect the points by clicking a blank area of the screen, then click the center-left hand point in the Face view. Press the (t) key to switch back to the Move tool and then press the (n) key to bring up the Numeric window.

The X offset still reads 150 mm, so just insert a negative sign in front of that so you end up with -150 mm. Click OK.

What we've just done is divide this surface into three parts (Figure 1). The center is the portion the cow will actually ski on and the sides are going to help us blend this surface into a snowy hillside. In Polygon select mode click any of the polygons and verify that the normal (that little dotted line) points UP in the Face view. If not, deselect all the polygons and press the (f) key to Flip them all over. Name the surface for the entire object "SnowPath" and save the object as "BasicSnowPath.lwo".

#### Four Feet, Four Skis

Let's break a moment and build the cow's skis. Since we have four feet (and hence four skis) to contend with we'll put him on "shorty" skis. Go to Layer 3 and create a Disc with 64 sides and 1 Segment on the Y Axis. Bottom and Top should both be -150 mm. Centers are 250 mm, 0, and 100. Radii is 200 mm, 150 mm, and 837.5 mm. Click OK and Make.

The tip of this disc will eventually serve as the front of the skis, so we need to modify it a bit. In the Top view select all the points that are at 500 mm or lower on the Z axis (Figure 2). You should have 43 points selected. Click Cut. Switch to Polygon Mode, deselect everything and press the (f) key to flip the polygon over.

Switch back to Point mode and select the two points that now make the flat edge of the shape. Place a mirror in the Top view running horizontally at 400 mm and click Make. Deselect your points again and reselect those two and the new two in a clockwise order as seen in the Top view. Press (P) on your keyboard to create a polygon out of them.

Now we want to break that curve up into flexible segments. Do this by selecting two points on opposite sides of the curve in Point mode, switching to Polygon mode and selecting the Polygon that those points are currently part of, and choose Split from the Polygon menu. Do this to each pair of points working your way up to the tip, using the Zoom tools as needed. You should end up with Figure 3.

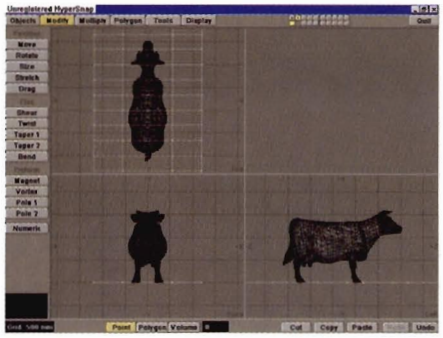


Figure 1

Go to the Multiply menu and choose Extrude. Click Numeric and set the Axis to Y, Segments to 1, and Extent to 40 mm. Click OK, then Make. Press the (f) key to Flip the polygons over since they are now inside out. Put Layer 1 in the background and press Shift-A to Autozoom into the ski itself. Use the Move tool to shift the ski up along Y in the Face or Left views until the cow's hoof rests on it.

In the Top view, select all the points that define the curving tip as seen in Figure 4. Now we're going to bend the tip of the ski up. This can be done using the mouse, but for our example we'll use the Numeric values. Choose the Bend tool from the Modify menu and press the (n) key. Set the Axis to Z, Range to Automatic, Sense to Positive. Angle should be 43.0, Direction 90, Centers 260 mm, -50 mm, and 0. Click Apply. Where did these values come from? I got them from playing with the Bend tool in the Top view.

Since we've bent polygons with more than three points, we should check for non-planar polygons. In Polygon Mode press the (w) key to bring up the Polygon Statistics. Click the (+) button next to the Non-planar text at the bottom. As you can see we did corrupt a few polygons there, so choose Triple from the Polygon menu. Deselect the Polygons and define the surface name for the entire object as "Skis" and save it as "CowSkis.lwo".

## Trail Blazing

We're well on our way now! We only need one ski because we'll clone it in LightWave. The next bit is to create a trail behind the skis in the snow. In Polygon mode, select the polygon that represents the back edge of the ski (it faces downwards in the Top view, Figure 5). Copy it to Layer 4 and Paste it there.

Choose Extrude from the Multiply menu and set the Axis to Z, Segments to 1 and Extent to 40 m. Press the (t) key to activate the Move tool and move the object -20 m on the Z axis. Place a Mirror from the Multiply menu vertically in the Top view on X=0 and click Make. You

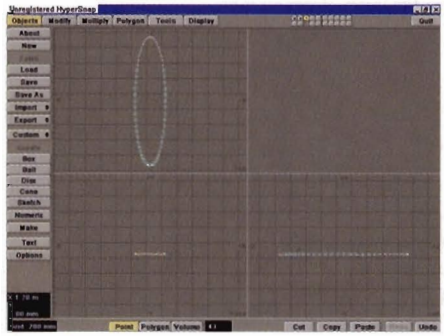


Figure 2

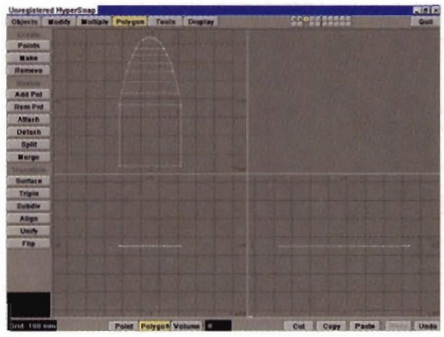


Figure 3

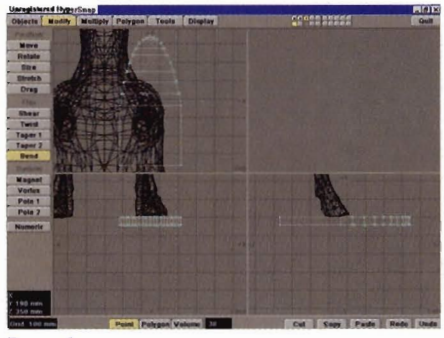


Figure 4

now have a pair of ski trails. Name the surface for these items "SkiTrail" and save them as "SkiTrails.lwo".

OK, back to Layer 2. Zoom in on the end of the SkiPath as seen in the Face view and select the polygons that form the sides. You should end up with 240 polygons selected. Choose Subdiv from the Polygon menu and accept the Faceted type. You'll see the side polygons get divided up and remain selected. Now it's time for a Triple, also from the Polygon menu.

Deselect the polygons and select the center strip as seen in the Face view. Triple once and Subdivide Faceted three times. Why are we doing this for a flat surface? Because it isn't going to stay flat! Deselect all the polygons, name the surface "SnowPathFinal" and save it as "FinalSnowPath.lwo".

**"Triple once and Subdivide Faceted three times. Why are we doing this for a flat surface? Because it isn't going to stay flat!"**

Time to move to Layout. Head on over there and load up the BasicSnowPath.lwo and the SkiTrails.lwo. Move the Camera to X=-0.05, Y=64.08, Z=-0.058 and Pitch the Camera 90 degrees. This gives us a directly overhead view of the path. Go into the Camera panel and turn on the Custom Size button. Set the Width to 115 and the Height to 2000

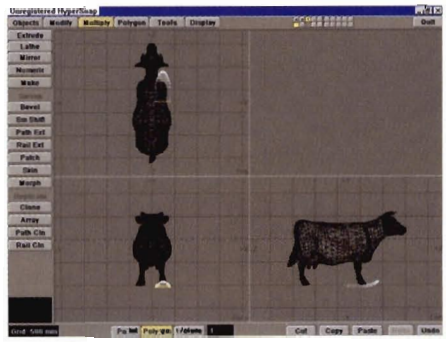


Figure 5

with Square Pixels and Medium Antialiasing. Turn on Motion Blur and leave it at the default 50%.

Now to the surfaces. For SnowPath, leave the surface white and add a Color Texture layer of Fractal Noise. Set the Texture Size to .2, .2, .2 and the Texture Color to 100, 100, 100. Use Texture. For SkiTrails, simply turn the Color to black (0, 0, 0).

Go back to the Layout window and get a side view of the scene by clicking Side under View. Select the SkiTrail.lwo and move it up on the Y axis to Y=.1. Create a key for Frame 0. Now, change to a Top View. Move the SkiTrail.lwo to Z=-40 and Create a Key again for Frame 0. Move the SkiTrail.lwo to Z=-.250 and Create a Key for Frame 60.

Set a RGB Image path for this animation in the Record panel and choose Save All Objects from the Objects panel. In the Scene panel set the last frame to 60 and Save the Scene as "SkiTrailer.lws". Go ahead and Render this scene.

So what we've just done is create a grayscale image sequence which we can use as a bump map on the actual trail in the final animation. Because we trimmed the Custom Size to be a very tight fit to the actual shape of the object we'll be able to apply it using Automatic Size when it is finished rendering.

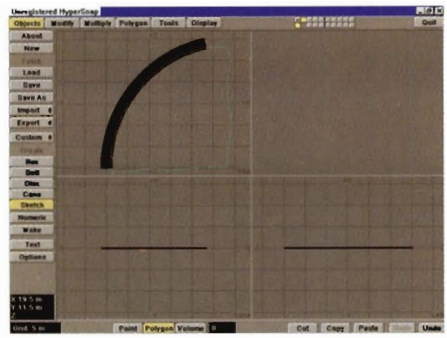


Figure 6

**"So what we've just done is create a grayscale image sequence which we can use as a bump map on the actual trail in the final animation. Because we trimmed the Custom Size to be a very tight fit to the actual shape of the object, we'll be able to apply it using Automatic Size when it is finished rendering."**

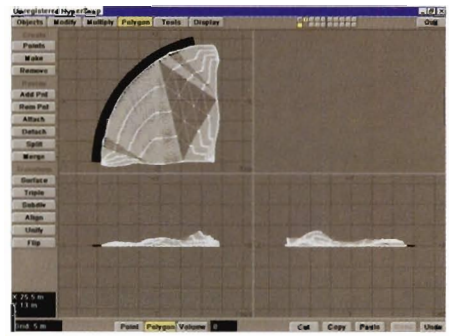


Figure 7

Despite the large image size, this sequence shouldn't take *too* long to render.

In the meantime, head back into Modeler for a bit more work. What we need to do now is create the curved version of our path. Clear all the layers and load the FinalSnowPath.lwo into Layer 1.

Press the A-key on your keyboard to Autozoom and see the entire object. Choose Bend from the Modify menu and Numeric. Set the Axis to Z, Range to Automatic and Sense to Positive. Make the Angle 77, the Direction 0 and leave all the Centers at 0. Apply. Notice that the path is now nicely curved. Save this object as "FinalSkiPathCrv.lwo".

### Lay of the Land

Now we need to make some hilly snow terrain to fill up the sides of our ski path. Go to layer 2 and put layer 1 in the background. Select the Sketch tool from the Objects panel and draw a wavy line along each side of the path following the curve. Try to keep your wavy line *just* inside the existing path, but not into the center sections as seen in Figure 6. Choose Freeze from the Tools menu to change it into a closed polygon.

Triple the polygon and then Subdivide Faceted three times. Deselect the polygons and switch to Point Edit mode. Try to select most all of the points in the object *except* those that form the path-side edge of the object. This is probably best accomplished using a Lasso selection process (use the right mouse button to "circle" the points you want).

Once you have the appropriate points selected, get the Magnet tool from the Modify menu. In the Top view use the left mouse button to drag out a magnetic effect range and the right mouse button in the Face or Left views to push the ground up into gentle hills. Try not to let them get much taller than one meter pushes, but increase the elevations as you progress towards the lower right corner of the terrain. You should end up with something resembling Figure 7 after a few pushes.

Name the surface for the whole object as "HillyTerrain" and save the object as RtSideHills.lwo. Go to layer 3, put layers 1 and 2 in the background and do the same thing for the other side of the path. Save that object as LtSideHills.lwo.

OK, time to go back to Layout. Presuming it is done rendering the image sequence, clear the scene. Load the FinalSnowPath.lwo in the Objects panel. In the Images panel, select Load Sequence and double-click on the name of the first file in

the series you just generated.

Go to the Objects panel and into the Displacement Map Texture. Set a Planar Image Map type on the Y axis and click Automatic Sizing. Make the Texture Amplitude .1 and click OK. Choose Save All Objects from the Objects panel and load the FinalSnowPathCrv.lwo.

Figure 8

In the Objects panel again, set the Metamorph value for FinalSnowPath.lwo to 100% and make the Metamorph target the FinalSnowPathCrv.lwo. Next move to the FinalSnowPathCrv object and set its Dissolve value to 100%. We've just told LightWave to use the texture as it is applied to the straight piece of path and place it onto the curved path. Since the object is still considered to be the first one, the second can be invisible and not get calculated in rendering.

## Surfacing

Next, load the RtSideHill and LtSideHill objects. If all went according to plan, they should load immediately into the proper places. Now we need to apply some surfacing. Let's start with the SnowyPathFinal surface. Leave the color alone, set Luminosity to 5% and turn Smoothing on. Set Max Smoothing Angle to 180. Set the exact same values for the HillyTerrain surface.

The Camera and Light placement within the scene will depend upon the hills in your terrain. Use LightWave 5.0's OpenGL mode to interactively adjust both of them to your liking. You'll likely find that using a touch of blue in your light color will improve the look of the image.

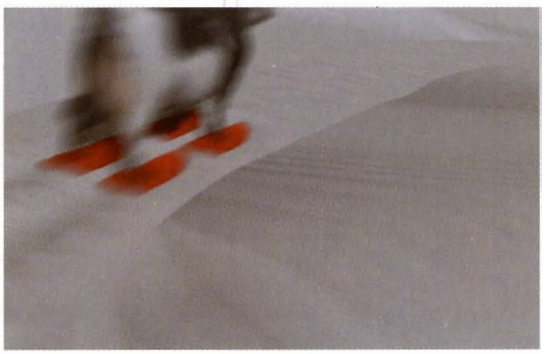


Figure 9

When you're all set, make the Last Frame 60 and test render a few frames. Notice how there is a magical ski trail zooming across the path beneath an invisible skier. All we have to do is put the cow in place and we're done.

Figure 10

Load our friend the cow and his ski. Parent the ski to the cow and then place the cow at the start of the course (the lower-left end of the path as seen from above). Render frame 60 of the animation. This will cause the last frame of the trail bump map sequence to be loaded so that it will be the one affecting the mesh in the layout window.

Correct the starting position for the cow and create the key at frame 0. Move the cow to the End of the path and rotate him appropriately. Create a key there for frame 60. Now go back to 30 and move the cow back over onto the track at the middle. Note that you should move him at an angle rather than on one axis only so that his speed remains constant when animated.

Create the key for frame 30 and then go to frame 15 and pin his position here. Finally, go to frame 45 and do it one more time. Between these keys you manage to keep pretty close to the exact path of the skitrails.

Now you need only clone the ski three times and position them under the cow's feet at frame zero. Since you've come through the hard part, I'll leave that to you. Don't forget to set the surfacing on the Skis to your liking and render away! Figures 8, 9 and 10 show my results.

Hopefully you learned a few new tricks along the way and see avenues for even more exciting variations of these concepts. That's what this column is all about, to give You a place to branch from. If you come up with some amazing revelation, a pretty JPEG or just want to say howdy, feel free to e-mail me at lthouse@primenet.com or stop by the Lighthouse Website at http://www.primenet.com/~lthouse for a visit. Best of luck to you and see ya next month!

VTU

*David Hopkins is the president of Los Angeles graphics houses Mach Universe and Lighthouse Imaging. He is still trying to recover from SIGGRAPH '96.*

**"The Camera and Light placement within the scene will depend upon the hills in your terrain. Use LightWave 5.0's OpenGL mode to interactively adjust both of them to your liking. You'll likely find that using a touch of blue in your light color will improve the look of the image."**

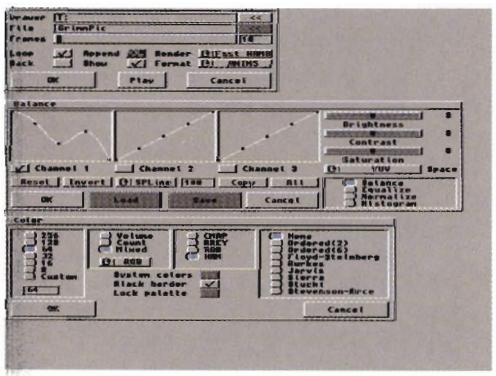
# CYBERSPACE

## Video On the Web

### Promising Technologies and More Cool Stuff

by Geoffrey Williams

The Internet will grow in importance as a medium for video distribution, assuming that compression and bandwidth issues are resolved. There are some promising technologies that may make video over the Internet much more practical. We should soon have cable modem technology on-line, assuming that the cable companies can get their acts together. Another option is delivery of Internet information via satellite. You would still be connected via a phone modem, but the delivery of content would come by way of a satellite, offering greater speed.



### Amiga Links

The already excellent Amiga Web Directory has beefed up their search capabilities, introducing Agnus, the Amiga Web Directory Searching Assistant. She can be found at www-.cucug.org. This cartoon character is host of the several ways you can search for Amiga oriented information on the Web. You can search through the database of over 1,000 Amiga oriented Web sites, all of the 1995 and 1996 issues of Amiga Report, the text archives of Amiga News, and the text archives of product reviews. A while back I wrote about David Tiberio's Amiga OnLine Reference manual. It is now internet accessible at www.melizo.com/area52/aorm and covers the Amiga operating system, LightWave, a dictionary of Amiga terminology, and has search capabilities.

### Video Links

Here are a few video links that might be of interest.

•The International Television and Video Association home page can be found at turnpike.net/emporium/I/itva.

•The Video Production Resource page at www.com/dubsouth/VideoProdCo.html lets you search for production companies by state, and you can also list yourself.

•SCREENsite at www.sa.ua.edu/TCF offers a research section with links to film and TV credits and reviews, book, journal, magazines, and on-line catalogs and discussion groups. There is also a section on film/TV/video production, and a real-time chat area for film/TV studios.

•The Desktop Video tutorial is at rodan.asu.-edu/~guy/Video1.html. It provides an extensive overview of desktop video, covering a wide range of topics. It includes links to video related newsgroups, and a video forum.

•Bob Doyle's Desktop Video Group at www.dtvgroup is an independent non-commercial educational organization disseminating information on computer-assisted video production and post production techniques. The site includes a lot of interesting information, including Bob's overview of digital audio and video products from Spring Comdex.

•Looking for a glossary of video terminology? Take a look at goldwww.gold.ac.uk/graphvid/videogloss.html.

•Just for fun, www.awe.com/mark/fave-inter.html gives you links to movable cameras, and other devices.

•A large collection of links relating to 3D and computer graphics can be found at www.handy guide.com/cat1/g/g45.html.

•A Toaster/LightWave page can be found at www.albany.net/~dwarner. It was created by Dave Warner, and features a Video Toaster Product Index, LightWave Product Index, Business Services Index, and Mailing List Archives for the Toaster and LightWave.

•Primordial Soup is at www.swifty.com/soup. It has also sorts of cool stuff to explore, including a LightWave 3D techniques search engine.

•The LightWave Bug list is at www.panix.com/~lito/pages/LWBuglist.html. It documents many LightWave and plug-in bugs and how to work around them.

Here are some sites that have LightWave tutorials:

•An Inverse Kinematics tutorial from Tim Wilson is atourworld.compuserve.com/homepages/crestline/ik.htm.

•A metamation tutorial by Kent Lidke can be found at ourworld.compuserve.com/homepages/kentlidke/metamate.htm.

•And don't forget *Video Toaster User*'s own David Hopkins' site at www.primenet.com/~lthouse, which has lots of very interesting and useful stuff to explore.

•While Viewpoint is one of the leading suppliers of quality commercial 3D objects, they also maintain one of the best sites for the distribution of freeware and shareware objects. LightWave animators will appreciate Viewpoint's Avalon site at www.viewpoint.com/avalon. Besides being a premiere resource of 3D objects, there are also textures, demos, and utilities.

### Cool Programs

Some months are pretty slim pickings, but this time I managed to find a few cool utilities on the Net. If you have been cruising the Web, you've seen a lot of image maps. Any time there is a graphical menu where you can click different areas of the graphic to go to different pages, that is an image map. There are two basic kinds.

A server side image map sends the coordinates from your browser to the host computer, that uses a program on the host computer to interpret that data and decide what your mouse click is supposed to do. This was the way it worked for most systems. With the current version of Netscape Navigator and a few other browsers, it is possible to have client-side image maps, where all of the work is done by the browser. This is not supported by AMosaic.

The advantage of client-side image maps are that the user actually sees the links as he points to them. Either way, creating the data for an image map is a big pain, since you have to describe the various coordinates of the image that you want to act as hot spots. Sigbj¯rn SkjÊret wrote MakeImageMap to simplify the process of creating imagemaps. It runs under ImageFX 2.0, and lets you load an image and draw the areas you want to be hotspots, with the option of choosing either server side or client side image maps. It then writes the HTML code for you.

A good picture display utility is always handy to have around. Magnus Holmgren's Visage does a pretty good job of doing just that, although it does require OS 3.0. Visage is an IFF ILBM/GIF/JPeg/Datatypes viewer that supports AA (AGA), ECS, RTG, PCHG, SHAM and CLUT. It can display "deep" pictures in all formats on ECS Amigas, rendered in HAM, "normal" color or grayscale, and it can render them to fit the screen. It has extensive monitor support, with simple promotion. It has several slideshow options, including a random mode, image preload, and the ability to do fades (except with HAM images). It would also work very well as an external module for screen blankers. You can show an entire directory of images, with the option to press a hot key that will execute a command, so for example you could have it set to delete the displayed image, or move it to another directory, making for a quick way to sort through your files. It has a test mode that will go through all of the files in a directory and report on any of them that have problems or are corrupt. It supports color cycling and includes an ARexx script to use Visage in Directory Opus 5 as a slideshow program. It also includes other CLI utilities written by the author.

Waldemar Zˆhner's ScanTek is a scanner driver for several SCSI scanners: MICROTEK IISP, MICROTEK II, HIGHSCREEN Flatbed Color IIs, ScanMaker E3, ScanMaker 35t and the Mustek 6000CX, 8000CX, and 12000CX (although the latter two were not tested). It includes support of black/white, built-in halftone (dither), one-pass-color-scan,three pass color scan, and grey, red, green and blue scans. You can control the individual setting of resolution, scanning frame, contrast, shadow, midtone, highlight, exposure time and scanning speed for download to the scanner. You can download a gamma correction table to the scanner. The maximum size of the scanned image is independent from the RAM size. After the scanning process it is possible to start an external program.

## Grimm Reality

Denis Spach's Grimm is an image processor with a lot of capability, though it does require Workbench 3.0. It can load images in BMP, CCIR, FBM, GIF, all flavors of IFF, PBM, SHAM or sliced, RGB8 and RGBN, DEEP RGBM, JPG, PCD (PhotoCD), PCX, PBM, QR, SUN, TGA, and TIF format. It can save in IFF, BMP, JPG, TGA, or TIFF formats. There is a one level undo button. Image processing features include balance, flip, crop change aspect ratio, convolve, resample (for accurate minimum distortion scaling). It also includes a batch converter, which can batch convert a series of images. It can then compile those images into an animation with effects over time using the distort, effect, filter, convolve, and resample options.

There are also several animation features. You can add a loop at the end of IFF animations. You can compile animations, with optional looping. You can save any animation as a sequence of individual frames, as an Anim-5, or in the FLI/FLC formats popular on the PC.

Grimm also offers lots of traditional image processing features, such as balance, equalize, normalize, and histogram. Effects include oil painting, mosaic, posterize, and map image to sphere. Convolves include QuickEdge, Kirsch, Prewitt, Sobel, Laplacian, Sharpen, Smooth, Emboss, along with other predefined matrixes. Deformation features allow you to shear an image from -45∞ to +45∞, rotate from -90∞ to +90∞, bend using splines, and create custom deformations using splines. Animation is supported by interpolating between the initial spline and the one set by hand.Overall, it appears to be a very powerful image processor, and the author has many more features he is continually adding to make it even more useful.

## Voyager and Beyond

Not that long ago I wrote about Voyager, a browser for the Amiga. The first Amiga browser was AMosaic, but it is showing its age and does not hold up well compared to the competition. That leaves three serious choices for Amiga users: Voyager, AWeb, and IBrowse. (Note that all Web browsers for the Amiga require a minimum of Workbench 3.0). Here is how they stack up. Voyager was the best browser when it was released, but it was passed up by AWeb 2.0. The current leader, though, is IBrowse version R8a. A downloadable version of IBrowse is available on the Net (but because it is a commercial product, this demo version does have some limitations).

IBrowse has complete HTML 3.2 support, including colored fonts and tables. It is the only Amiga browser to support progressive gifs (displaying a lores image that get more detailed as the loading continues). About the only thing it does not do is frames. Disabled in the demo are gopher, ftp, news, mail, and telnet capabilities. With the commercial version, you have a browser that is competitive with Netscape and Microsoft Explorer.

By the way, a great resource for information on hooking the Amiga up to the internet is Kainaw's Amiga Internet Guide at www.cris.com/~Kainwa/tcp/index.shtml. It includes a getting started page and information on all of the programs and utilities you will need and want, including the links to download them. It's very well done. Of course, I realize that many of you can not get to this since you are not on-line at all yet. Next month I will cover a few of the basics you will need.

As usual, if you want the utilities covered this month and don't want to go looking for them, I have put them all on a disk (including IBrowse) which you can have by sending $5 to: Geoffrey Williams, November Disk Offer, P. O. Box 10095, Glendale, CA 91209. The best way to contact me is through my e-mail address at cbp@cris.com.

# SLICES

## Showing Off

### Using the Flyer as A Presentation System

by James Hebert

In developing a new product, you find yourself in new situations that demand creative, often unusual, solutions. QuBit, QuVIS' premier product this winter, records with 9 MHz bandwidth, achieving a signal to noise ratio of greater than 74 dB. By way of comparison, a D-1 VTR utilizes 5.75 MHz bandwidth and achieves 62 dB SNR. There's a big difference. However, showing that difference is a difficult task, given that television monitors, most of which are designed to show a video signal from any source no matter how horrid, tend to be immensely forgiving. In fact, other than using a monitor to confirm that your color selections are appropriate, would you use it to make critical judgments of fine detail?

***"There are few ways to show "higher resolution recording" on today's monitors. So it comes down to the presentation of the information that supports our claims. And therein lies the segue that leads to my use of the Flyer for trade shows."***

Maybe I should put it this way: Would you rather read text from an RGB monitor all day long, or a television screen?

My point exactly.

There are few ways to show "higher resolution recording" on today's monitors. So it comes down to the presentation of the information that supports our claims. And therein lies the segue that leads to my use of the Flyer for trade shows.

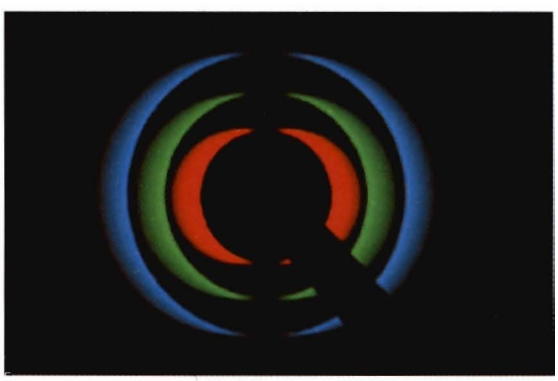


Figure 1: QuVIS' RGB on black logo.

### Enter Flyer

There are very few devices that lend themselves to live presentations like the Video Toaster Flyer. It incorporates stills with high quality video, along with the unique ability to "cut to a live shot" if you want to. Any time you need to show full size, full motion, full frame rate video along with CD quality audio, your choices are limited to the Flyer. Or you could use the Flyer. Otherwise, you'll be dealing with the limitations imposed by the other gadgets you're working with.

The Amiga and the Flyer fare the best in this arena. With this combination of tools you can do as I did for SIGGRAPH and NAB, create a dynamic and engaging presentation replete with graphics, animation, and sound. You can even make a product that does not yet exist on a retailer's shelf appear very real and very enticing to the viewer. No, our product was not yet ready to be demonstrated (nor was it intended to be for these shows) but we needed to be able to discuss it, "air-demonstrate" it, and make it real for show attendees.

Few trade show attendees go to a show expecting to walk out with a buying decision having been made then and there. The purpose of the trade show is to introduce new products (ready or not), demonstrate existing product, sign up dealers and/or distributors, and thus expand your share of the market. The buyers who attend shows of this nature, may be buying for one or several stations in a given market. Usually, they are looking at product in advance of budgeting and purchasing. For this reason, it's considered OK to present a not-ready-for-prime-time product. You just better ship it, or you'll make a name for yourself that you'd rather not.

### Graphics to Do the Trick

Accompanying this article, you'll find a series of images that I created to pitch the audience on the idea of QuBit. I created a set of graphics that used design elements from the QuBit brochures, to maintain a consistent look. I also inserted the QuVIS logo and the QuBit name liberally, to mentally reinforce the message as I stepped through the demonstration. It never hurts to plaster your name across a presentation for trade show use, primarily because people who are "walking the aisles" may only have a few seconds to see what you are talking about on screen. If the glance they cast your way does not reward them with a sense of "what's this company or product about" then your graphic fails in its attempt to

get the message across.

By the way, have you ever heard of the "billboard rule?" It's a rule of thumb that billboard advertisers keep in mind when they design billboard copy: Keep the main message to seven words or less. Most automobile drivers are cruising along at a comfortable 60-ish miles per hour on the highway. Ad writers know they have only a few seconds to capture your attention at that speed. And frankly, at the *speed of society* today, not only advertising but also your business associates and friends have at best just a few seconds to get a message into your head, whether you're cruising the highway, the hallway, or the mall walkway.

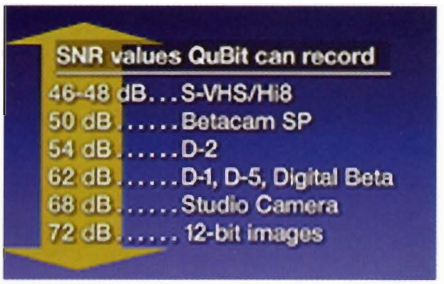


Figure 2

Figure 3: The QuBit "beauty shot."

The fact that you take the time to sit down and read this magazine takes focused effort. (Congratulations, you got out of the race for a few minutes.) Here are some of the stills and shots I used in the QuBit demo, along with the ideas behind them and the message they conveyed (I hope).

Between presentations we ran animations from our beta sites, alternating with shots of the company logo. Our logo appears in two versions. The gray-on-white version is used for corporate correspondence and letterhead, as well as business cards. It has the *Swiss banker* look about it, and we liked it for that association. The rgb-on-black logo is more dynamic and exciting, as well as appropriate for industries where video and imaging are the focus. The primary colors red, green, and blue are used for video, computer graphics, and scanned imagery. It appears on all of our marketing oriented materials such as brochures and press kits.

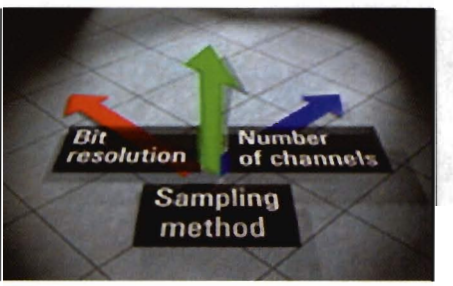


Figure 4

**"The rgb-on-black logo is more dynamic and exciting, as well as appropriate for industries where video and imaging are the focus. The primary colors red, green, and blue are used for video, computer graphics and scanned imagery."**

Figure 1 shows our rgb-on-black logo. It is particularly dramatic to edit a hard take from the dark logo to the light one on the strong crash of a piece of music, so that the audio and video *pop out* at the viewer. Cutting from a dark scene to a light one makes for a powerful surprise, especially when some elements from one shot remain in place for the next shot, as the logo does here.

Figure 2 shows the variety of tape formats that QuBit can emulate when recording. Figure 3 shows a "beauty shot" of QuBit. I designed it to match our brochure photograph (again, for consistency). The model was a bear, because of that complex sweeping front panel.

Figures 4 through 10 show a progression of stacked cubes used to demonstrate a concept, that QuBit can produce better images than a D-1 VTR, by showing how much data, represented by volume, the QuBit is sampling when recording.

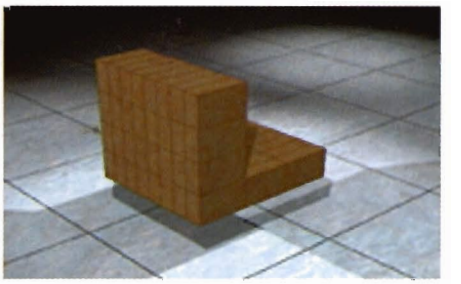


Figure 5

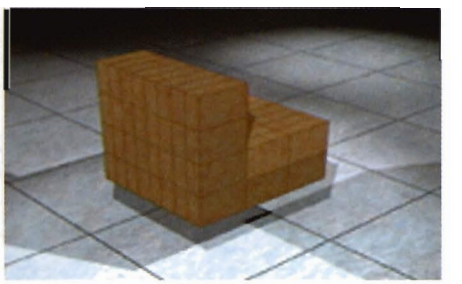


Figure 6

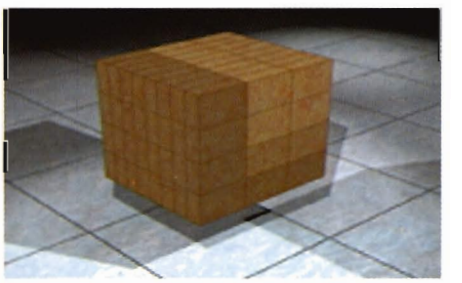


Figure 7

Figure 4 shows the "intro" screen that introduced the key to the screens that followed it. Along each axis, we presented a number of stacked cubes to represent various attributes of recording digital video. The red arrow displayed 8, 10, or 12

bit sampling by showing that number of divisions along that axis. The green arrow showed the number of times that a given signal was sampled (either 1, 2, 4 or 6). The blue axis displayed the number of channels of data being recorded (either 3, as in RGB, or 4, as in RGBA).

Figure 5 shows the sampling of a DVCPRO camera. There are three stacks of cubes on screen, sitting side by side: four divisions to the first (luminance), and one each to the two components that make up chrominance. This represented sampling, and would be referred to as "4:1:1." Because the format is sampled at 8 bits of resolution, the cube stacks have 8 segments of depth.

Figure 6 shows D-1, also known as a 4:2:2 format. A little more color information. Also 8 bit depth.

Figures 7 through 9 illustrate progressive additions that improve the picture quality in one manner or another. Figure 7 shows 4:4:4, another improvement in color recording (twice as much color data). In Figure 8, 4:4:4 improves picture quality by jumping to 10 bit sampling, improving accuracy. Figure 9 adds an alpha channel (a key or transparency channel, for you CG artists and technical editors).

Figure 10 shows you want QuBit is doing. The sampling resolution has expanded to 12 bits (12 segments of depth), the recording is handling four channels of data (four segments across), and the number of times we are sampling above the base frequency is six (six segments high).

By showing these graphics, and stepping through the formats and improvements at each stage, we could graphically show that QuBit starts with far more recorded data than any other format. These graphics were designed to emphasize the message in two ways, one more subtle than the other. First, notice how, in the final graphic the cube literally extends past the edges of the screen as if to imply the magnitude of the volume of the signal QuBit can record. Second, notice that you can step through the sequence and see how the recorded signals appear to be swallowed up by the final signal. I designed these screens so that the camera did not move closer to the main element on screen in order to have it fill up the entire available space. This would lessen the impact of the "big guy" at the end, because the camera would have to pull back with each rendered frame in order to show the entire object.

By using a variety of Toaster transitions, LightWave 3D animations, stills (made in ToasterPaint and ToasterCG), and the Flyer for playback, I was able to create an arresting and informative demo. I hope these tips and tricks will help you in your projects in the future.

P.S.—Here's a late-breaking, highly cool book: *A Technical Introduction to Digital Video* by Charles Poynton (ISBN 0-471-12253-X). For a sample, hit the net and go to www.inforamp.net/~poynton, or e-mail him at poynton@inforamp.net. This book is about $45 and worth every penny if you want to understand digital video. It just came out at SIGGRAPH in August of this year.

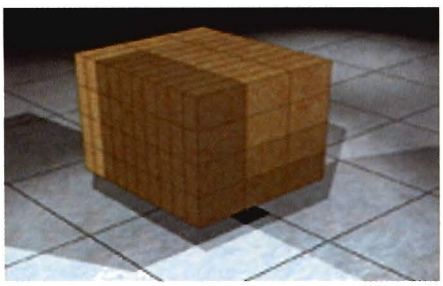


Figure 8

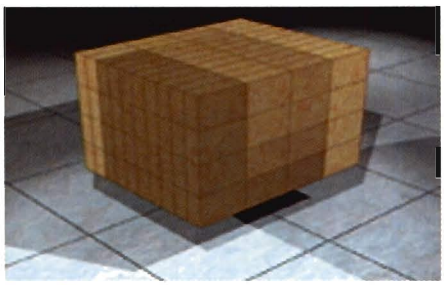


Figure 9

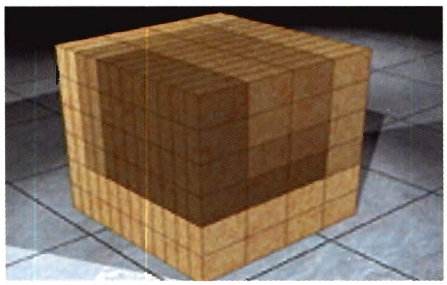


Figure 10

**"I designed these screens so that the camera did not move closer to the main element on screen in order to have it fill up the entire available space. This would lessen the impact of the "big guy" at the end, because the camera would have to pull back with each rendered frame in order to show the entire object."**

*James Hebert is a technical writer for QuVis, Inc., maker of QuBit and other products. His credits include manuals for the Video Toaster, Flyer, LightWave 3D and others. Reach him at james@quvis.com.*

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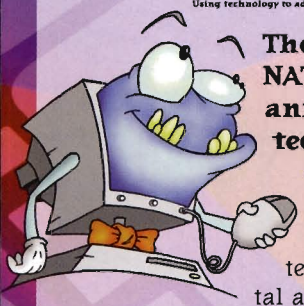

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NVT1196P

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# JUMPING

# BRINGING *THE ILLUSTRATED CLASSICS* TO LIFE

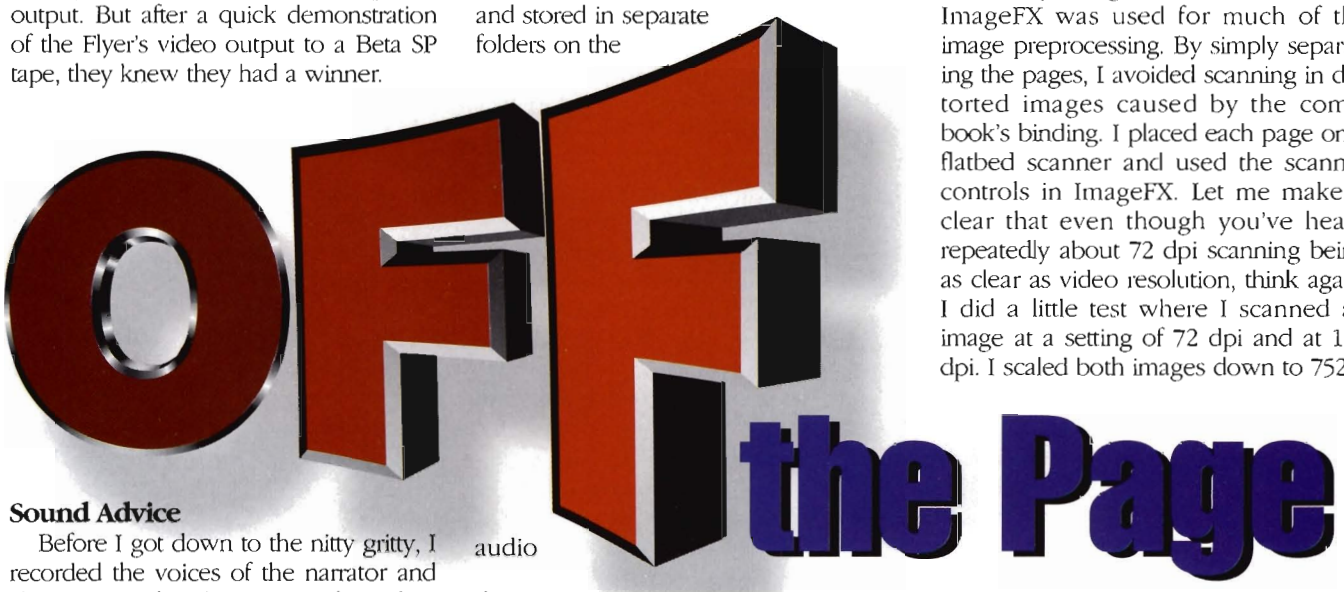
by Alex Lugones

The first comic book I held in my hands as a child was an *Illustrated Classics*. I would go through each page marveling at the drawings and reading the text bubbles that grew out of each character's mouth. The wonderful storyline made it very difficult to stop reading, especially when my mother was calling me in for dinner. Any comic book enthusiast would understand what I'm talking about.

*The Illustrated Classics* are based on the greatest classic stories ever written, for example: *Moby Dick, Time Machine, Oliver Twist* and even *Dr. Jekyll and Mr. Hyde*. During the development of the series, special attention was put into every detail to ensure that the research about each book would represent the period and the original story. I knew this same attention must be given to the project I was presented. *Illustrated Classics'* current owners purchased the rights to all 72 stories from Pendulum Press. Their intent was to bring the pages to life on videotape and sell them to schools and in bookstores. The only guidelines I had to follow were to keep the artwork and storyline intact. On the creative end, the rest was left up to me.

One of the key reasons I managed to obtain the job is attributed to the Toaster/Flyer system I own. The Toaster/Flyer's storyboard interface made it easy to understand the translation from comic book to video at a glance. My client could stand behind me and visually interpret how the edits were going to play. Video output was also a big-

gie. The client was aware of other comparable systems with component output and questioned the Flyer's composite output. But after a quick demonstration of the Flyer's video output to a Beta SP tape, they knew they had a winner.




## Sound Advice

Before I got down to the nitty gritty, I recorded the voices of the narrator and characters to the Flyer. To produce clear sound clips, I connected a microphone to a 12-channel Mackie sound mixer. This mixer allowed me to connect balanced or unbalanced microphones. I found the XLR microphone connection to be outstanding, rejecting any form of hum and noise created by electronic interference from other devices. It is important to adjust the gain and trim by feeding the mixer a normal sound, such as the narrator reading passages from the script. Make sure the input channel does not exceed zero db on the LED meter. This introduces distortion that could end up on your audio clip.

Even after level testing, all was not perfect. The story I was working on was *Dr. Jekyll and Mr. Hyde*. Emotional dialogue was peppered throughout the script. Audio levels went up and down erratically and riding the sound levels with my finger was an impossible task. I had to find a magic bullet. Fortunately, it exists in the form of a sound compressor. I used the Brookline Volume Stabilizer. I love this little black box for three reasons: It's small, simple and compatible. The standard hi-fi output connectors on this box makes an easy connection to the Flyer's hi-fi inputs. I connected a mono phone connector from the sound mixer's main outputs to the volume stabilizer's hi-fi inputs. It all worked together like one big happy family. Now the narrator and actors could deliver their lines without restrictions to sound levels.

I took a complete sound clip recording and broke it down into smaller individual sound clips, removing any of the narrator or actor's mistakes (Figure 1). The sound clips were labeled according to scene and shot number, and stored in separate folders on the audio drive. I cannot emphasize enough how important it is to keep your files and folders organized. When you are dealing with hundreds of sound bites and images, it is easy to lose track and waste precious time. A few minutes now will save you many hours later. Heed this advice or suffer.

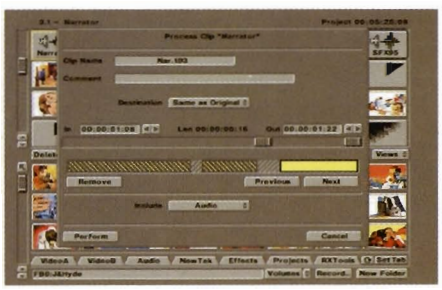


Figure 1: One sound clip was broken into many and any mistakes were removed.

## Scan Man

Another very important step in the preparation stage was the scanning and processing of images from the comic book. The client handed me two copies of the comic book. One I used as a reference and the other as scanning material. I had my doubts about scanning from the comic books. I expected to find low quality images that look fine to the human eye on the printed page, but completely unacceptable when enlarged on the television screen. That was not the case. The printing quality of this comic books is superior. The art was printed on glossy pages in vibrant colors and the images were sharp. I was told it looked better than the original artwork.

Enter ImageFX, the graphic art tool that every Amiga owner should have. ImageFX was used for much of the image preprocessing. By simply separating the pages, I avoided scanning in distorted images caused by the comic book's binding. I placed each page on a flatbed scanner and used the scanner controls in ImageFX. Let me make it clear that even though you've heard repeatedly about 72 dpi scanning being as clear as video resolution, think again! I did a little test where I scanned an image at a setting of 72 dpi and at 150 dpi. I scaled both images down to 752 x 480 and saved them as Framestores. I viewed them back-to-back on the Toaster with a split screen effect between DV1 and DV2. The 150 dpi scan is noticeably sharper. Sharpness does not improve beyond 150 dpi, but it proves that you can get a better image by scanning at a higher dpi setting and scaling down.

Also, I had to determine which images were static and which images were going to move. Move? What I mean by *move* is panning across an image or tilting it without it leaving the frame. An even more frightening thought was zooming in or out. Imagine all those ugly pixels. You may have experienced the ugliness of pixels when you had an object in LightWave 3D too close to the camera with an image mapped onto it. Sure, pixel blending and antialiasing an image map is supposed to take care of that, but it is not a cure all that ends all. You may not get blocky pixels, but you'll get blotchy ones. In the case of the project I was doing, I had to get in really close. I had to scan images at a higher resolution, sometimes reaching 250 dpi. I was quite safe from pixels at this resolution. Just as a warning to those of you who have a small amount of RAM on your Amiga: Scanning at higher settings creates large image files.

## Paper Grain

On my first scan, I noticed paper grain. The scan seemed to resemble a fifth generation film print showing at my local library. ImageFX solved this prob-

lem quickly. First I scanned and saved the images as IFFs to a single directory. Then I took the images that seemed to have the worse grain and loaded them into ImageFX's preview screen. Under the toolbox control panel, I set the region to Full. I then selected the Convolve menu and clicked the Blur button, opening its control panel. I left the default setting alone and clicked OK. At this point, I found either the blur removed all the grain or left some. If I still saw grain, I clicked Undo and tried blurring at a higher setting. I kept repeating this until I found the right setting. Next, I wanted to sharpen the image. But I had just blurred it! Blur removed the grain and softened the picture. Sharpen brings back the sharp picture without grain. When I clicked the Sharpen button under Convolve, I got the Sharpen control panel. I repeated the steps I did with Blur until I got the desired results. (Make note that ImageFX 2.6 has a Remove Grain button under Filter, and this may be all you need.) At this point I was prepared to batch process all my images.

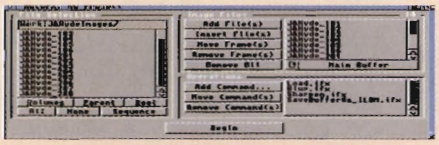


Figure 2: ImageFX allows ARexx scripts to be used.

### AutoFX Automation

Under the Hook menu I selected AutoFX. AutoFX allows ARexx dummies like myself to string together pre-made ARexx scripts to perform a complex action on a series of images (Figure 2). In the file selection requester to the left of the AutoFX interface, I located my files and selected all of them. Then under Image Files I clicked the Add File(s) button. This copied all the files selected under File Selection to the window under Image File(s). Finally, the Load.ifx script appeared in the Operations window by default. I clicked the Add Command button and selected Blur.ifx, Sharpen.ifx and SaveBuffer-As_ILBM.ifx. They all loaded into the Operations window under Load.ifx and in the order they were selected. I clicked the Begin button at the bottom. The screen jumped over to the ImageFX preview screen. Automatically, the first image loaded and the Blur control panel popped up. I entered the appropriate number I had discovered to remove the grain. I clicked OK. Then the Sharpen control panel popped up. I entered the number I found to work in my earlier tests. I clicked OK. Another control panel popped up asking where to save the images and if I wanted a file extension. I entered the information and clicked OK. Every image selected was processed and saved.

### Touch-Up the ImageFX Way

Now it was time to put my skilled hand to work. I had to meticulously remove word bubbles from every image. Talk about time consuming! The ImageFX tool I found most effective for this job was the Pantograph Draw Style (Figure 3). I double-clicked the Freehand fill tool and its control panel opened. I selected Pantograph in the Style requester and set it to Source Relative in the Pantograph's Option panel. I clicked OK and returned to the Freehand control panel. I made sure I selected Feather In for Edge. While holding down the Alt key, I clicked a part of the image that has a similar characteristic to the background behind the bubble. Then, after releasing the Alt key, I began to draw a fill line around the word bubble. The word bubble vanished and the area I first clicked while holding down the Alt key replaced it. It blended nicely too with the Feather In effect.

Figure 3: The Pantograph Draw Style.

**"It's important to back up your work with detailed projects like this. I've had some hair-raising moments that cost me weeks of work because I did not back them up."**

It's important to back up your work with detailed projects like this. I've had some hair-raising moments that cost me weeks of work because I did not back them up. The images that were to remain static in the video had to be scaled to 752 x 480 to accommodate the Toaster's frame buffers. Again AutoFX became a lifesaver. I used two scripts besides the Load.ifx script. They were Scale.ifx and SaveBufferAs_ILBM.ifx. I created a new directory to save these particular images in.

### Make'em Move With LightWave

The most repetitive tasks were over and now it was time to bring some life to these images. Many of the images that moved were very large. Some were 1024 x 2000 and others were 1800 x 1440. Sizes were not consistent because of the image's shape and the type of movement planned for it. The closer I had to get to the image, the higher dpi I scanned, resulting in a larger image. I entered LightWave's Modeler and under the Objects menu, selected the Box tool. I did not want to dabble in LightWave's Modeler too much, so I typed the letter (n) which brought up the numeric requester. It already defaults to a setting for a perfect square box. I just changed both the low and high for Z axis to zero and clicked OK. The shape of a box appeared on the screen, so I pressed the return key to make the box into a flat polygon viewable in the 3D world. I gave the polygon a surface name and saved it as PolyFly.lwo.

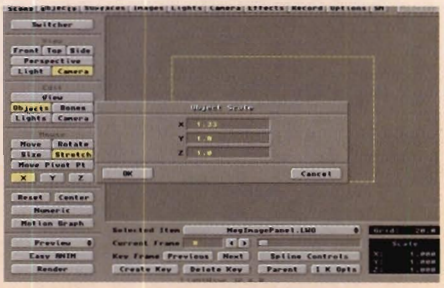


Figure 4: The coordinate box of the layout screen.

In LightWave's Layout, I loaded PolyFly.lwo and one of the images I scanned out of the comic book. Now I needed to map the image onto the polygon. I applied the image as a color map on the Z axis and made sure that Antialiasing and Pixel Blending were off. I turned them off because they consume precious rendering time and Antialiasing will soften the image. I entered 100% Luminosity and 0% Diffuse. These two settings kept my image from being

effected by lights. Speaking of lights, I went to the Objects Panel and turned off Self Shadow, Cast Shadow and Receive Shadow. Next I went to the Lights Panel and turned off Enable Lens Flares and Enable Shadow Maps. The options I turned off in the Objects and Lights Panel all increased rendering time and didn't add anything to what I was trying to achieve.

Figure 5: Calculating the aspect ratio was a breeze.

If I rendered my polygon now, the image map would be distorted. The default 1 m x 1 m polygon I produced in Modeler would fit the entire image, edge-to-edge, onto the polygon ignoring the aspect ratio of the image. To correct this distortion, I used a little trial and error. For example, I had a 1200 x 800 pixel image mapped onto my polygon. My image was a third larger in width as compared to the height. I found my information on resolution size, bits/pixel depth and memory used in the Image Panel. I then selected the Stretch tool (Layout) under Mouse while in Object edit mode. Then I turned off the Y and Z axis buttons to constrain any mouse action to X axis only. I watched the Coordinate box in the lower right-hand corner of my Layout screen until my X axis number read a third larger than my Y axis reading. The result was X=1.330, Y=1.000 and Z=1.000 (Figure 4). I created a keyframe at zero to hold my object's size throughout the animation, then I pressed the F10 key to render. The image looked perfect (Figure 5). Numbers can be entered manually by clicking the numeric button or by typing (n). When I got the hang of calculating the aspect ratio, this process was a breeze.

I had moves that ranged from a simple pans to complex: tilts (bank) and zooms. Keyframes were minimal. Usually there were only two keyframes. Actually three! LightWave forces the user to create a keyframe at zero frame that never gets rendered. This is useful for looping animations like a spinning globe. Rendered frames start at frame 1, and in my case I had to make a keyframe here to start from a static position. I made my third keyframe at frame 120 after repositioning my camera at the end point of my move. Then I clicked Spline Controls and entered 1 in the Tension field. This makes the pan end slowly rather than sudden. I checked my positions by rendering in Super Low or Low resolution. This way I knew I had good composition and wasn't getting any background.

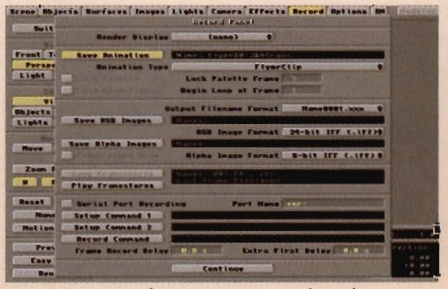


Figure 6: Saving the animation as a Flyer clip.

Now I saved the scene as J&H001.lws (Jekyll&Hyde 001.LightWave scene file). I did not save the object with the image mapped onto it because I was going to use this same object (polygon) for all the other animations. In the other animations all I have to do is stretch the polygon into a different size and save it as a scene file with a different name. LightWave saves a unique object size for each scene. If I had to change the animation, I would load that scene file and map the image associated to the polygon for that scene. This procedure increased the productivity of my work tremendously.

It was time to render the images to the Flyer to create a FlyerClip. I made sure that in the Camera Panel I had Medium Resolution, D2 (NTSC) and Field Rendering selected. Field Rendering is essential to smooth out pans across the screen or you will get a jitter effect. Antialiasing was turned off because an antialiased image was filling the screen.

Next I went to the Record Panel and selected FlyerClip under Animation Type and clicked the Save Animation button (Figure 6). A directory requester popped up. I located one of my Flyer video drives and entered "J&H001Anm" as the file name, then I clicked OK. All I had to do at this point is hit the Automatic Render button. To obtain the highest quality possible, I made sure HQ5 was selected from the Hardware Option Panel. I pressed F10 from the Switcher screen to get to this panel.

## CG and the Flyer

For the opening titles I produced a pre-processed still in black and white and color titles built on top of it using transitional effects. In the Toaster's CG, I loaded the background image and typed out the first line of text. I copied it to the next page. Then I added the second line of text and so on, until I had five pages. I pressed both the Alt key and the F1 key and I got the RexxLauncher file requester. I double-clicked the SaveAllPages.Rexx script. Another file requester popped up asking me, "Save To Where?" I selected a folder I made earlier. The CG rendered out each page to the folder so they are accessible like Framestores when the CG is not loaded. Noticed I said "like Framestores" because these saved pages are not Framestores at all. They are in a proprietary format recognizable only by the Toaster software.

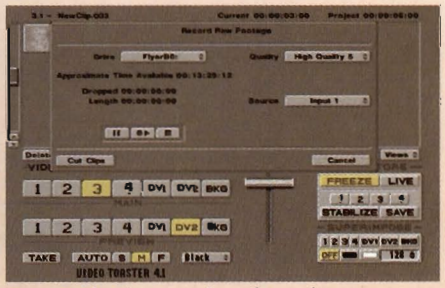


Figure 7: The Flyer's condensed record screen.

For the end titles I did something a little more elaborate. I produced a series of still images with page turns from one to another and recorded them to videotape. Next I produced scrolling titles in the CG that I could key over video footage. From the Switcher's interface I had the scrolling title's crouton in the Project screen and Main 1 selected. I played the video which feed through Main 1, then I double-clicked the scrolling titles crouton. At this moment, I had just enough time to press the tilde (~) key to bring up the Flyer's Record

Figure 8: The Stop crouton was indispensible.

Figure 9: The original page with text.

Figure 10: The image with text removed.

Panel. I found a condensed version that lacked audio level controls and reorganization controls for the hard drives (Figure 7). I did not need them here. I just wanted to save myself a generation by recording directly to the Flyer's drive. I made sure Main Out was selected as the Source and Quality was set on High Quality 5. I did myself a favor by selecting these settings before recording. Now, when I hit the tilde key, all I had to do was click the record button or hit the spacebar. Something like this would have taken ages on a tape-based system. Believe me. I know. I worked on them for six years as an on-line editor.

## Framestores or FlyerStills?

On my system drive I had TIFFs of all the static shots. I could have saved them as Framestores and used them with the Flyer, but the load time would increase and this would present limitations. This means longer Framestore durations would be necessary to accommodate transitional effects. The Editor's ARexx scripts perform nothing less than miracles. One such example is the BatchStills.Rexx script. To use this script I moved the crouton into the StartupScripts folder. Then I clicked the UpdateTools crouton (located in the ARexx/Editor folder) which allowed me to access the BatchStill script from the Switcher's Tool button. After selecting BatchStill, a series of requesters popped up asking to locate the directory of images and which video drive I wanted to record them to. I answered all the requesters and clicked OK. In true ARexx form, the images were all processed to my Flyer video drive with accompanying image croutons. Now my static images could be accessed from the Flyer drive instantly, and would not require a duration longer than two frames. This opens a new world of possibilities.

## Creative Flying

This was my favorite part. It was time to put all the pieces together and watch the program come to life. Even though many of the shots moved, the characters within them did not. So your mind still had to fill in the blanks. Fortunately the comic book artists drew images that gave a sense of movement. To enhance this sense of movement, music and sound effects played a big role. If I saw a laboratory flask shattering on the lab floor I made sure there was a sound clip of glass breaking to enhance it. If the scene was outside with horse and buggies on a crowded street I made sure the ambient sound effect of horses whinnying and carriage wheels moving across cobblestone was in the background. An eerie music score helped to enhance the mood during more frightening moments in the story. When the story shifted to a location like a cabaret, I added ambient bar music to set the mood of that location.

I started off by building separate projects. I had a project for opening titles, introduction, Act 1, Act 2, Act 2 transformation, etc. All these projects were small portions of the whole story and allowed me to be more creative overall. Imagine coordinating over 600 hundred sound clips and video clips in one project! Scrolling could be a nightmare. Later on, I moved an entire project onto the end of another but made sure I ended and started my projects with a black frame or *fill* as they call it in the movie business. I removed the fill after I joined the two projects. Also, I added overlapping sound to hide where I joined the projects. The addition of the Stop crouton in the Effects/Control folder was indispensable. The Flyer stops sequencing up to the point where this crouton is located. If you have a long project and you just want to see a section without waiting for the whole project to sequence, this baby is for you (Figure 8). Do not get mad if your images stop, but your soundtrack keeps playing. Stop is doing its job. It will stop when all clips before it end, even overlapping audio clips.

During one of the transformations of Dr. Jekyll into Mr. Hyde, I wanted to create a hip effect without using transitional Toaster effects. The simple fact that the Flyer was able to retrieve FlyerStills instantly and display them in two frames allowed me to create a pseudo animation. Even though I was dealing with two frames instead of one, I was still getting better animation than Saturday morning cartoons. I placed several FlyerStills back-to-back and set all their lengths to two frames. A quick way of doing this was to select all the FlyerStills involved and click the Control button. The first FlyerStill's Control panel popped up. I entered zeros from left to right under Length and in the last space enter 2. By now pressing the right Amiga and the (c) key, it copied my entry into memory. I clicked Okay. The next FlyerStill crouton panel popped up. This time I placed your cursor inside the Length's numeric field and pressed right Amiga and the (v) key. This pasted the value I entered in the previous FlyerStill. This is not a trick I discovered—it was in the manual that came with the Flyer. There are plenty of tips like this hiding within the pages of the manual. Read it.

**"The simple fact that the Flyer was able to retrieve FlyerStills instantly and display them in two frames allowed me to create a pseudo animation."**

VTU

*Alex Lugones founded Wildseed 3D/Interactive. He has a consortium of talented artists to provide high-quality 3D animations and effects for television, corporate clients, Web sites and interactive multimedia. He can be reached at wildseed@mail.idt.net.*

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# Don't miss another issue.

# clearing the way

# NAVIGATING LEGAL CLEARANCE ISSUES

by Jill Alofs

*Editor's Note: With CD-ROMs full of "royalty free" clips appearing for Video Toaster Flyer owners, the question of how "royalty free" they are becomes an important one. The same goes for the video footage you use in your Toaster and Flyer productions. With that in mind, we contacted one of the foremost authorities in clip clearance, Jill Alofs, and asked her to inform* Video Toaster User *readers about the important things to consider when looking for clip footage. Jill Alofs owns Total Clearance, Inc. and worked for Lucasfilm Ltd. and LucasArts Entertainment Company in clip clearance. Her impressive list of clients include such big names as Microsoft Corp., PBS, TV Guide, Parker Brothers, and Sony Electronics, to name a few. I hope you'll take Ms. Alofs expert advice into consideration when gathering footage for your Toaster, Flyer, and multimedia projects.*

Clearances to use pre-exist
materials in new projects can
achieved with relative ease—if
know the steps to take to cl
them. Let's say you're a develo
and you found the perfect film
and photo for your new CD-R
project, or you have created
original visuals but found the ideal song that will pull
whole product together. What do you do? You assu
there must be hundreds of people you'll need to call
plead for permission, but you spent most of your mo
on the production of the product and now have little
for licensing fees. You have even less time available to
out what content needs to be cleared, where the pe
are that truly own the material and gain their permiss
Sound familiar? This is an all too common situation
developers and producers who are creating CD-RO
CD-I's edu-tainment products, videos and Web sites. W

### You Can Get There From Here

First, don't panic. These issues can usually be addressed without tremendous pain or long-term suffering. The fact that you are considering these issues *at all* puts you one step ahead of the pack. It is best if you consider clearance issues as early in the creative process as possible, thus increasing your negotiating power and enabling you to make a substitute content replacement if absolutely necessary.

Second, be as flexible as possible on the content you seek to include. Have an A list and a B list of material. If you must have a photo, or a certain film clip or song, then know that ahead of time and start clearing that item immediately.

Third, decide how you plan to include the material, and if you plan to alter the original material at all. If you plan to color the photo or painting, or blacken the billboards of advertising in a baseball clip, then you need special permission. Before making these alterations, you must contact and the copyright holder and obtain their permission for the alterations. You will also want to consider the issue of moral rights, especially if you plan to use European content or to distribute in Europe.

Fourth, think of all the minimal uses and terms you will need if the project is a moderate success, and then think of all the added territories and years of distribution you'll need if the product is a huge blockbuster success. By planning ahead, you can seek to include options in your original agreements which take into account these possibilities, yet do not require you to pay for them now.

### Clearing Sports

The next step is to look at the material you seek to include and make a list of all the possible rights holders involved for a film clip (i.e., studio, actors, stunt performers, directors and writers union, actors union, any underlying music, logo and trademark issues, etc.). For a photograph, the issues involved may be the photographer and/or the copyright holder, the individuals depicted in the photos and any logo or trademark issues. Again, the issues for each type of content and each usage varies and requires a careful eye.

For example, I had a developer come to me once who had some experience in clearing content. He was seeking to include a football clip and had identified the logos and trademarks of the leagues and the teams, the coaches, the voice over talent/announcer, the umpires and the copyright holder and had obtained permission from all these parties. He assumed he did not need to clear the players since they had helmets on and could not be seen. He was mistaken. In sports clearance, a player's number distinguishes him and makes him recognizable. Even if you do not see a player's face, his number on the uniform requires clearance.

Another sports example comes from a developer who was including baseball clips in his CD-ROM. We had cleared all the parties who retained rights to the clip, except one advertiser who was seen in the outfield. This advertiser had a conflict of interest and could not grant the needed permission for my client. The solution was to black out the billboard, but only after obtaining specific permission for this alteration from the copyright holder. Additionally, we had offered the viewed players all the same rate, a *favored nations* deal, and while most of players agreed to the fee, there were three outfielders who thought they deserved more money and would not accept the negotiated fee. After a few discussions, I asked my client if they really needed to have the outfielders in the clip or if that part of the clip could be edited. The client agreed to editing out this clip so that the players would not be needed. However, before editing them out I asked my client to wait until I had one final discussion with the outfielders to see if they would change their mind and agree to the favored nations deal. Once the players heard they would not be in the clip if they did not agree to the rate, as all the other players had, they agreed to the fee. There are many ways to work the deal so everyone wins.

**"I have found being informative, clear and up-front is the best way to go. There are no set rates for the reuse of content into new media technology, so this is where you can be creative."**

### Think Like a Detective

After you have identified all the issues, the next step is to locate all the rights holders. Try the guilds and unions or the place where you first saw that photo, or the album cover that listed the recording information on the song you want to include. In this stage you must act and think like a detective and use all sources to locate the rights holders. And remember, if a rights holder refuses to grant permission, you *cannot* use the clip or photo.

I worked with a client once who had acquired copyright permission to 100 photos from a stock house and thought they were fully cleared for usage. However, when we spoke, I asked the developer if he had received a representation and warranty from the stock house that they retained all the rights, including any and all third-parties, or if the developer had only obtained copyright permission. It turned out the stock house did not grant the third-party rights and there were depiction issues requiring clearances. The developer thought he was clear because he paid for the photos and acted in good faith. However, this did not insulate him from liability and the responsibility to clear the third-party rights (i.e. photographer, celebrities, logos, etc.). In this instance there were many celebrities viewed in the photos, and each person or their agent or trustee needed to be contacted to seek permission for the re-use of the photograph.

### Negotiating a Creative Deal

Once you have located the rights holders, it is time to provide them with a description of your project and your request. It is best to keep things simple and honest. Once you have faxed the request then you need to follow-up with a phone call to discuss the project, answer their questions and negotiate the deal. Remember, many people are not multimedia experts and may need to have your project and your request explained in layman's terms. Plus, they may be afraid to ask and would just rather deny your request. Again, keep it as simple as possible.

Clearing the Way continued on page 48

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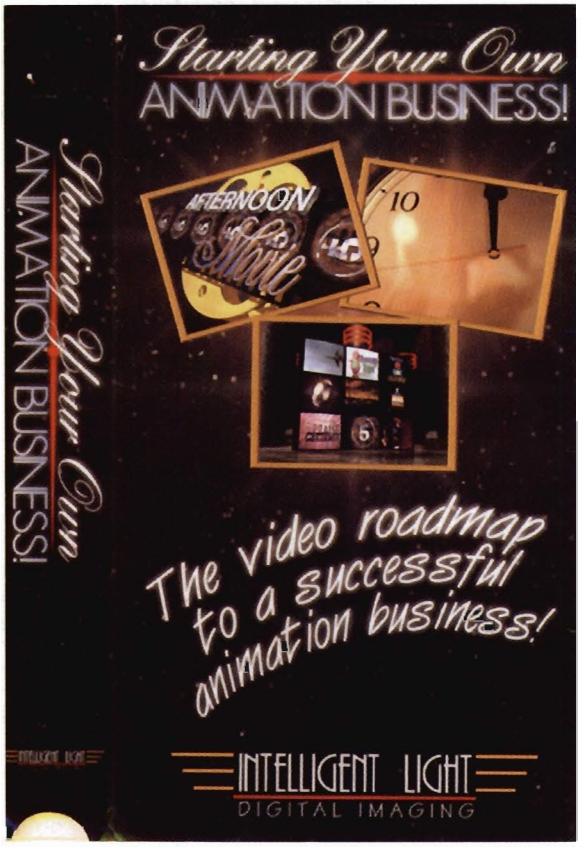
FOR INFORMATION CIRCLE 108

# Lighting the Way

## Get Into Animation with Intelligent Light

by Joe Clasen and Susan Ishida

Interested in starting your own animation business? Your timing is excellent. The demand for good computer animators is high and still rising. Of course, there's more to running a successful animation business than knowing how to animate. *Starting Your Own Animation Business*, created by the good folks at Intelligent Light Digital Imaging (retail price: $59.95), is designed to help guide hopeful entrepreneurs through the basics of starting up and staying afloat as an independent animation house. Issues discussed include figuring out how much to charge your clients, creating an effective demo tape, marketing ideas, tactics for collecting unpaid fees and a variety of other useful topics. We're pleased that Intelligent Light has chosen to tackle this important subject. We just wish they'd made a little more effort to take advantage of their own talents as animators and video producers to create a better product.




### The Good

Most of the information on this tape is good and useful, particularly for animators completely new to the world of small business. The host, Tom Rennen is an effective and dynamic speaker who is clearly knowledgeable and enthusiastic. Most of the important business issues for animators who are ready to go professional are discussed.

Don't know where to begin figuring out how much to charge for your services? This tape gives specific instructions to help you arrive at the magic number. Wondering how to legally do business as "Bob's House of Animation and Taxidermy"? This tape will tell you where to go and what papers to file. If you're thinking about starting your own business, but have no idea what you're getting yourself into, this tape will probably give you some idea of what's involved. If you're already in business, but are still feeling a little lost, this tape may offer some guidance. The sections on collecting money from deadbeat clients, negotiating and closing deals, working with ad agencies, and the importance of the Internet are all very useful and informative.

### The Bad

Other segments of the tape, however, are less successful. The marketing section is extensive, but is devoted almost entirely to variations on "cold-calling" and fails to mention other important opportunities, like professional and social networking through user groups, professional and special-interest groups and clubs, etc. The segment on filing a D.B.A. (Doing Business As, or fictitious name for business purposes) is good, but should have been followed by some mention of the need to also file for a business license.

Most communities require some type of home business license, available from your local City Hall for a modest annual fee. If you live in an area that is partly residential and partly commercial, you may run into zoning problems, but only a trip to City Hall will resolve these questions. You may also need to obtain a resale number from your local State Board of Equalization. Unless you live in a state with no sales tax, you may need to collect tax on certain types of business transactions. For specific information, contact your local state board. Most, if not all, offer a variety of publications that are generally free or available for the price of postage. Most probably also have a Website.

### The Ugly

The segment on creating "the PERFECT demo tape" is a glaring missed opportunity and brings up one of our biggest complaints with this videotape. As with the rest of the tape, this segment features the presenter talking, in this case about good and bad demo tape elements. For some unfathomable reason, we never get to see any of the things he talks about. Where are the examples of the good and bad demo reel elements described? Why videotape a guy talking about animations and never

show any? This segment emphasizes the importance of making a good, strong first impression, and being creative and visually engaging. Great advice! If only they'd taken it themselves.

The first sign of trouble with this presentation begins with a sort of warning: "The following program contains a boring, talking head." We thought they were kidding. They weren't. In Tom's defense, he's a good presenter, but 2 1/2 hours of a single camera shot of any talking head is annoying. In this case, the addition of some graphics would have not only added visual interest, but might have been useful to illustrate many of the ideas discussed. For a videotape about the animation business, created by an "Animation, Special Effects, Multimedia, Television and Film" company, this tape is oddly devoid of any type of graphics. Apart from a 10 second animated introduction (repeated again at the end of the tape), this tape contains no animation or graphic elements at all except for an occasional black and white title card and a few seconds of closing credits.

**"If you're considering getting into the business and you really don't know where to start, this tape might help point you in the right direction...Also realize, however, that you'll still need to do a lot of research on your own."**

An explanation for this is provided at the end of the tape. The concept was to keep the production as simple and inexpensive as possible in order to provide the most information for the least amount of money. Frankly, it concerns us more than a little that an animation company selling advice to animators seems to be saying that animation and graphics are unnecessary frills which add more to production costs than they do to overall value and content. That may be a marketing strategy for selling a tape, but I'll bet that's not the message they'd like their animation clients to hear. If you want to list a lot of information as cheaply as possible, put it in print. If you're not going to take advantage of graphics, why put the presentation on videotape? Also, if you feel you must apologize for your work, then realize there must be something wrong with it. In a small company business, a string of several successful contracts can be brought to an end by a single poor product. Avoid having to make apologies when delivering a piece by always producing the best work possible.

Certainly value is important, particularly for animators starting a new business on a shoestring budget. Intelligent Light would have been even more intelligent if they'd included some of the great inexpensive and free resources available to new animators and novice entrepreneurs.

### That's All Folks

Should you buy *Starting Your Own Animation Business*? That's up to you. At $59.95 it's neither exorbitant nor a great bargain. If you're considering getting into the business and you really don't know where to start, this tape might help point you in the right direction. It does contain a lot of useful information. Some people really hate to read (of course, you're reading this, aren't you?) and if you're more likely to absorb information from a video than a book, you might consider purchasing the tape. Also realize, however, that you'll still need to do a lot of research on your own. Whether it's at the local bookstore or on-line, whether it's at a LightWave user group or the local Elks chapter, the information you need is out there. If it all seems like too much work and trouble, you may want to rethink going into business for yourself. Running a small business requires no small amount of effort. But if you're up for the challenge, it will all be worthwhile!

VTU

*Joe Clasen and Susan Ishida run Joe's Desktop Bar & Grill. Drop by the Los Angeles Video Toaster User Group booth at the VTU Expo and say hello! They can be e-mailed at SurfrJoe@deltanet.com or Susan3Diva@aol.com*

## OUR TWO CENTS

The subject of starting and running a small business is pretty vast. We can't blame Intelligent Light for not being able to cover every aspect of the subject. It would be virtually impossible to cram all the necessary information into one tape, much less make it interesting and accessible to the viewer. Luckily, the solution is both easy and cheap. Books! Visit your local bookstore or library and you'll find a variety of books specifically about starting up and running your own small business. Many are available as workbook type paperbacks complete with sample contracts, ledger sheets and various types of worksheets. These books will be able to go into much greater detail than a videotape can cover. A wealth of information is also available from the IRS, the Small Business Administration, your local State Board of Equalization and a number of other agencies. The IRS alone has dozens of free publications on subjects like the business use of your home, how to calculate tax deductions for business equipment and so on. No, these booklets aren't thrilling to read, but they offer cheap and accurate information straight from the source.

**"For animation-related advice and support, we strongly recommend joining a users group or club. Can't find a group you like in your area? Consider membership by mail."**

For animation-related advice and support, we strongly recommend joining a users group or club. Can't

Lighting the Way continued on page 57

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## SCHEDULE OF EVENTS

### TUESDAY, NOVEMBER 5

| | |
|---|---|
| **9:30am – 5:30pm** | NewTek University — Choose from over 24 specialized classes in beginning to advanced Video Toaster, Flyer and LightWave 3D techniques. |

### WEDNESDAY, NOVEMBER 6

| | |
|---|---|
| **9:30am – 5:30pm** | NewTek University Continues |

### THURSDAY, NOVEMBER 7

| | |
|---|---|
| **9:30am – 5:30pm** | NewTek University Continues |
| **9:00am** | Keynote Speeches |
| **10:00am – 6:00pm** | Exhibits Open |
| **10:30am** | Specialty Session: Digital Technology on the Internet |
| **12:00pm** | Strategy Session — NewTek's Strategic Direction in Video |
| **1:00pm – 5:00pm** | Technology Forums — Sun Microsystems, Digital Semiconductor, Intergraph, Apple, Intel and Amiga! |
| **6:00pm** | LightWave Theater • Wavey's '97 Call to Entry • Drawings |

### FRIDAY, NOVEMBER 8

| | |
|---|---|
| **9:30am – 5:30pm** | NewTek University Continues |
| **9:30am** | Specialty Session: 3D in Print |
| **10:00am – 6:00pm** | Exhibits Open |
| **10:30am** | Specialty Session: Artists in Action and the Tools They Use |
| **12:00pm** | Strategy Session — NewTek's Strategic Direction in 3D |
| **1:00pm – 5:00pm** | Technology Forums — Sun Microsystems, Digital Semiconductor, Intergraph, Apple, Intel and Amiga! |
| **5:00pm** | Grand Prize Drawing! Win a DEC Alpha compliments of DeskStation Technology |

# THE WEVA REPORT

by Stuart Sweetow

## Wedding Videography Leaps Forward

Wedding videography, once considered the stepchild of commercial videography, is now one of the fastest growing segments of the video production service industry. Camcorder manufacturers are listening to wedding videographers when they design new products; brides are recognizing the difference between Uncle Charlie's home movies and a professional video; and high-level production values are going into wedding documentation.

At the Sixth Annual Wedding and Event Videographers Association convention, held at the end of July in San Diego, wedding video pros from around the world showed their tapes, shared war stories and learned professional marketing and production techniques. With over 1,400 attendees, hundreds of seminars and exhibits, with the likes of Sony, JVC and Panasonic in attendance, the WEVA convention is one of the largest shows for video producers.

A highlight of the convention was the awards ceremony for creative excellence in wedding videography. Bronze, silver and gold awards were presented for such categories as ceremony coverage, the reception, demo tapes and even Bar Mitzvah tapes. Nearly all the gold winners used the Video Toaster for effects. Some even used the Flyer.

### Non-Linear for Wedding Videos?

The jury is still out on whether or not non-linear editing is feasible for weddings. With two cameras gathering about two hours of footage each, the sheer volume of digitizing is going to require a massive investment in hard drives. Some seasoned pros, however, such as Justin Appi of Video Affair in Connecticut have made the commitment to non-linear. Appi uses the Flyer to edit all of his weddings. His system sports 39 GBs of hard drive space, and he has figured out ways to make his Flyer *fly*. He shoots most of the wedding with a single camera, but at a few routine moments in the ceremony, he locks down his camera and quickly moves down the aisle to grab a few cutaways with a little DV camcorder he packs just for these shots. This shooting efficiency helps him conserve hard drive space for his editing.

The exhibit hall included manufacturers such as NewTek, Panasonic, JVC and Sony.

Several other non-linear users use their linear decks for the majority of the wedding editing and leave non-linear for the creative montages and reception coverage. This hybrid approach to editing was discussed at the manufacturers' panel at WEVA.

New Tek's Bob Anderson, speaking at a panel of manufacturers, suggested using third-party tools such as Control Tower from Visual Inspirations and Flight VCR from Atomic Toaster to control your decks when editing with the Flyer.

### Wedding Cams and Gear

WEVA has a committee that advises video manufacturers about equipment designs that its 4,000 members would like to see. With this large market of videographers who know what they want, manufactures are listening.

JVC listened to WEVA when they designed their GY-X3U professional camcorder. Wedding videographers said they didn't need an interchangeable lens on a three-chip design. That shaved off about two pounds in weight and several hundred dollars in price. WEVA members complained about the Panasonic AG-455 because it lacked a manual zoom and quick manual focus. Panasonic listened with the redesigned AG-456.

The exhibit hall at the WEVA convention showed equipment and accessories specifically designed for wedding and event videographers. The Rader Remote-Cam is a remote control system that comes with or without a camcorder. It lets you position cameras where ministers

won't allow camera operators to stand. The remote control lets you pan, tilt and zoom—plus it has a three-inch LCD monitor so you can see what you are shooting with that camera.

Elite Video Products showed their diversity wireless microphone system that uses two antennas to maintain a clear signal without interference. This professional unit has a special belt pouch and rechargeable battery for the receiver. They also showed their BP-4 video processor which ensures that your bride's dress will stay white even if your auto-white balance camera distorts the color.

account all the time you plan selling weddings, shooting and editing them, advertising and overhead the $1000 shooter nets about $3.41 per hour, the $2000 about $65 per hour and the $3000 about $110 per hour.

Art Kade from Carlingsford, Australia said you really need to have confidence in yourself to feel that you are worth the $2000, $3000 or more you plan to charge to shoot a wedding. Kade has several add-ins that boost the price of his wedding videos. One idea he uses is to shoot a "romantic beginnings" vignette several weeks before the wedding. The bride and groom act out a scene that shows how they first met, and Kade's creative camera angles, Toaster effects and slow motion add to the production values. He shows this tape at the wedding reception on a big screen.

Tom Quiner of Breakthrough Marketing conducted a seminar on "The 10 Biggest Marketing Mistakes and How to Avoid Them." He conducted a survey of brides to find why they want videotaping. Quiner suggests to design your brochure around the interests of the brides, not around your equipment and techniques. For example, brides want the video to show future children, to experience their vows again and to see and hear friends and family. Quiner showed a brochure one of his clients uses that speaks of the wedding video as an heirloom to pass on to your children.

Dynasty Video's Gib Randall gives a workshop on lighting tips and tricks.

WEVA President Roy Chapman gives away a Panasonic AG-456.

Panasonic's DS-840 slow motion S-VHS editing deck is a big hit among wedding videographers. Hardly a wedding demo was shown that did not incorporate slow motion shots of the bride twirling in her dress or frolicking with her groom.

### Marketing Video Services

About half of the WEVA attendees run their businesses full-time. This is a big increase from the early days of weekend videographers. To purchase and maintain professional equipment, wedding and event videographers need to charge a decent fee for their services.

Several seminars explained how to do this. John Goolsby, a Southern California videographer gave a seminar entitled "How to Price Your Wedding Services." His answer to the question: "how do I get more money from my clients?" is a simple one. "You ask for it," says Goolsby. He showed a sample spread sheet projecting sales and expenses from the videographer getting $1000, $2000 and $3000 for shooting a wedding. When you take into

***"The one-deck transition will look nice over just about anything—even talking heads. However, in a production with many scenes, you might want to mix and match the two schemes as appropriate to your material to introduce some variety."***

### Panel of the Brides

One of the best marketing seminars was a panel of eight brides who recently had their weddings taped. They couldn't care less how many chips your camera has and were leery of tapes with too many special effects. They wanted a tape that showed their special day clearly and completely.

Initially, many were hesitant to budget anything for videography, since it is a new service and they didn't understand how they would use it. But all of them said the video had much greater value to them than they had anticipated. One woman said her tape has been viewed 50 times by family, friends and herself.

Another panel of wedding and party consultants, included a woman who said she pulls out the video of her wedding when the relationship gets tough. These consultants have only recently come to understand that a wedding video where you can hear the vows and feel emotion is at least as valuable as the photos. Their words of advice for videographers is to "clean up your act." They expect the videographer to dress as well as the guests at a wedding and suggest that even if the videographer meets with prospective customers at his home office, he should have a studio that is neat, clean and free of roommates.

The problem is, photographers

make a bundle more on each wedding than do videographers. Videographers spend time setting up equipment and editing the videos. Equipment costs are greater and they don't make that much selling video copies. Yet photographers get hired more frequently and make more money per wedding. And they are frequently the first service to be hired for a wedding. Need we say what service is the last to be hired?

This happens because photographers are established and organized. Wedding photography has been around almost as long as photography itself. Photographers have a 100 year head start over videographers. Organizations such as the Professional Photographers of America provide training and marketing assistance to their members. Professional associations offer their members contract forms, legal assistance and even magazine advertising to brides with referrals to local photographers.

With high quality camcorders, wireless microphones and reasonably priced editing equipment, wedding and event videography no longer has to take a back seat to still photography. WEVA has been vigorously working to convince brides of the value of a video document for their special day. In addition to the conventions, WEVA has a committee to advise equipment manufacturers, an excellent newsletter, a website (www.weva.com), a directory of local associations and an information hotline.

The $200 wedding videographer will never go away, nor will Uncle Charlie with his home movie camera. Fortunately, customers are getting wise to cheap video services and are recognizing the value of a professional video. It is up to the videographer to come through with a professional image both in the videotapes he produces and in the way he runs his business. VTU

NewTek's Bob Anderson speaks about the future of digital video.

WEVA's "Sundown Shootout" let attendees compare 12 cameras in low light.

*Stuart Sweetow has over 23 years experience in video production and owns Audio Visual Consultants, a production facility in Oakland.*

EDITORIAL EVALUATION
Circle number on Reader Service Card
I found this article:
Very Useful Circle 045 | Useful Circle 046 | Not Useful Circle 047

Clearing the Way continued from page 39

I have found being informative, clear and up-front is the best way to go. There are no set rates for the reuse of content into new media technology, so this is where you can be creative. There are hundreds of ways to negotiate creative deals simply by considering all you have to offer (i.e., exposure, credit listings, etc.). Guild and union payments still need to be made, but creative negotiations are what makes video, multimedia and Web site usage deals the most fun right now. Don't be intimidated by your own desire to include the selected material. It is in everyone's best interest to re-use pre-existing content, and when a fair deal is accomplished, everyone wins.

### Don't Be Discouraged

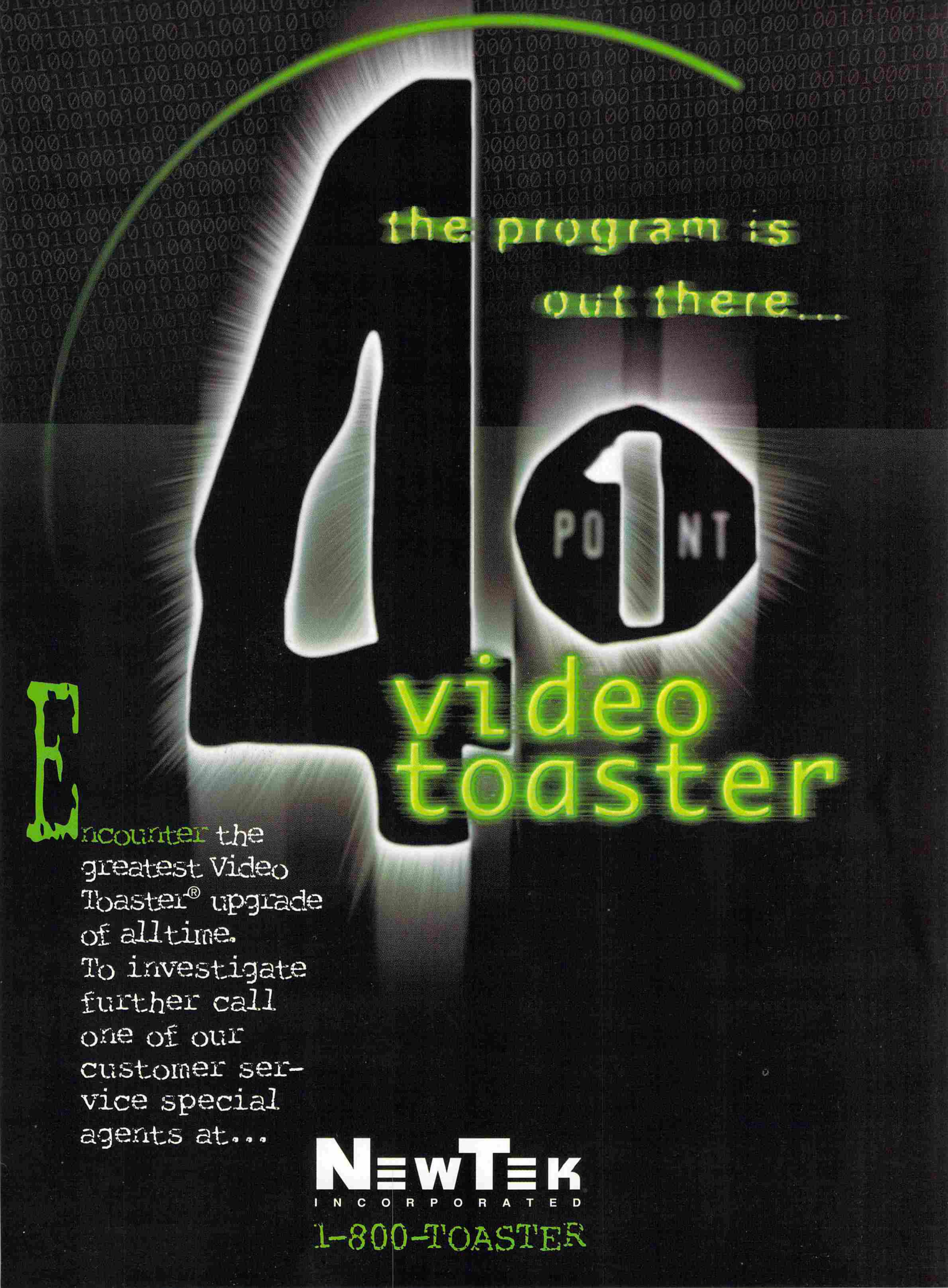
I recall working with a developer who wanted to use 50 different film clips for his multimedia project. We had cleared all the material, then at the 11th hour he wanted to add one song. We researched and identified the music publisher and the label who held the master recording rights, but the recording my client wanted was performed by a very popular British band that would have cost a great deal of time and money to clear. I suggested he re-record the song with a local union band. Thus, we only needed to obtain clearance from the music publisher while my client hired the band and paid the applicable musician union fees. He ended up saving an estimated $10,000 and obtained even broader rights for a longer term. He was thrilled with the final sound of the song in his product.

**"True, it is not a cookie cutter rate system, and this may cause some initial frustration, but the ultimate deals to be achieved can be rewarding."**

We have worked out some incredible deals with trustees who seemed like they would never return our calls or agree to the re-use, but finally did—and at even lower rates then were expected. Along the way, we have established many long-term relationships we call upon frequently. There are many benefits to using pre-existing material as well as some great deals to be made—and it's fun too!

True, it is not a cookie cutter rate system, and this may cause some initial frustration, but the ultimate deals to be achieved can be rewarding. There is some incredible content out there already created and waiting to be re-used in new technology products. All you have to do is start early, be as flexible as possible with your content selections, and be as creative with the deals as you have been while creating your product. It will require some effort to obtain the proper clearances, but it's nothing near as dreadful as you have heard. The rewards of careful clearance consideration can be a spectacular addition to your new product. VTU

*Jill Alofs founded TOTAL CLEARANCE, a full service clearance company. Reach her at e-mail totalclr@linex.com or phone 415-389-1531. Visit their WWW site at http://www.totalclear.com.*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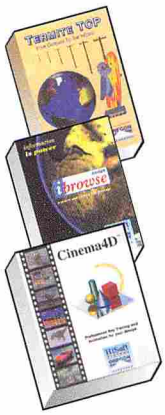


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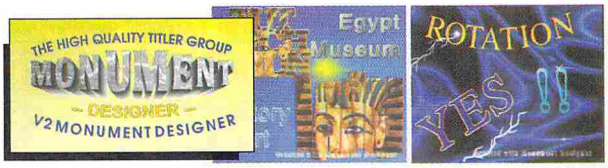


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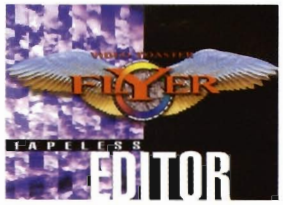


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# VTU Expo '96

## A Preview of This Year's Hottest Event

by the *VTU* Staff

Expect lots of new faces (and corporate logos) at the third annual *Video Toaster User* Expo, which runs Nov. 5-8 at the Universal City Hilton Hotel and Towers in North Hollywood. Located across the street from Universal Studios, the hotel will become the "Center of the Video Toaster and LightWave 3D Universe." And at the center of the center at this year's event will be LightWave for the Macintosh.

NewTek, Inc., with help from Apple Computer, Inc., is hoping to make quite a splash at the Expo as it celebrates LightWave's arrival on the Macintosh, the platform of choice for many creative artists in traditional printing and 2D environments. Few NewTek products have been more eagerly awaited, says Jim Parsons, director of strategic marketing.

"The Mac is a platform that current and potential users have continually asked to have LightWave 3D available for," Parsons said, adding that NewTek strategists saw "an opportunity (for LightWave) to be the key application in this environment."

LightWave for the Mac will be similar in almost all respects to versions for the Windows and SGI. Many plug-ins, such as Positron Publishing's MeshPaint, also will migrate to the new platform. One difference is the substitution of Apple's QuickDraw 3D for the OpenGL capability found in the Windows and SGI versions. QuickDraw 3D provides similar real-time shaded views and interactive lighting. Apple plans to make the technology available for WIntel systems, adding a new dimension to Microsoft-SGI race to dominate in real-time environments.

Of course, LightWave on the Mac isn't the only attraction. NewTek should be shipping a new Amiga version by the Expo. And all releases, except for the SGI, will be priced at $1,495.

This year's Expo boasts an expanded four day tract of specialized training seminars, the premiere of LightWave Theater, Technology Forums centered around Sun Microsystem's Java, Apple's QuickDraw 3D, Digital Semiconductor's FX32!, Intel's MMX technologies, Intergraph's Render GL, and Amiga's 6000T. There will also be noon-time Strategy Sessions from NewTek and Specialty Sessions covering such topics as "Digital Technologies on the Internet," "3D to Print" and "Artists in Action and the Tools They Use." Show sponsors, DeskStation Technology, Intergraph, and Viewpoint Datalabs have donated valuable prizes to be given away in drawings throughout the exhibit days. Can you say 500 MHz Raptor ReFlex Alpha workstation for *free*?!

The NewTek University Training Seminars commence bright and early Tuesday morning and will cover in-depth beginning to advanced LightWave 3D, Video Toaster and Flyer topics until you're ready to drop on Friday evening at 5:30pm. Training instructors include *VTU*'s "Dr. Toaster" columnist and author of the *LightWave 3D Power Guide,* Dan Ablan, NewTek's own Bob Anderson, *VTU* training tour favorite Stan Shumlick and more! Don't miss *LIGHTWAVEPRO* editor in chief John Gross in an open forum to answer your advanced LightWave questions on the final night of the Expo.

Class subjects include, Modeler tips and tricks, organic effects, logo basics, character animation, ToasterPaint techniques, 3D composting, titling and

Toaster CG, lighting, Flyer techniques, live taping with the Flyer and much more.

Shop for bargains as the *VTU* Expo exhibitors open for business on Thursday and continue into Friday, showing the latest and best technology. Keynote speeches will kick off the exhibits on Thursday morning and look for LightWave Theater on Thursday night and the Call to Entry for the 1997 Wavey Awards.

Get the best deal by pre-registering with Winnett Expo Services (1-

800-643-3976) before November 1. An exhibits pass is only $20 and includes exhibits, and all Free Sessions, Keynotes, and Technology Forums offered on Thursday and Friday, November 7 and 8. NewTek University Seminar registration is only $89 per class, $189 per day, $399 for the mini-passport, and $499 for the full passport which will enable you to gain the benefits of all four days of specialized instruction.

# SCHEDULE OF EVENTS

**Tuesday, November 5**

9:30am - 5:30pm NewTek University begins—Choose from over 24 specialized classes in beginning to advanced Video Toaster, Flyer, and LightWave 3D techniques.

**Wednesday, November 6**

9:30 am - 5:30 pm NewTek University classes continue.

**Thursday, November 7**

9:30 am - 5:30 pm
NewTek University classes continue.
9:00 am Keynote Speeches
10:00 am - 6:00 pm Exhibits Open
10:30 am Specialty Session—Digital Technology on the Internet
12:00 pm Strategy Session—NewTek's Direction in Video
1:00 - 5:00 pm Technology Forums —Sun Microsystems, Intergraph, Digital Semiconductor, Apple, Intel, and Amiga
6:00 pm LightWave Theater
• Wavey's Call to Entry
• Prize Drawings

**Friday, November 8**

9:30 am - 5:30 pm NewTek University classes continue
9:30 am Specialty Session—3D in Print
10:00 am - 6:00 pm Exhibits Open
10:30 am Specialty Session—Artists in Action & The Tools They Use
12:00 pm Strategy Session—NewTek's Strategic Direction in 3D
1:00 -5:00 pm Technology Forums —Sun Microsystems, Intergraph, Digital Semiconductor, Apple, Intel, and Amiga
5:00 pm Prize Drawing! Loaded 500 MHz DEC Alpha from DeskStation Technology

# TRAINING SEMINARS

**Tuesday, November 5**

9:30 am - 11:30 am
•Beginning LightWave Techniques-Brad Peebler
••LightWave Modeler Tips & Tricks-Jason Linhart
1:00 pm - 3:00 pm
•Beginning Modeler Techniques-Brad Peebler
••• Organic Effects-Grant Boucher
3:30 pm - 5:30 pm
•Flying Logos / 3D Logo Basics-Don Pence

•••MetaNURBS™ & Character Modeling-Jason Linhart

**Wednesday, November 6**

9:30 am - 11:30 am
••Envelopes, Motion Graphs, Keyframing-Brad Peebler
•Toaster Essentials, a Beginner's Guide-Bob Anderson
1:00 pm - 3:00 pm
•••Character Animation Part 1: Bones-Jason Linhart
••Power ToasterPaint Techniques-Bob Anderson
3:30 pm - 5:30 pm
••• 3D Compositing-Dan Ablan
•• Video Titling with the Toaster CG-Bob Anderson

**Thursday, November 7**

9:30 am - 11:30 am
•••Real World Special FX-Dan Ablan
•Editing with the Flyer-Bob Anderson
1:00 pm - 3:00 pm
•••Displacement Mapping & Surfaces-Dan Ablan
•Lighting & Camera Angles-John Parenteau
3:30 pm - 5:30 pm
•••Character Animation Part 2: IK and Animation-Jason Linhart
•••Live Taping with the Flyer: A Special Extended Advanced Editing Session-Stan Shumlick and Harold Russell

**Friday, November 8**

9:30 am - 11:30 am
•••Advanced Logos & Corporate Graphics-Stan Shumlick
••LightWave Plug-Ins: Expanding LightWave with Third-Party Products-Brad Peebler
1:00 pm - 3:00 pm
•••Plug-Ins Inside : LightWave 5.0-Jason Linhart
••LightWave 3D in Game Creation-Ace Miles and Dan Colon
3:30 pm - 5:30 pm
•••Advanced LightWave 3D: Open Forum Q&A-John Gross
•• Time-saving Techniques in LightWave-Stan Shumlick

VTU

*Level of Instruction is noted as:*
(•) Beginning
(••) Intermediate
(•••) Advanced

# Power of the Screen

## Bluescreen Effects With the Flyer

by George Paramithas

Today's shoot went rather well, but you're still not happy. After reviewing your footage you think to yourself, "I wish I could eliminate this boring gray wall background by making the athlete/trainer present his exercises in front of ancient Olympia, a place of unlimited depth of field and natural beauty." The problem is, you're a long way from Greece. It's impossible, especially when you consider the small budget you have to operate with.

Don't despair, you can probably do it next time if you plan ahead and shoot your subject in front of a bluescreen. You can then overlay the appropriate picture in the background, an ancient gymnasium with statues for example, and there you have it. It's the look of an elaborate production on a shoestring budget. It is done all the time by the big boys in movie-land. So why not you? All you need in your Amiga is the Toaster/Flyer combination and ImageFX 2.6, an innovative program produced by Nova Design, Inc. Why is ImageFX needed when the Toaster possesses its own superimpose feature? Because luminance keying is not as capable, nor is it as effective as a professionally used blue-screen. So, lets begin our project by building our screen.

***"If you want to build the screen overnight and as inexpensively as possible, then you should use flat latex waterbase paint as close to the absolute blue or green as possible."***

### Cloth vs. Paint

There are various ways to go about this, one of which is to use a blue/green curtain, but be warned: Cloth absorbs much more light, especially darker colors, so lighting the background can become that much harder for you. You can purchase blue/green reflective type cloth (something like the porch flags you see on peoples houses) to be used as your screen. Instead, you may want to do it the old-fashioned way—paint a wall or maybe a large piece of foam core, to make it removable,

Figure 1: Use a blue screen for blondes, green for brunettes. Your models should not wear the corresponding colors, unless you're going for a spacey effect.

with "Ultimatte Blue" product number 5720 or "Ultimatte Green" product number 5721 from Rosco Paints (914-937-1300). Chroma key paints such as chroma key blue part number 5710, and chroma key green part number 5711 can also be used. Rosco is represented by 400 dealers nationwide, so call 1-800-ROSCONY or 1-800-ROSCOLA for the name and number of the dealer closest to you.

Another option is to call Elite Productions (501-321-0440) and purchase collapsible chroma key backgrounds. In order to make this article as helpful as possible, I tested number of paints, and Home Depot's Behr paint "Flag Blue" worked as well as the more expensive products. Flag Blue will only cost you $16 per gallon instead of the $45 per gallon for Rosco products. If money is no object to you, then go with Rosco.

If you want to build the screen overnight and as inexpensively as possible, then you should use flat latex water base paint as close to the absolute blue or green as possible. Better yet, paint one side of your foam-core surface blue and the other side green. You can then use the green surface on brunettes and the blue surface on blondes. The eye color or clothes an actor may wear will also play a part in the decision of which color to use. Don't forget—and this is important—all blue or green colors will probably be eliminated from the final product. If an actor has blue eyes go to the green-screen and visa versa. But if you're shooting for an extra-terrestrial effect, you can let your imagination run wild.

## Let There Be Light

The second ingredient to successful blue-screening is proper lighting. I can not overemphasize the importance of this subject. Use a light meter to evenly light not only your actor, but also the blue-screen. There should be absolutely no hot spots or spill-over of light onto the blue-screen or the subject, because that would compromise background clarity, not to mention loss of detail. If back lighting is required, use amber or yellow lights in order to override the possible harshness of the main light. Also, make sure the colors of the actor's clothes are not a bi-product of blue or green, as that will also produce undesired results (purples on blue etc.). It will be extremely difficult to overlay a clean background if the above rules are not followed. It may not be ImageFX that is the culprit, but inadequate lighting.

Above all, be creative. Play with different setups to personally find out what works and what doesn't. You cannot substitute for experience. For example, I've found that green-screens are more appropriate for JPEG and M-JPEG systems. It has something to do with their compression methodology and the color blue, but we Video Toaster Flyer operators don't have to worry about that because we operate under NewTek's VTASC compression schema. One last thing to remember is that component video should be used whenever possible. The higher the video input quality, the better the final results will be. Now it's time to start clicking some computer buttons.

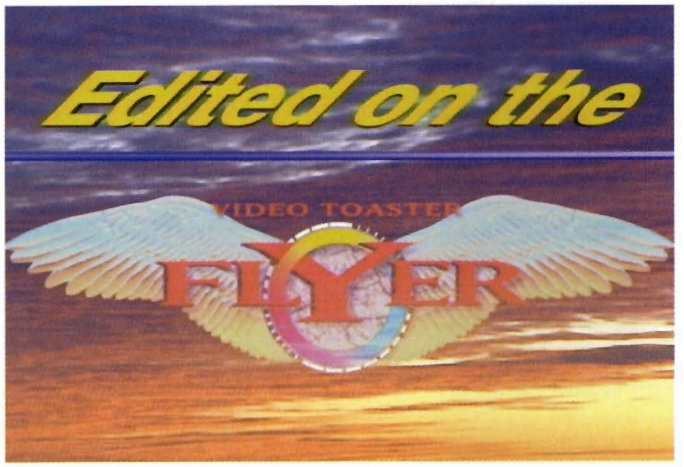

Figure 2: If you plan ahead, you can use any background you can think of.

## Action!

Place your blue-screen in a convenient location and sit your subject about six feet away from the screen (the further away from the blue-screen, the less chance for light spill-over). Point your camera at the subject and zoom in for a head shot. Start ImageFX. When the program is fully loaded, hold the left Amiga key down and hit the (M) key. This keystroke combination should take you back to workbench. Start the Toaster program. Go to the projects/files window. Hit the record button and select the drive and speed you will use. Select the source input (input one to four) your camera is connected to.

Figure 3: Make sure your lighting is correct.

**"At this point, you should have the bluescreen and subject in both the preview and the program monitor. Study this shot. If your lighting is correct, you should have a very even blue cast throughout the screen."**

At this point, you should have the blue-screen and subject in both the preview and the program monitor. Study this shot carefully. If your lighting is correct, you should have a very even blue cast throughout the screen. All four corners, including the middle, should be even in color and texture. No hot spots or light reflections on the screen from the subject and visa-versa are allowed.

When you are satisfied, record your video clip, cut it and give it a name. Use the left Amiga (M) combination until you return to your ImageFX screen. Hit the load and volumes buttons, and select the Flyer drive where you recorded your video clip. Click it once and hit OK. A window will appear that will allow you to select and load any one frame of your video clip.

Let's select frame 100 with the slider and hit the OK button. When the frame is loaded, hit the Render button. Under Bank, select DV2 and hit Transfer. Frame 100 should appear on all three monitors. If not, go back to the toaster screen and select DV2. You should now be able to see your frame.

Go back to your ImageFX screen and hit the Toolbox button. Hit Buffer and Load As. Scroll down to Framestore select it, and then hit OK. Hit the Volume button. Select the drive that contains the Toaster/Flyer software. Select the NewTek drawer, the Framestore drawer and the Paint Demo drawer. Select the FlyerCredit Framestore and hit OK. The FlyerCredit Framestore should appear on your Image F/X screen. Hit "Buffer", and then Swap Buffers.

Frame 100 of your video clip should come up on your screen.

If the swap screen is black, reload frame 100 by following the procedure described above. With frame 100 showing on your Image F/X screen hit the Hook button, select CineMatte and hit OK. The CineMatte screen will appear. Under screen color select Blue or Green depending on which screen you are using. Under output select Composite Only.

If your lighting was correct, the only adjustment you should have to make at this point is to bring Protection to 1. Hit the Preview button for a quick look. Make any necessary adjustments and when you are satisfied, hit OK. ImageFX will load the CineMatte composite. Hit Render and then hit the Transfer button. That's all there is to it.

### Tweaking

If you need to make changes for better looking results, hit Toolbox again and Undo. This is necessary to do each and every time you want to make changes to the CineMatte settings. If you forget to hit Undo, reload your frame for a clean start. Otherwise your new settings will include all of the previous undesired artifacts. Hit the Hook, then OK. Bring the Darken BG slider to 150. Hit Preview and OK. Hit Render and Transfer. You should now have a much brighter background overlay.

Figure 4: Your bluescreen shot is now complete. Only your imagination can limit this kind of shot.

Return to the CineMatte screen and play with all the settings by changing them one by one. This is the only way to understand what each does and how to avoid artifacts. It will take time,

**"BlueMacro, as you remember, is the filename of the CineMatte ARexx script we chose earlier for our learn function. Don't forget the space between the Rx and the quotes."**

but there's no substitute. Now bring the Remove BG slider to 255 and render the scene. You should get an even brighter background. Bring the Darken BG slider back to 0. Your background should become more bluish.

In order to help with the set up, here are some rules of thumb:

**1)** The CineMatte controls are there only for minor adjustments.

**2)** No values above 127 should be used for Darken BG and Brighten FG.

**3)** You will usually set Remove Background to 255.

**4)** Protection should be set to 1.

**5)** Blend should be set to 255.

**6)** Remove Halo should be used as a last resort.

### IMP Function

So far, so good for individual frames. Now let's take our effort a step further. In order to blue-screen a video clip using ImageFX's IMP function, you will have to do the following: Open ImageFX if it's not already open and load your background image in the first buffer. Swap buffers and load a frame of your blue-screen image as a sample into the second buffer. Now hold the shift key down and hit (1) in order to initiate a learn ARexx script. At this point the Drawer space should say Rexx. In the File space type the new file name "i.e. Blue.ifx." Please remember to hit No when the program asks you if it should record current drawing settings. Do not hit Yes because this would cause the recording of painting modes which you do not want.

Go to Hook and select CineMatte, set your adjustments and hit OK. You should now have the background and subject on the ImageFX screen. Do not hit Render. Now hold the shift key down and hit (2). This keystroke stops the learn activity of the program. Bare with me, there is a light at the end of this tunnel—and it's not the train...yet!

Go to Hook again and select IMP. Select the Flyer clip that contains the blue-screen sequence in your MAIN buffer. Then select your background sequence as your SWAP buffer. You must now go to the pull down menu for Settings, select the Save Animation Format and type "Flyer Clip". This time, do use the quotes and the space indicated in the command. Under Animation option, hit Cancel.

Next, select your Flyer destination drive and type in a new file name in order to create a new Flyer clip. Set the range of frames in the first and last gadgets. Then set the cycle gadget to Save 24-bit Animation. Don't check off any of the following four options, even though in default mode two options will already have been checked off.

In the Proc: gadget enter the following command: Rx "path/Blue Macro.ifx". The path portion of this command depends on your individual computer setup. BlueMacro, as you remember, is the filename of the CineMatte ARexx script we chose earlier for our learn function. Don't forget the space between Rx and the quotes. Click begin and pop open a beer—you deserve it for hanging on til the end of this article!

Many thanks to Kermit of Nova Design for his invaluable direction in helping me understand the intricate details of CineMatte.

VTU

*George C. Paramithas is an electrical engineer by day and a videographer when his time allows. He founded Paramedia Production, a company that produces educational and corporate videos. He is located in Huntsville, Alabama and can be reached by telephone at 205-772-9428.*

Lighting the Way continued from page 43

find a group you like in your area? Consider membership by mail. Most of the larger user groups are more than happy to offer membership to non-locals. You may not be able to attend meetings in person, but you'll be able to stay connected via monthly newsletters, bulletin boards and other resources. There are also some excellent LightWave 3D newsgroups which function loosely as on-line user groups. Here you'll find answers to your LightWave specific questions and glean knowledge from some of the best LightWave animators around the world. Never underestimate the value of networking. Whether on-line, by mail or in person, you'll find answers for your questions, job leads and a peer group who can help you celebrate your successes and commiserate with you on your defeats.

Consider joining a broad based group like a local graphic arts society or guild. You may not find animation advice, but you'll find other artists who are also struggling with balancing books, dealing with difficult clients, and figuring out how to have a business and a life. Graphics arts groups are usually older, larger and better established than computer groups. Many offer their own pricing and professional ethics guidelines and some offer legal advice as well as group rates on medical and disability insurance.

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Check the business section of your local newspaper. Many offer listings of seminars and events in your area. Service organizations and clubs for retired professionals like accountants and lawyers often hold free or inexpensive seminars to help new business owners get started. Your local Chamber of Commerce or a local bank may also sponsor similar events.

Attend trade shows. Besides being a fun excursion, trade shows offer access to a remarkable collection of developers and animators and provide you with plenty of opportunities to meet people in person, hand out business cards and demo tapes and enjoy the booming industry you've become a part of. Don't miss the *Video Toaster User* Expo this November in the Los Angeles area. Other excellent shows are E3, the amazing game trade show (Spring 1997 in Atlanta), SIGGRAPH, the ultimate computer graphics show (Summer 1997, Los Angeles) and NAB, the National Association of Broadcasters' mammoth show (Spring 1997, Las Vegas). Plan your annual vacation around one of these shows if you must, but make an effort to go to at least one of these major events.

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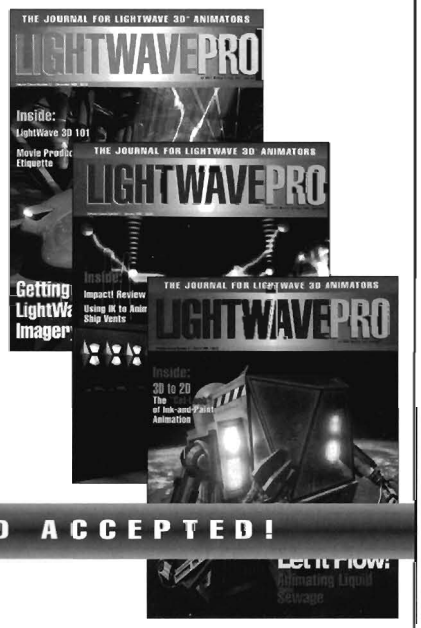


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# Flyer Pre-Flight Check

## Tuning the Flyer for Max Performance

by Wayne Cole

Any pilot will tell you that performing a thorough pre-flight check-out is one of the most important steps to assure a successful flight. The same concept applies to the video editor who uses the Video Toaster Flyer. Tuning done before starting a Flyer project can have as much impact on the overall quality of the resulting image as can using proper camera settings when the footage is acquired. And there are two separate times that pre-flight check-outs should be made when creating a Flyer project: prior to digitizing footage, and prior to "printing" a project to tape.

Fortunately many Flyer installations are configured to make the necessary adjustments at both these times. We will focus on a Flyer set-up that uses a single transcoding time-base corrector (TBC) to take Y/C or component input, convert it to composite and send it on to the Flyer/Toaster input. Then, with the Video Toaster program out hooked to the TBC's composite in, the TBC's Y/C or component out can be routed to the record deck (Figure 1). Using a two-channel TBC or two TBCs (one channel or unit for input and one for output) is another popular configuration that is functionally the same as that depicted in Figure 1. Even used with transcoding devices like Smith Audio Visual Inc.'s Y/C Plus card or Prime Image Inc.'s Little Magic Box, the Flyer/Toaster output should be checked and tuned with a TBC or processing amplifier (proc amp) prior to committing a project to tape.

***"There are two ways to tune a Flyer. One involves an "eyeball" method, which can get you very close to a properly adjusted system. The other method involves the use of a waveform/ vectorscope..."***

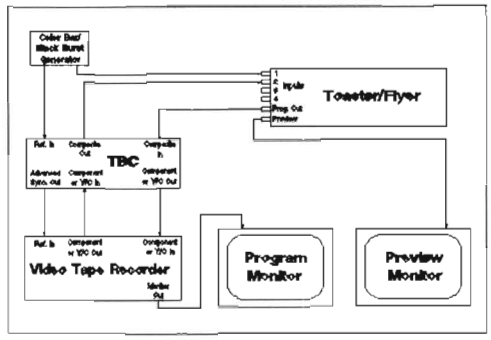


Figure 1: The Time Base Corrector is routed to the record deck.

### Why do I Need to Tune-Up?

One might ask, "Why do I need to tune-up my Flyer?" The Flyer can be configured a number of different ways. You can pair a Flyer with a Toaster 4000 in an Amiga 4000, or with a Toaster 2000 in an Amiga 2000 or with a Toaster 4000 in an Amiga 2000—you get the picture. Even before you consider the differences in the equipment that can be hooked up to the Flyer or Toaster, there is a large spectrum of electrical and thermal conditions under which these boards must perform. And, taken together with their external connections, the program output often varies from the levels and phase relationships set forth in various standards if adjustments are not made during the creation of any Flyer project. On the input side, incorrect signal levels can lead to aggravating playback stutters and increased exposure to the "chroma soup" problem. On the output side, it can result in video that makes all the people in your scenes look like cadavers, or cause excessive bleeding of the primary colors and loss of detail in shadow areas.

You might argue that it is enough just to tune the input to the Flyer (the inverse of the "garbage in, garbage out" theory). But since the incoming video is converted from analog to digital, compressed, then uncompressed and reconverted to analog at playback, it is easy to see that the output video is really not the same video that was input. It is, in effect, a model of the input video. That model will not be a 100% exact replica of the original input by virtue of the transitions between the analog and digital domains, and the effects of compression. Therefore, tuning the Flyer output is necessary to provide a signal to the recorder that more closely represents the original signal that was digitized by the Flyer in the first place.

### The Preliminaries

There are two ways to tune a Flyer. One involves an "eyeball" method, which can get you very close to a properly adjusted system. The other method involves the use of a waveform/vectorscope, a piece of equipment that is a must

for any serious video work. Both methods require the use of an accurate color bar signal.

NewTek has stated on numerous occasions that the SMPTE bar Framestore supplied with the Toaster is not suitable for system calibration purposes. If you've ever hooked a Toaster displaying this framestore to a waveform/vectorscope, you'll see why. While the output is pretty darn close to proper levels and phasing with a well adjusted Toaster board, it is not exact. So if you adjust other equipment using this graphic, you are, in essence, multiplying any offsets from SMPTE standard values that may be inherent in that graphic. The short form message here is that if you don't have a color bar generator or a camera that generates a color bar signal, get one. You can't calibrate any of your equipment, from players, to recorders, to monitors, without an accurate color bar source.

The first step is to hook your color bar source to Toaster input 1, turn it on and boot up the Flyer. Let the system "cook" for at least 1/2 hour, or even better, one hour.

The next step is to delete the HS file from the NewTek/Programs/Switcher_Support directory then re-run the autohue and Flyer calibration procedures. (Refer to your Flyer documentation.) This now provides you with the confidence that the Flyer is internally adjusted as best as it can be for the particular thermal and electrical conditions found in your system using the same signal that will be used to do the "external" tune-up.

Both tune-up methods require you to digitize the color bar signal. I recommend that you create a one-minute clip of the color bar signal from input 1 on any of your video hard drives. Although it is tempting to create a Flyer still from a digitized color bar signal, I have found that doing so will shift the luma level, chroma level and hue phase enough to render the still inappropriate for calibration use. If the penalty of keeping a one-minute clip on your video drive is too much, then you should freeze a frame from the color bar signal and save it as a framestore. That way, there will be far less shift in either luminance or chrominance to deal with.

Next, you will need a tape of the same color bar signal you digitized. The best situation exists when your

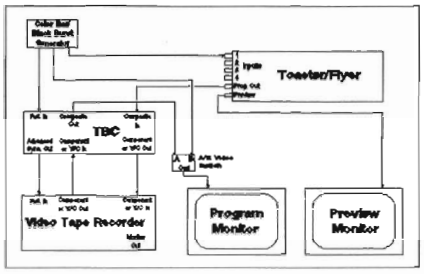


Figure 2: Run the color bar signal to the other monitor input or the switch box input.

color bar source is the camera you use to acquire all footage you use on the Flyer. This means that you can generate a minute or so of bars on the front of every tape you shoot. Then, when digitizing the content of the tape with the Flyer it is a simple matter to adjust the taped video input to match the live bars feed. If this is not going to be the case all the time, simply record several minutes of the bar signal to tape. The recorded color bars will be used in the procedure described below to tune the input for the Flyer.

## The Eyes Have It

Most Flyer users have a set-up which is the functional equivalent of the configuration depicted in Figure 1. Note that the color bar signal supplied to input 1 of the Toaster should also be supplied to the TBC's reference in, or genlock in. The best way to do this is with a simple distribution amp that allows the signal to be split without lowering the signal levels at all. Alternatively you can loop this signal through, either from the Toaster to the TBC or vice-versa. If you use the loop-through method, be sure that only the last device in the loop is terminated.

After booting and warming up the Flyer and the source equipment, use the Project/Files view to drag the "Wipe B-T" effect from the Toaster:Effects/Wipes folder to the project bin. Now go to the Project/Switcher view and ready your source deck to play its rendition of the color bars. Be sure the source deck is set to use the signal applied to its Reference In or Genlock In connection as the sync input.

Select the source input on the preview bus (usually Toaster input 2), and the color bars from input 1 on the program bus. Select the source VTR as the video input for the TBC. Start the source playback, then single-click the Wipe B-T crouton and pull the T-bar part way down. You should see a split screen with the color bar feed on the top part of the screen and your source playback on the bottom. Using the proc-amp controls on your TBC, adjust the input signal until you can make the line along which the screen is split as close to invisible as possible.

First use the system phase and subcarrier adjustments as "gross" tuning controls. With these two controls, you should be able to get both the position

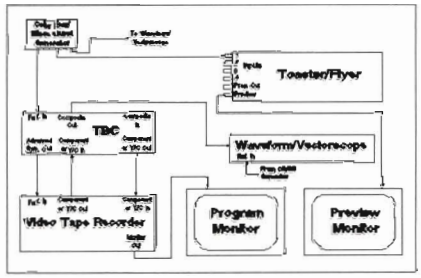


Figure 3: Route the TBC's output directly to the waveform/vectorscope.

and color of the input bars (input 2) roughly in the same neighborhood as their reference counter-part (input 1). These controls are typically labeled as "system" or "horizontal phase," and "sub-carrier."

For fine-tuning, use the TBC's timing control to shift the input horizontally for the correct horizontal alignment. This control might be labeled HPOS, or Video Phase.

Next adjust the luma and black levels (sometimes called the "contrast", or "picture" and "brightness" levels). If you used SMPTE bars, you should set the T-bar to split the screen through the lower portion of the display so you

"For fine-tuning, use the TBC's timing control to shift the input horizontally for the correct horizontal alignment. This control might be labeled HPOS, or Video Phase."

can use the pluge pattern, and the white patch for this adjustment. If full bars are what you use for a reference, make the black and luma level adjustments by looking at the white, blue and black bars.

Finally, adjust the chroma level by reference primarily to the yellow and red bars, and adjust the color phase or hue by reference to the cyan and magenta bars. Although you may not be able to completely eliminate the differences between the input and digitized playback, you can get them extremely close.

With this adjustment you have set your TBC to present the Toaster/Flyer input with a signal that is very close to legal levels and phase. Theoretically, if you digitize a properly phased signal with the correct levels, you should be able to easily get legal levels and proper phase relationships from the output signal.

At this point, if you can switch the color bar generator to black burst mode, or, in the case of a camera, go back to camera mode with the lens cap in place so that input 1 can be used as your black channel if you need one.

After you have finished editing your program, you are ready to re-tune the TBC to output your project to tape. Since the act of uncompressing the digitized video, and converting it to an analog signal will introduce changes in level and phase, you should run the program output through a TBC or proc-amp so that it can be adjusted to present a corrected signal to the recorder. This is where the digitized color bar clip comes in.

Again, this procedure should be done only after warming up the Flyer, TBC and the color bar source. You need to have a monitor with an A/B switch or an external video switch box for this part of the tune up. Hook the Toaster's program output to the TBC or proc amp, then hook the proc amp output to either the A or B input of the monitor or switch box. Run the color bar signal to the other monitor input or switch box input (Figure 2).

In the Flyer software double-click the color bar clip crouton. Switch the A/B switch between the Flyer output and color bar generator output. Make proc amp control adjustments until the A and B inputs look identical on the monitor. Note that using two side by side monitors will not work unless you have very expensive studio monitors with autocal circuitry built in. Color rendition from monitor to monitor can vary greatly even among monitors of the same make and model.

**"These pre-flight procedures should be run before each digitizing session, and before each project playback."**

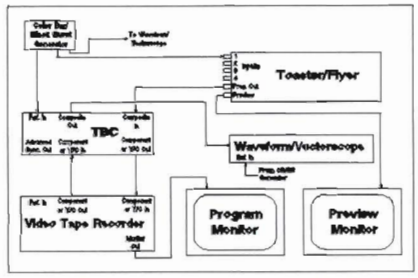


Figure 4: The Toaster program goes to the TBC/proc amp, the TBC goes to the waveform/vectorscope.

Once you've completed this eyeball check of the Flyer playback, reconnect the program out cable from the proc amp to the record deck. If your recorder supports it, set it to use the incoming video as the sync source and you are ready to "print" your project.

## Scope it In, Scope it Out

Again, there is no substitute for scoping your initial feed to the Flyer and output from the Flyer to your record deck. While the eyeball approach can get you close (depending on how good your eye is) the easiest and most accurate way to pre-flight your Flyer is with a waveform/vectorscope. This method is quite easy and once you've digitized the color bar signal, you can continue operating with just a black burst signal serving as the reference input to Toaster input 1 and the TBC's reference in.

For digitizing, take the TBC's output (that would normally be routed to the Flyer) and route it directly to the waveform/vectorscope (Figure 3). Select the source deck to be the TBC's input. In your source deck, play a tape of the color bar signal made either in camera, or recorded from the color bar generator. Adjust the TBC/proc amp for proper levels and phase. Then reconnect the TBC output to Toaster input 2. You are done and ready to digitize.

The Flyer playback adjustment is just as easy. Take the Toaster's program out to a TBC/proc amp and run the output of the TBC/proc amp to the waveform/vectorscope, as depicted in Figure 4. Select the Flyer as the TBC/proc amp's input source. Playback the one minute color bar clip and tune the proc amp for the proper phase and level. This is particularly important for Flyer output since many Flyer users have found that, while the hue (chroma phase) looks pretty close to standard, the chroma levels are generally 10 IRE to 20 IRE high and the luma level appears a little bit low.

After completing this procedure, you are ready to record dead-nuts on, killer video playback from the Flyer.

## The Bottom Line

These "pre-flight" procedures should be run before each digitizing session, and before each project playback. At least, they should be run once each time any equipment in the chain is turned off or on. There can also be a slight drift over time in these tunings so it can be useful to re-run these checks every hour or two during long digitizing or playback sessions. These should not be tasks that you do only once, then forget.

The bottom line is *your bottom line* and that can be improved or ruined by the quality of the video you deliver. While the Flyer can ease the process of creating great video, it still depends on being fed properly adjusted video to start with. And because of the nature of digital-to-analog and analog-to-digital conversions and lossy compression processing, the prudent editor will not leave the Flyer's output to chance when it comes to delivering video with the correct levels and proper hue values. With a proper Flyer pre-flight, you can guarantee high quality and consistency for all your Flyer projects. VTU

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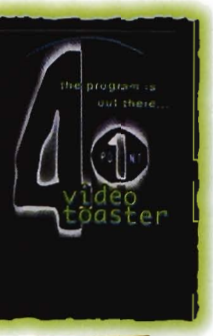


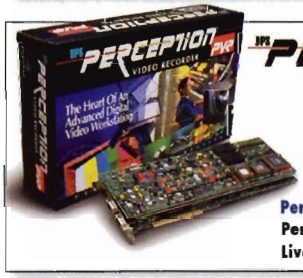


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| Cybervision 64 Zorro III w/2 & 4MB Ram | 399/479 |
| MacroSystem Vlab Motion Card | 1499 |
| MacroSystem Vlab Motion System (Toccata) | 1849 |
| MacroSystem Vlab Motion Complete (T&RZ3) | 2549 |
| MacroSystem Retina Z3 w/4MB | 715 |
| MacroSystem Retina Z2 w/4MB | 519 |
| MacroSystem Toccata Sound Card | 379 |
| MacroSystem Vlab Y/C Internal / External | 389 |
| Newtek Video Toaster 4.1+ | 1995 |
| Newtek Video Flyer 4.1+ | 3895 |
| Nucleus Personal editor v1.1 | 589 |
| Nucleus Personal SFC Plus v3.1 | 359 |
| Prevue Technology - Sync Strainer | 49 |
| Prime Image "Little Black Box" | 695 |
| Rockgen Plus Genlock | 199 |
| VIDI 24 RT / VIDI 24 RT PRO | 259/369 |
| YC Plus - Y/CPlus SVHS Hi8 | 899 |

CALL IF YOU DO NOT SEE IT HERE ! MANY MORE ITEMS IN STOCK !

## SOFTWARE

| | |
|---|---|
| Address It v1.5 | 26 |
| Ami-File Safe Consumer | 39 |
| Ami-File Safe Professional | 99 |
| Caligari - Caligari 24 | 119 |
| Cine Graphics - Powermacros for Lightwave | 99 |
| Crestline - Humanoid for Imagine | 169 |
| Crestline - Humanoid for Lightwave | 169 |
| Dimension Technologies - Composite Studio Pro | 169 |
| Dimension Technologies - Fly Effects | 169 |
| Dynanic Reality - Impact! | 199 |
| Electronic Arts - Deluxe Paint V | 119 |
| Focus - GraphicRECALL v1.5 | 51 |
| Hester - Plug Ins & Go | 69 |
| impulse - Imagine 3.0 | 159 |
| Innovision Technology-Alpha Paint | 349 |
| Innovision Technology-Broad. Titler II S.HiRes | 189 |
| Magic Lantern v2.0 | 74 |
| Metrografix - Motion Master Volume 1 | 99 |
| Metrografix - Motion Master Volume 2 | 99 |
| Metrografix - Sparks v2.173 | 119 |
| Newtek Lightwave 4.0 (IBM or Amiga) | 695 |
| Newtek Lightwave 5.0 Upgrade | 409 |
| Newtek Lightwave 5.0 Complete | 1029 |
| Newtek Video Toaster 4.1 Upgrade | 475 |
| Nova Design - Image FX v2.6+ | 215 |
| Photogenics | 84 |
| Play - Brilliance 2.0 | 119 |
| Questar - World Construction Set I or II | 169/389 |
| Radiosity - Wavemaker v2.0 | 165 |
| Realsoft - Real 3D v3.3 | 359 |
| Scala Multimedia MM300 | 129 |
| Sports Object for Lightwave | 49 |
| Syndesis - 3DROM Vol 1 or 2 | 84 |
| Synergy - Hollywood FX or Lite | 219 |
| Swipes | 89 |
| Visual Inspirations - Visual FX for Lightwave | 99 |
| Virtual Reality Studio v2.0 | 69 |
| Pixel 3D Professional v2.0 | 89 |
| Pagestream 3.0+ | 169 |

## CBM AMIGA EMULATORS

| | |
|---|---|
| A2088 XT/AT Bridgecard (2000) | 99/299 |
| GVP PC286 (GVPA500+ & A530Turbo) | 99 |
| Emplant Deluxe Version | 339 |
| E586 Upgrade IBM Module | 119 |
| Emplant Macroms | 199 |
| A-Max II+ w/A-Max IV Color | 329 |

## CBM AMIGA SYSTEMS & PRODUCTS

| | |
|---|---|
| *4000T Compuler w/1000MB HD / 6MB Ram* | *2595* |
| **1200 Computer without HD** | **499** |
| 2000 Computer System w/ECS | 599 |
| 500 Computer System w/o ECS | 199 |
| 600 Computer System w/o HD | 299 |
| 520 Video Adapter (works w/ all systems) | 19 |
| 2 MB Ram For 2091 (256x4 dips) | 80 |
| 2/3000 internal low density disk drives | 79 |
| 500 internal low density disk drives | 39 |
| 2/3/4000 internal high density disk drive | CALL |
| 2/3/4000 external high density disk drive | 119 |
| 1/2/3/4000 5/6/1200 Keyboards | CALL |
| 1/2/3/4000 5/6/1200 Power Supply | CALL |
| Replacement Mouse | 24.95 |
| 2320 Flicker Fixer (2000/4000) | 299 |
| 2232 seven port serial card | 199 |
| 2091 HD Controller card w/0MB | 99 |
| 3640 68040 @ 25mhz for the 4000/3000 | 349 |
| 2630 w/2MB or 4MB (A2000 Accelerator) | 319/399 |
| 2620 w/2MB or 4MB (A2000 Accelerator) | 199/249 |
| 501c 512K ramboard w/clock | 24.95 |
| 601c 1mb ramboard w/clock | 89.95 |

## CPU & FPU UPGRADES & REPLACEMENTS

| | |
|---|---|
| 68040-40 w/MMU&FPU | 199.00 |
| 68040-33 w/MMU&FPU | 149.00 |
| 68040-25 w/MMU&FPU | 99.00 |
| 68040-EC25 | 75.00 |
| 68030-RC-50 w/MMU | 119.00 |
| 68030-RC-40 w/MMU | 79.00 |
| 68030-EC40 (NO MMU) | 99.00 |
| 68030-RC-33 w/MMU | 99.00 |
| 68030-RC-25 w/MMU | 75.00 |
| 68030-EC-25 (NO MMU) | 50.00 |
| 68882-RC-PGA-50 FPU | 75.00 |
| 68882-RC-PGA or PLCC-40 FPU | 59.00 |
| 68882-RC-PGA or PLCC-33 FPU | 49.00 |
| 68882-RC-PGA or PLCC-25 FPU | 35.00 |
| 68881-RC-PGA or PLCC-25 FPU | 25.00 |
| 80387-25SX (386BB) FPU | 89.95 |
| Crystal Oscillators | 10.00 |
| 68040 Heat Sink | 25.00 |
| Intel Pentium Pro 200 | 600.00 |
| Intel Pentium 166 | 425.00 |
| Intel Pentium 133 | 225.00 |
| Intel Pentium 100 | 165.00 |

## MEMORY CHIPS

LIFETIME WARRANTY ON ALL MEMORY (RAM) CHIPS

RAM CHANGES FOR BETTER WORSE

PLEASE CALL FIRST !

| | | |
|---|---|---|
| 1 x 8 | 120 - 60ns SIMMS | 19+ |
| 1 x 9 | 120 - 60ns SIMMS | 25+ |
| 4 x 8 | 120 - 60ns SIMMS | 45+ |
| 4 x 9 | 120 - 60ns SIMMS | 55+ |
| 1 x 4 | 120 - 60ns Static ZIP | 9+ |
| 1 x 4 | 120 - 60ns Page ZIP | 9+ |
| 1 x 4 | 120 - 60ns Page DIP | 9+ |
| 1 x 1 | 120 - 60ns DIP | 3+ |
| 256 x 4 | 120 - 60ns DIP | 3+ |
| 256 x 4 | 120 - 60ns ZIP | 3+ |
| 256 x 32 | 100 - 60ns (1MB Simm) | 9+ |
| 256 x 36 | 100 - 60ns (1MB Simm) | 15+ |
| 512 x 32 | 100 - 60ns (2MB Simm) | 15+ |
| 512 x 36 | 100 - 60ns (2MB Simm) | 19+ |
| 1 x 32 | 100 - 60ns Simm (4MB) | 20+ |
| 1 x 36 | 100 - 60ns Simm (4MB) | 22+ |
| 2 x 32 | 100 - 60ns Simm (8MB) | 40+ |
| 2 x 36 | 100 - 60ns Simm (8MB) | 44+ |
| 4 x 32 | 100 - 60ns Simm (16MB) | 80+ |
| 4 x 36 | 100 - 60ns Simm (16MB) | 88+ |
| 8 x 32 | 100 - 60ns Simm (32MB) | 160+ |
| 8 x 36 | 100 - 60ns Simm (32MB) | 172+ |
| 16x32 | 100 - 60ns Simm (64MB) | 999+ |
| GVP SIMM32 60NS 4MB | | 79 |
| GVP SIMM32 60NS 16MB | | 399 |
| GVP SIMM32 60NS 1MB | | 29 |

## AMIGA CUSTOM CHIPS & UPGRADES

| | |
|---|---|
| 3.1 Upgrade kit (roms, soft, mans) | 119.00 |
| 3.1 Upgrade kit (roms, software) | 79.00 |
| 3.1 Kickstart roms (500/2000/600) | 59.00 |
| 3.1 Kickstart roms (3000/4000/1200) | 95.00 |
| 2.1 OS Upgrade Kit (complete) | 79.95 |
| 2.1 OS Upgrade Kit (soft,manuals) | 49.95 |
| 2.05 Kickstart Rom (A600) | 24.95 |
| 2.04 Kickstart Rom | 24.95 |
| 1.3 Kickstart Rom | 12.95 |
| 1MB Agnus (8372A) | 23.95 |
| 2MB Agnus (8372B) | 39.95 |
| Super Denise (8373) | 29.95 |
| Paula (8364) Or Denise (8362) | 16.95 |
| CIA (8520) | 9.95 |
| Western Digital Revision 08A | 29.00 |
| Superbuster (rev11) (4091) | 45.95 |
| Ramsey (rev 07) | 39.95 |
| Fat Gary (A3000) | 29.95 |
| Super Dmac (rev 04) | 39.95 |
| Amber (A3000 & 2320) | 44.95 |
| Janus 2.1 upgrade kit | 24.95 |
| 2620/2630 upgrade kit (7.0) | 24.95 |
| 2091 upgrade kit (7.0) | 24.95 |

**Amiga Analyzer** $59.95
Diagnostic software & hardware for problems

## DPS

| | |
|---|---|
| PERCEPTION PVR-2500 | 1575 |
| CAPTURE CARD AD-2500 | 875 |
| RS422 Option | 185 |
| PAR (IBM) DR-2100 | 1545 |
| PAR (Amiga) DR-2150 | 1695 |
| w/Conner 540MB | +199 |
| w/Quantum 1275A 1.2G | +299 |
| w/Quantum Sirraco 2.5G | +399 |
| Personal TBC IV | 799 |
| Personal Vector Scope | 795 |

## Macro Systems WARP ENGINE

- SCSI II Fast & SCSI I hard drive controller available for the Amiga 4000/3000
- Up to TEN megabytes per second with a Seagate Barracuda 2.1 gigabyte hard drive
- Expandable to 128MB RAM using 72 pin industry standard simms (3040 only 64MB)
- Amiga 4000D & 3000T (4040) or 4000T & 3000D (3040) (Specify Unit When Ordering)

**68040 @ 40Mhz w/CPU & FANSINK 695.00**

Low profile, power & heat simms for maximum performance -

| | |
|---|---|
| 04 MB 60NS | 25.00 |
| 08 MB 60NS | 50.00 |
| 16 MB 60NS | 100.00 |
| 32 MB 60NS | 200.00 |

Upgrade rebates for A4000-040 owners with original CPU card , simms & A3000 owners with zip style dram!

## WARP ENGINE UPGRADE KIT

### 40MHZ UPGRADE KIT 199.00

Includes Motorola 68040 @ 40MHZ, Nidec whisper quiet, low power, low voltage fan sink and 40mhz 1/2 can oscillator.

### 33MHZ UPGRADE KIT 149.00

Includes Motorola 68040 @ 33MHZ, Nidec whisper quiet, low power, low voltage fan sink and 33mhz 1/2 can oscillator.

## REMOVABLES (Amiga / MAC / IBM)

| | |
|---|---|
| SYQUEST 5.25" 44MB DRIVE (SQ555) | 99 |
| SYQUEST 5.25" 88MB (SQ5110C) (R&W44) | 259 |
| SYQUEST 3.5" LP EZ-135MB IDE or SCSI w/Cart | 199 |
| SYQUEST 5.25" 200MB (5200) (R&W 44&88)! | 299 |
| SYQUEST 3.5" LP 270MB (3270S) 13MS SCSI | 329 |
| 5.25" 44MB / 88MB Cartridges | 39/49 |
| 3.5" 270MB or 5.25 200MB Cartridges | 54/69 |
| External Versions w/Cabling Add | 59 |
| I/O MEGA ZIP DRIVE EXTERNAL | 199 |
| I/O MEGA JAZZ DRIVE INTERNAL | 399 |
| JAZZ Cartridges | 129 |
| ZIP Cartridges | 19 |

## SCSI CD-ROM DRIVES & DRIVERS

**Sony CDU 55 - (Internal or External) 79/139**
caddyless, double speed (2X)
multisession, photo-CD, 1 Year Warranty

**NEC 222 (Internal / External) 149/209**
caddyless, QUAD SPEED (4X),
multisession photo-CD, 1 Year Warranty

| | |
|---|---|
| Toshiba 4.4x | 199/259 |
| Teac 6x | 199/259 |
| Plextor 6x | 249/309 |
| Plextor 8x | 299/369 |
| ASIM CDFS 3.6+ w/Fish CD (AMIGA) CDROM file system for Amiga Systems, includes Fred Fish CD. | 59 |
| Squirrel SCSI II PCMCIA (A1200/600) | 94.00 |
| Surf Squirrel SCSI II & High Speed Serial PCMCIA for A1200 & A600 | 139.00 |

**Micropolis 1936 SCSI I & II**
**12 MS - 3000 MB - 5.25" FH**
4 MB/Sec Async 5 Year
10 MB/Sec Sync Warranty **699.00**

## PHASE *5*

| | |
|---|---|
| Blizzard 1260 Turbo Board | 875.00 |
| Blizzard 1260 or 1230 SCSI II/RAM | 175.00 |
| Blizzard 1230-4-50mhz | 295.00 |
| Cybergraphix Software | 59.00 |
| Cybervision 64 Z3 w/2MB | 399.00 |
| Cybervision 64 Z3 w/4MB | 449.00 |
| Cyberstorm 68060 @ 50MHZ MK II | 899.00 |
| Cyberstorm 68060 MK II SCSI II | 149.00 |
| Cyberstorm 68060 A2000 | 899.00 |

## 3.5" HARD DRIVES

### Quantum

| | | | | |
|---|---|---|---|---|
| IBM 540MB SCSI I & II | | 10MS | 2 Yrs | 19 |
| 850 LPS SCSI I & II or IDE | | 11MS | 2 Yrs | 24 |
| IBM 2.1GB SCSI I & II | | 8.5MS | 3 Yrs | 39 |
| *2.1G Atlas | 7200RPM 1MB | 8MS | 5 Yrs | 64 |
| ** 2.5 GB SIRRACO IDE | | 10MS | 5 Yrs | 34 |
| *4.3G Atlas | 7200RPM 2MB | 8MS | 5 Yrs | 89 |
| 4.3G Grand Prix 512k buffer | | 8MS | 5 Yrs | 84 |

### Seagate

| | | | | |
|---|---|---|---|---|
| ST3290A | 260 MB IDE LP | 16MS | 3 Yrs | 13 |
| ST3491A | 420 MB IDE LP | 16MS | 3 Yrs | 14 |
| ** 51080A | 1080 MB IDE LP | 10MS | 3 Yrs | 22 |
| ** 51270A | 1270 MB IDE LP | 10MS | 3 Yrs | 24 |
| ** 52140A | 2140 MB IDE LP | 10MS | 3 Yrs | 34 |
| ST31231N | 1050MB SCSI LP | 9MS | 5 Yrs | 37 |
| *ST32550N | 2.1G Barracuda | 8MS | 5 Yrs | 99 |
| *ST15150N | 4G Barracuda | 8MS | 5 Yrs | 119 |
| *ST410800N | 9G Elite | 11MS | 5 Yrs | 219 |

* VIDEO FLYER CERTIFIED HARD DRIVES
** A4000 AUTOBOOTABLE HARD DRIVES

### Conner

| | | | |
|---|---|---|---|
| CFA 1275A IDE (w/PAR) | 12MS | 3 Yrs | 39 |
| CFA 850A IDE | 12MS | 3 Yrs | 26 |
| CFP 540A IDE | 12MS | 3 Yrs | 19 |
| CFA 540A IDE ( w/PAR) | | 3 Yrs | 19 |

## A1200/600/SX1 2.5" IDE HARD DRIVES

ST9816AG 810MB Seagate 349

**IBM**

| | |
|---|---|
| 540MB | 149 |
| 760MB | 199 |

Install kits available $25.00

## TAPE BACKUP DRIVES

| | | | |
|---|---|---|---|
| Seagate 4324NP | 2/4GB | 332k/sec | 649.00 |
| Seagate 4326NP | 4/8GB | 400k/sec | 799.00 |
| Exabyte 8700LT | 7/14GB | 1024k/sec | 1099.00 |
| Quantum 2000 | 10/20GB | 2500k/sec | 3384.00 |
| Quantum 4000 | 20/40GB | 3000k/sec | 4995.00 |
| Sony 4MM 120M DDS2 Tape (8GB) | | | 20.00 |
| Exabyte 8MM 160M Tape | | | 15.00 |
| Quantum 2000 Tape (20GB) | | | 50.00 |
| Quantum 4000 Tape (40GB) | | | 120.00 |

## CD-ROM RECORDER DRIVES

Now you can record your own CDROM discs or make backups of the ones you already own.

**REQUIRES SCSI INTERFACE CARD**

| | | |
|---|---|---|
| Mastering ISO Recording Software | | 129 |
| Yamaha CDR102 | 4x read 2x write | 495 |
| Yamaha CDR100 | 4x read 4x write | 795 |
| Hewlett Packard 4020i | 4x read 2x write | 695 |
| CDR Recordable 74 Minute Blank | | 9.95 |

## AMIGA NETWORKING

| | |
|---|---|
| Interworks ENLAN-DFS (5 node licence) | 299 |
| CBM A2065 Ethernet board | 399 |
| Hydranet (2000/3000/4000 Series) | 299 |
| I-Net (A1200 PCMCIA interface) | 299 |
| Ariadine | 259 |

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(302)738-9259 FAX

FIVE MILLION DOLLARS OF INVENTORY AVAILABLE FOR DELIVERY TO YOU

800 699 4049

# FLYER & TOASTER SYSTEMS

| | |
|---|---|
| **Amiga 4000T** Motherboard, tower case, 250 watt power supply, 2 video slots, 5 zorro III slots, floppy disk drive, mouse, keyboard, 18MB Memory, (3640 w/CPU additional $200) 1000MB HD & Bundled Software Pack of assorted software! | 2395 |

**Processor Options -**

| | |
|---|---|
| A3640 68040 @ 25mhz cpu w/MMU & FPU | 200 |
| Macrosystems Warp Engine 4040 w/CPU, SCSI I&II Controller | 695 |
| A4650 68060 @ 50mhz cpu w/MMU & FPU (EDO Support) | 995 |

**Memory Options -** (Minimum of 8MB Fast Memory needed)

| | |
|---|---|
| 1x32 Simms 60ns 4MB | 25 |
| 2x32 Simms 60ns 8MB | 50 |
| 4x32 Simms 60ns 16MB (accelerator or extra ramboard) | 100 |
| 8x32 Simms 60ns 32MB (accelerator or extra ramboard) | 200 |

| | |
|---|---|
| Newtek Video Toaster 4000 (NEWEST VERSION) | 1995 |
| Newtek Video Flyer (NEWEST VERSION) | 3895 |
| - 2.1 Video Tested / Formatted & Configured Drive (5 Yr) | 749 |
| - 4.3 Video Tested / Formatted & Configured Drive (5 Yr) | 995 |
| - 9.1 Video Tested / Formatted & Configured Drive (5 Yr) | 1795 |

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## DKB

**Megachip 2000/500** 185.95

Allows your A500 & A2000 series computers to have two megabytes of chip ram. A must have for people who use video, graphics and audio applications. Included is the Megachip daughterboard with 2MB Agnus chip and an extra one megabyte of ram. (Requires A500 to have A501 ram expander +24.95)

**A1202 board (A1200 Only)** 87.95

A multi-function board for the A1200 Computer that provides the maximum fast ram expansion plus a battery backed up clock-calendar. Includes two simm sockets for combinations of 1, 2, 4, 5, or 8MB of fast ram using industry standard 32 bit simms with 72 pins. Optional plcc math co processor can speed upmath functions as much as 1000% or more.

**A3128 Ram board (A3000/4000 Only)** 189

Allows 32 bit ram expansion to 146 megabytes of ram using 72pin industry standard simms. Four simm slots accept either 4, 8, 16, or 32 megabyte simms.

**A2632 Ram board (A2630)** 189 w/4mb

Allows 32 Bit ram expansion onboard of 112mb of ram using industry stanard 72pin simms. Has four four sockets allowing use of 4, 8, 16, or 32 mb simms. Allows full burst mode support.

## DKB's WILDFIRE 060 w/FAST SCSI II & 64bit ramboard $1299

Upgrade rebates available for owners of other accelerator boards & ram through De Vine. 4MB - 25 8MB - 50 16MB - 100 32MB - 200

- True 68060 50Mhz Design - NOT A MODIFIED 68040 BOARD !!!
- Lightning High Speed Local 68060 Memory, supports interleaved memory
- Supports Posted Writes to Motherboard & 10MB/SECOND SCSI TRANSFERS
- 32 Bit FAST SCSI II Host bus DMA Interface
- Over 90% of the CPU available at full Speed SCSI DMA
- Totally Autoconfigurable - 64 BIT Ram expandable to 128MB
- Uses Industry Standard 72 Pin Simms - Ethernet - Twisted Pair & Thin Coax
- PCI Bus For Future Expansion supporting up to 100MB/Second
- Compatible with the Newtek Video Toaster & DKB Megachip
- Includes Manufactures TWO year full warranty

From a company that listens to what the public wants! This is the FASTEST accelerator available for the Amiga 2000!! MADE IN THE USA!

## DKB

**Kwikstart II (A1000)** 54.95

Control up to seven SCSI I & II devices internal and / or external at the same time! DB 25 connector included for easy external connections. Low cost solution for many users with an A2000/ 3000/ 4000

**Multistart II 6a (A500, 600, 2000)** 29.95

You can use more than one kickstart rom chip with this device! Switchable by resetting the machine for a few seconds.

**Cobra 33MHZ w/MMU & FPU** 149.00

Accelerator for A1200 computer with 68030 @ 33Mhz, 68882 @ 33Mhz math co-processor, and battery backed real time clock.
Expandable to 128MB of fast ram using industry standard 72 pin simms. Increase in speed up to 600% SCSI I&II controller can be added $89.00

**Rapidfire SCSI I & II controller** 139.00

Specifications are unsurpassed in speed, power, compatibility & raw performance. Ram expansion up to eight megabytes of 72pin industry standard ram. Hard drive can attach to card, & includes db25 external connector

## EXPANSION SYSTEMS

**HIGHFLYER (A4000 Only)**

| | |
|---|---|
| INCLUDES Power Supply | 375 |
| Fan Kit | 39 |
| Cable Kit | 69 |

**Dataflyer SCSI card 4000SX** 84.00

- SCSI Controller card supports up to seven devices internally, can add external port later

**Dataflyer SCSI card 4000SX-25** 89.00

-SCSI controller card with DB25 external connector for external devices

**Dataflyer SCSI+ A4000** 99.00

-converts IDE header into SCSI support for up to five devices with pass thru to work with original IDE drives you already own

**Dataflyer SCSI+ A1200** 99.00

-converts IDE header into SCSI port with original IDE still functional! Control up to seven devices total.

**Dataflyer 1200/600 XDS** 69.00

- external case supports 3.5" IDE hard drive & allows use of internal 2.5" hard drive. Includes pass thru cable for using two hard drives at once.

**Dataflyer RAMBOARD w/0MB** 89.00

- ramboard expandable to eight megabytes of ram using 1x8 or 1x9 simm moduals

**Dataflyer SCSI controller (2000/3000)** 89.00

SCSI Controller card, controls up to seven devices at once. Optional DB25 connector available for 9.95.

**Dataflyer IDE controller (2000/3000)** 79.00

IDE controller card, controls up to two IDE devices at once.

**Dataflyer SCSI & IDE controller (2000)** 95.00

IDE controller card, controls up to two IDE devices at once. SCSI controller part controls up to seven SCSI devices at one time on the same card.

**Dataflyer SCSI A500** 149.00

External enclosure, allows internal mounting of 3.5" SCSI device. Ramboard can be added to expand memory to eight megs. DB25 external connector purchased separately for 9.95. Up to seven devices can be controlled.

**Dataflyer IDE A500** 149.00

External enclosure, allows internal mounting of 3.5" IDE device. Two devices can be controlled. Dataflyer RAM-C Ramboard can be added to expand memory to eight MB.

**Dataflyer SCSI & IDE A500** 179.00

External enclosure, allows internal mounting of 3.5" SCSI or IDE device. Ramboard can be added to expand memory to eight megs. DB25 external connector purchased separately for 9.95. Up to nine devices can be controlled mixing & matching SCSI & IDE..

**Baseboard A601C** 25.00

Ramboard with one megabyte of ram for an additional megabyte of chip memory for the Amiga 600 computer system. Included also is a battery backed real time clock.

*Expansion Systems is an American owned & operated company. Their products carry a one year manufacture warranty.*

**HIGHFLYER**

- Expansion case with power supply option, fan kit option, flyer cabling kit option.
- Allows a user to add an extra Amiga slot to their A4000 desktop system by moving the Newtek Video Toaster board.
- Gives the user the power to add additional cards like DPS Vector Scopes in extra PC slots

## CSA DERRINGER+

**800% INCREASE IN SPEED!** ONLY 249.00

68030 @ 50MHZ with Memory management unit 68882 @ 50MHZ FPU (Math Co Processor add 75.00) 1MB of 60NS 32bit ram (32bit os by remapping kickstart) Up to 32MEGABYES of 72 pin industry standard ram WHATS THE PLUS? It's the modification to work with the DKB Megachip 2000/500 (a $25.00 value if purchased seperately)

4MB - 275 8MB - 299 16MB - 349 32MB - 449

**FREE MATH CO PROCESSOR with purchase of 33mhz version**

**2000/500 ACCELERATOR**

## A1200 CSA Accelerators

68030RC33 Mhz w/MMU, 68882 RC33 math co-processor, AND SCSI I & II controller card built in w/ external port expandable to 32mb of ram 399.00

68030 running at 50 Mhz w/MMU AND SCSI I & II controller card built in with external port expandable to 32 mb ram 599.00

CSA is an American owned & operated company. Their products carry a one year manufacture warranty.

## CSA Magnum

- Includes SCSI I & II Fastest hard drive controller available for the Amiga 2000 series
- Up to FIVE megabytes per second with a Seagate Barracuda 2.1 gigabyte hard drive
- Expandable to 64MB ram using 72 pin industry standard simms

**68040 @ 40Mhz w/CPU & MMU & FPU 895**

Low profile, power & heat simms for maximum performance -

| | |
|---|---|
| 04 MB 60NS | 25.00 |
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9611


## VIDEO TOASTER USER™

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701 ❑ 3D Animation
702 ❑ Mass Storage
703 ❑ Computer Systems/ Accelerations
704 ❑ Monitors
705 ❑ Audio Sound
706 ❑ Video Cameras
707 ❑ Stock Footage/ Music Libraries
708 ❑ Video Accessories/Supplies

**B. Which trade show do you plan to attend?**

01 ❑ NAB '96
02 ❑ ACM SIGGRAPH '96
03 ❑ Video Toaster User Expo '96
04 ❑ COMDEX Fall '96

**C. How many other readers see part or all of this issue?**

05 ❑ One 06 ❑ Three 07 ❑ Four 08 ❑ Seven or more

**D. Your comments on this issue:**

_____

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| 14 | 29 | 44 | 59 | 74 | 89 | 104 | 119 | 134 | 149 | 164 | 179 | 194 | 209 |
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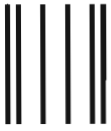

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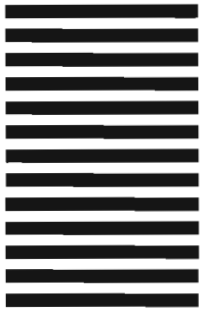

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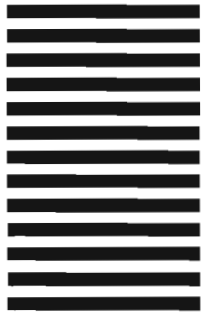

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QUICK DIAL 74

## Panasonic
### Broadcast & Television Systems

## AG-456
### 2-Hour S-VHS Camcorder

- S-VHS system – records and plays over 400 lines horizontal resolution
- Now includes manual zoom control
- Laminated amorphous heads assure exceptional picture quality, high resolution, superb color reproduction, and high signal-to-noise ratio
- 12:1 power zoom lens with continuously variable speed zoom
- Hi-fi stereo and linear track for recording. Also has "Audio Out" select switch for Hi-fi/Normal/Mix combinations
- High performance stereo zoom microphone features three different settings: Wide, Telephoto or automatic zoom.
- Built-in VITC (Vertical Interval Time Code) time code generator gives absolute address to each frame of video for frame accurate editing (with specific edit systems)

## AG-EZ1
### 3-CCD Digital Camcorder

In addition to it's state-of-art DVC recording system, the AG-EZ1 also features a three-CCD image sensor, 180,000 pixel color viewfinder, 10:1 power and 20:1 digital zoom, full auto and manual controls and a large LCD panel.

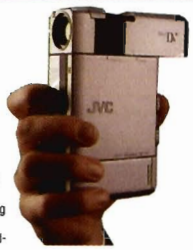
- Three CCDs with 270,000 pixels each are horizontally staggered for optimum resolution.
- Digital recording system delivers incredible 500 lines of horizontal resolution and virtually no noise. Signal-to-noise is 54dB, an improvement of 6-9 dB over conventional analog systems. This represents a S/N ratio 2-3 times better than existing camcorders.
- Audio is also recorded digitally for quality that rivals CDs. You can choose between two-channel 16-bit recording or two sets of 12-bit stereo, with the second set for uses such as narration.
- Magnified 180,000 pixel color viewfinder tilts 120° vertically for shooting from high or low angles, and its professional size means you don't have to press it against your eye to see the picture.
- Variable high speed shutter goes from 1/60—1/8000 of a second in 14 increments.
- Digital Electronic Image Stabilizer (DEIS) compensates for jittery video and is very effective when the digital zoom is employed.
- Equipped with 10:1 power and 20:1 digital zoom lens .Both zooms are adjustable in four speeds (3.5 seconds—15 seconds) based on how hard or soft the zoom toggle is pressed. To set up a shot quickly, a Turbo Zoom function moves from tight to wide angle, or vice versa, in under two seconds. For extreme close-ups the lens can focus up to 1/4 inch from the subject.
- Digital Photo-Shot let's you record a still-frame for about six seconds, while audio continues as normal. This feature is great for creating video photo albums as 290 still pictures can be recorded on a single 30-minute tape and 580 shots on a 60-minute tape. Using the TopScan feature any shot can be found easily.
- Large LCD panel on the side of the camera displays camcorder status and operating modes.

## AG-DP800H SUPERCAM
### S-VHS 3-CCD Digital Signal Processing Camcorder

- Three high-density 380,000 pixel CCDs with half-pitch pixel offset achieves over 750 lines of horizontal resolution, a S/N ratio of 60dB and remarkable sensitivity of f8 at 2000 lux. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear, so you maintain impressive picture quality even in very bright illumination.
- Digital Signal Processing circuitry provides four valuable benefits
  1) Consistently reliable up-to-spec performance.
  2) Fine adjustment of a wide range of parameters.
  3) Memory storage and instant recall of specific settings.
  4) More flexible and higher quality image processing, as well as easier maintenance.
- Some of the DSP circuits and their functions:
  - CHROMA DETAIL - This function compensates for poor resolution in the high chroma areas of the picture.
  - DARK DETAIL - Determines optimum degree of contour enhancement in dark areas to deliver crisp, natural-looking images
  - HIGHLIGHT COMPRESSION - Expands the dynamic range of the highlighted areas and prevents halation. The highlight compression circuit allows a wide dynamic range producing detailed images even against bright backlight or daylight.
  - FLARE CORRECTION CIRCUIT - Compensates for unsteady black caused by light or by a subject's movements.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments can be set variably from 1/61 seconds to 1/253 of a second.
- Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Interval) time code
- Two hi-fi stereo audio channels with a dynamic range of 80 dB, as well as two linear audio channels with Dolby NR. Normal/Hi-Fi recording is selectable. Uses XLR connectors to further ensure high-quality sound.
- Has a 26-pin connector on the back that outputs a composite or component video signal. This enables convenient backup recordings using an additional VCR equipped with a 26 or 14-pin connector
- Phantom power can be supplied to an optional microphone. Power can be switched off to prevent battery drain when not in use.

QUICK DIAL 71

## JVC
## GR-DV1 CyberCam
### Digital Video Camera



Weighing in at 1.1 LB with battery and tape, the 570,000 pixel GR-DV1 is the smallest and lightest camcorder in the world. Technological advances along with miniaturized high quality optics have made this possible without sacrificing any quality or features. Add digital video and audio recording at much higher quality than any conventional camcorder and you have one of the most versatile recording tools ever developed. Applications include personal video recording, surveillance, recording important meetings and multimedia presentations.

**DIGITAL VIDEO**
The GR-DV1 combines a 570,000 pixel image sensor with the new DV formats 4:1:1 digital component recording system to deliver a razor sharp picture with 500 lines of resolution. Also provides enhanced definition and color accuracy even with the subtlest colors. Also features a Digital Image Stabilizer to eliminate camera shake without affecting resolution.

**DIGITAL AUDIO**
Previously available only in high end cameras costing tens of thousands of dollars, CD quality audio recording on video tape is now available. Digital audio recording delivers 2 channels at 48kHz (16-bit) sampling for highest quality or four channels at 32kHz (12-bit) when dubbing or mixing is required.

**COLOR VIEWFINDER**
Line-of-sight design of the color viewfinder, which slides back to engage standby mode along with the vertical orientation of the camcorder ensures point and shoot simplicity.

**DIGITAL SPECIAL EFFECTS**
A multitude of special effects are possible with the GR-DV1 including wipes, fades, and dissolves. In addition, some specialized effects such as Classic Film, Monotone, Sepia, Strobe, and Video Echo can be recorded in the camcorder or can be played through docking station— even if they weren't originally recorded.

**SNAPSHOT/QUICKPIX/ANIMATION**
- Snapshot mode captures still images with a white border around it and even adds a shutter sound effect The image is recorded for 6 seconds before the next image gradually overlaps the snapshot and normal recording resumes. A Snapshot Search feature lets you put together a video album using captured photos
- QuickPix or 5-second-record mode automatically records five second clips of video and audio when start button is pressed.
- Animation mode records scenes for just 1/8th of a second each time the start button is pressed. When inanimate objects are recorded with slight changes in position between shots,an animation effect is rendered to the objects making them come alive.

**DIGITAL ZOOM:**
10X variable speed optical zoom with built-in macro capability delivers razor sharp images from a distance or as close as 1.5 cm from the subject. Also offers 20X digital zoom and amazing 100X Super Digital zoom allowing image capture from a tremendous distance while retaining a good degree of sharpness.

**USER FRIENDLY MENU SYSTEM**
Zoom rocker control is used to make the different selections as they appear in the color viewfinder allowing you to call up settings from the menu without taking your eye away off the viewfinder. This design allows the GR-DV1 to have a minimum of controls and switches.

**DOCKING STATION**
- Multi-function docking station offers even more sophisticated playback capabilities.Plus advanced editing functions like Random Assemble, video insert and audio dubbing.
- Has composite video and audio jacks plus an S-Video jack (not built in to the camcorder).
- Accessed through a multibrand wireless remote control R.A (random assemble) editing enables programmed rearrangement of up to 8 scenes at a time, just by marking the beginning and end of scenes.
- Up to 17 scene transitions can be specified in addition to the 5 special effects that can be added (see above).
- Video insert editing allows new video to be inserted over prerecorded segments without disturbing the audio segment.
- When inserting audio 16 bit (48kHz) full audio insert replaces recorded audio with new audio without disturbing the existing video track. In the 12 bit (32kHz) mode, 2 additional audio tracks can be added to the existing audio and mixed.
- Enables 1/10th speed slow motion playback in either direction plus a 10x zoom can be activated to zoom in on a portion of the picture. The remote controller can then shift this portion of the picture up, down, left, or right.

QUICK DIAL 74

## JVC PROFESSIONAL
## GY-X3 3-CCD S-VHS Camcorder

By employing professional camera technology in new economical ways, JVC has succeeded in bringing to market a professional 3-CCD camera that breaks all previous price barriers. The new GY-X3 delivers all the performance of a high end 3-CCD camera—high resolution, high sensitivity, low noise and natural color—at an incredible price.

**Features:**
- Three 1/3" CCDs provide a sensitivity of 2000 lux at F8.0, signal-to-noise ratio of 60dB and 650 lines of horizontal resolution.
- Low light capability allows you to shoot in as little as 4 lux and still have bright pictures with good resolution and strong, vivid colors.
- Full Auto Shooting (FAS) mode instantly adjusts to changes in shooting conditions. You can go from bright outdoors to indoor lighting and gain, iris, audio level and color balance will all be automatically adjusted.
- Variable Scan View allows flicker-free shooting of a computer monitor.
- Has a built-in 14:1 (5.5-77mm) continuously variable speed zoom lens. The amount of pressure applied to the rocker determines the speed of the zoom. Both the iris and zoom can be controlled manually if desired.
- Built-in Control Track (CTL) time code generator as well as a time/date generator. The advanced CTL time code generator has a "scene finder" function that records an identification code each time you start taping. This lets you easily advance to the next or previous scene when using the JVC Edit Desk system.
- Large high resolution 1.5-inch viewfinder displays comprehensive status indicators.

## GY-X2B 3-CCD S-VHS Camcorder

- Newly designed three 1/2" CCD image sensors deliver 750 lines of horizontal resolution & superb signal-to-noise ratio of 62dB
- New micro-lens technology provides exceptional sensitivity of F8.0 at 2000 lux and LOLUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 1.5 lux
- Variable Scan allows flicker-free shooting of a computer screen
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activated is (ALC) Automatic Level Control and EEI Extended Electronic Iris which provides both variable gain and variable shutter. Now you can shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.
- Full Time Auto White circuit lets you move from incandescent to fluorescent to outdoor lighting without changing white balance or the filter wheel. •Dual output system allows camera output to be connected directly to an external recorder

## Quick-Draw Professional
### FOR CAMCORDERS OR STAND ALONE CAMERAS

porta brace

- Designed for working from the back of a van or the trunk of your car. The top loading case has a wide open fold back top that stays neatly out of the way. It's lighter and more compact than shipping cases, thus saving valuable storage space. With other equipment crowded around it the sturdy built-in frame provides added protection.
- Heavy duty shoulder strap & comfortable leather hand grip.
- Carry it in crowds – crush proof aluminum guard protects viewfinder.
- Fits into back seat and fastens securely with seat belt.
- Holds camera with on-board battery attached.
- Lid closes with Velcro for quick-opening or secure with full-length zippers.
- Two trim exterior pockets and clip board pocket.
- Dual purpose rear pouch is an expandable battery chamber or all-purpose pocket.

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## SONY

### SVO-2000 S-VHS Hi-Fi Editing VCR

The new SVO-2000 is a powerful, yet easy-to-use S-VHS Hi-Fi editing recorder. Two SVO-2000 recorders combined with the optional RM-250 Edit Controller forms a cost-efficient cuts-only editing system – with full assemble, video insert, audio dub and program editing capability.

***Superb Video and Audio Performance***

- S-VHS format delivers 400 lines of horizontal resolution and consistent, clear image reproduction for superior editing results.
- Adaptive Picture Control (APC) System for optimum picture performance. In record mode, APC automatically tests an inserted tape and checks the condition of the video heads. It then adjusts the VCR recording circuitry to capture images that are as clear and crisp as they can be. In Playback mode, APC automatically sets the ideal balance of picture sharpness and clarity.
- Hi-Fi stereo recording system has a wide frequency response of 20Hz to 20kHz and a superb 90dB dynamic range, and individual recording level controls for the left and right channels.

***Editing Features:***

- The SVO-2000 has a Control-Edit Spin remote terminal that allows it to be controlled externally. Connects directly to RM-250 for easy setup.
- With Control-S input and output terminals, two SVO-2000s can be connected for synchro editing, without the RM-250.
- RM-250 also offers program editing capability, which allows automatic sequential editing of up to 20 pre-assigned scenes.

### SVP-5600 and SVO-5800 S-VHS Player/ S-VHS Editing Recorder

***SVP-5600 and SVO-5800 features:***

- S-VHS with high quality signal processing techniques like DNR, Digital Field DOC and Chroma Process improvement, to deliver the consistent picture quality so essential to editing. They also incorporate a wide video head gap and track width (58mm) for stable and faithful picture reproduction.
- Each has a built-in TBC plus an advanced Digital Noise Reducer (DNR) for both the chrominance and luminance signals to eliminate noise during playback. At the same time, a field memory incorporated in the noise reducer removes jitter to provide sharp, stable pictures. The field memory, also includes a Digital Field DOC (Dropout Compensator), which replaces signal dropout with information from the previous field.
- Chroma Process Improvement circuitry greatly improves the chroma bandwidth, thus enabling sharper and clearer color picture reproduction.

**FOUR CHANNEL AUDIO SYSTEM**

- Two Hi-Fi tracks provide a wide frequency response from 20hz to 20khz and a superb dynamic range of 90db. Two linear tracks incorporate Dolby B noise reduction for high quality sound reproduction. XLR connectors are used for the inputs and outputs for all four channels.

**MULTIPLE INPUTS AND OUTPUTS**

- Both machines employ composite and S-Video connectors. With optional SVBK-170 Component Output Board, they provide component signal output through BNC connectors.

**ADVANCED EDITING FUNCTIONS**

- Both employ a sophisticated servo system, an improved quick response mechanism and built-in LTC/VITC time code capability. This makes them ideal for animation and computer graphic recording, where a frame-by-frame editing function is indispensable.
- Equipped with RS-422 9-pin serial interface.
- When connected to an RS-422 equipped edit controller, the SVO-5800 performs assemble and insert functions and also provided audio split editing capability of normal audio tracks 1 and 2. In the insert mode, video, audio and time code can be inserted independently, or in any combination.

**USER FRIENDLY OPERATION**

- Built-in character generator superimposes time code data, control track, menu setup and VCR function status on a monitor.
- For more efficient operation they have an on-screen setup menu which allows a variety of customized VCR mode operations. Programmed in the form of a layer structure, you simply go through the menu and initialize VCR operation.
- All parameters of the TBC, such as luminance level, chroma level, setup, hue, Y/C delay, sync phase and SC phase are easily controlled from the front panel, and can be remotely controlled from the optional UVR-60 TBC Remote Control, which also accesses field freeze function in the still mode and allows on/off control of chroma and luminance noise reducer.

### DFS-300 DME Switcher

The DFS-300 features basic transitions such as wipes and mixes, as well as complex DMEs, or digital multi effects. It allows you to insert sophisticated patterns like picture-in-picture, mosaic, mirror, slide and matrix wipe designs. With the optional BKDF-301 3D Effects board installed, you can perform three dimensional rotations, page turns, image twists, multi-splits and 3D spherical effects—in real time. No sitting around waiting for loading or rendering. With it's digital multi-effects, numerous keying options, 3D transitions and user-friendliness, the DFS-300 is in a league of its own.

#### POWERFUL MULTIPLE EFFECTS

**Up to 500 Effects**

- 330 factory preset 2D effects and wipes stored for immediate use. They include wipe, compression, rotation, slide, split, mirror, stream, etc. as standard.
- With the optional BDKF-301 3D board installed, 130 additional preset effects such as twist, page turn, sphere, etc. can be memorized and recalled whenever required.

**Powerful User Program**

- Provides powerful, yet easy to operate effects programming to build your own effects. Cut, mix, wipe, slide, rotation and many other 2D effects and optional 3D linear and digital effects can be created with the unit's programming function. Up to 20 created effects can be stored for instant recall and that is doubled when the 3D board is installed.

**Effects Modification**

- To suit individual tastes, allows effects modification for some of the preset effects like mosaic, posterization, solarization, wave, multi-picture, strobe, frosted glass, cinema mode, etc.
- Fine control over various parameters such as size, density and amplitude further enhances effects editing.

**Transitions**

- 111 of the most frequently used wipes are available from the preset patterns and 13 of them are directly accessed with a press of the keypad.
- Mixes, wipes, as well as digital effects transitions can be performed manually or automatically. Automatic transitions can be varied from 0 to 999 frames in duration for both foreground and background bus transitions and the DSK transitions.

#### HIGH PERFORMANCE SWITCHER

**Multi-Format Inputs/Outputs**

Three primary inputs accept composite, S-video and component signals. A fourth input accepts either component, R/G/B/Sync or a computer generated RGB signal. Color correction can be applied to any input. Two program outputs provide composite, S-video and component signals.

**Luminance Keyer**

- Foreground sources such as titles, captions or figures can be self-keyed over a background source and rotated, compressed and positioned optionally in 3D space.

**Chroma Keyer**

- Superimpose video from a foreground source onto a background source.
- Clip and Hue can be controlled for clear and sharp key edges.
- Any preset effect can be applied to the chroma keyed picture.

**Snapshot Function**

Stores up to 99 control panel settings in "Snapshot" memory for instant recall. Every parameter such as background color hue, border width, shadow density, etc. can be stored and recalled.

**Optional Down Stream Keyer**

- Optional BDKF-504 DSK (Down Stream Keyer), lets you introduce captions, characters, etc. with clear edge quality, after mix/effects processing.
- DSK key input accepts composite, component or RGB signals
- Position and type of the DSK are selectable and a box mask is provided to mask unwanted areas of the picture.

**Built-in Matte Generator**

Three matte generators for backgrounds; can be a solid color or one of 31 different textured patterns, border and effect matte signals. Also instantly selectable color bars, grid pattern and solid black. With the BKDF-504 DSK, you get two more matte generators for DSK matte and DSK border matte.

**Other Features**

- Four different title modes offer the ability to perform key effects such as luminance key, chroma key, external key or downstream key from a variety of input sources.
- Three black-burst outputs provide synchronization to equipment requiring sync signals. A genlock input allows the DFS-300 to be synchronized to an external timing source.

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## Panasonic

### AG-1300 Industrial 4-Head VHS VCR

- HR (High-Response) mechanism uses the full-loading tape transport system for quicker picture display, fast forward and rewind
- Enlarged multi-function display gives all information at a glance. Indications for the time, recording or playback mode and other often used functions are easy to confirm from across a room.
- S-VHS quasi playback (SQPB) let's you playback S-VHS tapes (in normal VHS resolution).
- On-screen display (in four languages) provides clear and easy to follow programming instructions.
- Industrial strength VCR, the AG-1300 features a rugged metal cabinet on an aluminum die-cast chassis. Includes full one-year warranty on parts and labor.
- Other features include: built-on head cleaner, automatic repeat, real-time counter, frame advance, high-speed search (27x in SLP mode), 181-channel tuner, one touch recording.

### AG-2540 Industrial 4-Head VHS Hi-Fi VCR

Same exact features as the AG-1300 *plus*—

- Super jog/shtuttle puts 19-step control over playback speed at your fingertips, giving you greater control while searching for scenes.
- Hi-Fi stereo sound system with a dynamic range of more than 90 dB.

### AG-1980 S-VHS Hi-Fi Editing VCR

Incorporating advanced digital signal processing and digital noise reduction circuitry, the new AG-1980 delivers such high picture quality—that it's third-generation picture looks almost as good as first-generation offerings from other VCRs in it's class. In addition to it's incredible video quality, the AG-1980 also features a full field digital TBC, insert and assemble editing, Hi-Fi stereo, quick response mechanism and a remote editing terminal.

- Still the only VCR in it's class to provide near frame accurate editing. When used with edit controllers from Videonics, FAST and FutureVideo, the AG-1980 achieves an accuracy of ± 2 frames And, the 5-pin edit terminal on the rear panel makes it very easy to set up an editing system.
- Performs all assemble and video insert edits as well audio video dubbing. Also has independent linear audio input and output for more flexible audio dubbing.
- Hi-Fi stereo audio with a frequency response of 20Hz to 20kHz and a dynamic range of 90dB. It also has HI-Fi recording level control, headphone monitor terminal with volume control and a mic input terminal.
- Digital Processing:
  —Equipped with a Digital Comb Filter using an advanced 3-dimensional system the AG-1980 provides complete Y/C (luminance/chrominance) separation. This practically eliminates color and luminance blurring
  —Field coefficient Digital Noise Reduction (DNR) circuitry processes the Y and C signals separately, thereby boosting the signal-to-noise ratio and reducing noise during playback.
  —Has a built-in full field TBC (Time Base Corrector) that eliminates even the smallest of jitter, skew, head impact error and color blurring. Invaluable for editing, the TBC helps maintain high picture quality even through the third-generation.
- Besides it's digital circuitry, the AG-1980 also features laminated video heads. Clearly superior to heads of conventional ferrite they provide richer, more vibrant color reproduction and a higher signal-to-noise ratio.
- Advanced dual-loading mechanism features a quick response time, requiring only 0.5 seconds for a picture to appear from Stop mode and 1.5 seconds from FF/REW.

### AG-5700 S-VHS Hi-Fi RS-232 Editing VCR

- Has amorphous video heads to yield a higher signal-to-noise ratio.
- Achieves an accuracy of ± 3 frames with optional AG-A570 Edit Controller.
- Built-in RS-232 provides machine control of playback, recording and editing functions from a computer. You can use the power of your computer (with optional software) to assemble hundreds of scenes, create edit decision lists and do complex editing jobs.
- Auto Repeat function continuously replays a tape which can be cued for tape's end or when recorded material ends.
- Separate Hi-Fi (Ch.1/Ch.2) audio recording level controls with display. There is also a headphone output with volume control.
- For unattended recording there is a Sensor Recording function. When a video signal is detected the power is automatically switched on and the AG-5700 begins recording.
- For video presentations the AG-5700 is ready to go. Weighs less than 13 lbs, extremely compact with a built- in carrying handle.

### AG-DS540/AG-DS550 Professional S-VHS Source Player/ S-VHS Edit Recorder

- 3-dimensional digital TBC with a correction range of one field. With the VCRs continuously retaining one field in memory, the data is used for 3-D type processing thereby providing excellent dropout compensation.
- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. Digital processing circuits include:
  —Chroma Aperture Compensation (CAC): Eliminates color blurring and expands chroma bandwidth.
  —Digital Noise Reduction (DNR): Processes Y & C signals separately to boost S/N Ratio by minimizing noise during playback.
  —Digital Comb Filter: Advanced 3-dimensional system for total Y/C separation providing reduced color and luminance blurring.
- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- Built-in LTC/VITC (Longitudinal/Vertical Interval) time code reader/generators for absolute frame accurate editing.
- IQ (Intelligent Quest) mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting tapes and heads. The tape transport mechanism uses five direct drive motors, including two reel drive motors.
- Performs audio split editing which lets you set the edit-in and edit-out points separately from those for video.
- Capstan Control System with large capstan spindle allows high-speed search at 32x normal speed (with color picture).
- 4 channel audio – 2 hi-fi stereo channels with dynamic range of 90dB as well as 2 linear channels with Dolby NR. Each audio channel has its own input (AG-D550 only) and output with individual channel-level setting capability and use XLR connectors.
- Provide 16:9 wide aspect compatibility, so they are fully equipped for the next generation of televisions.
- 3 rack units high, they are unbelievably compact for easy space saving installation. 19" rack-mountable with optional AG-M730.

**"STEP UP TO SUPERDECK $1000 REBATE"** Exp. 9/30/96

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# JVC

## S-VHS EDIT-DESK SYSTEM

### BR-S500U Player • BR-S800U Edit Recorder

### RM-G800U Edit Controller

Fast, accurate and professional style videotape editing is now more affordable than ever. This new "S" editing system, costing thousands less than ever before, consists of the BR-S500U Player/Feeder, the RM-G800U Edit Controller and the BR-S800U Editing Recorder. Linked via JVC's proprietary control bus, these three units offer all of the editing features professionals have come to expect. The VCRs feature a fast, heavy-duty tape drive similar to that used in JVC's renowned "22 Series", and the built-in CTL (Control Track) time code provides unparalleled accuracy and flexibility. Best of all the VCRs feature an open architecture for easy system upgradeability.

#### OPEN ARCHITECTURE

Two plug-in extension slots on the rear panels (for both VCRs) accept a variety of optional expansion boards. To build a PC-based editing system, add the SA-K27UA RS-232C interface board. To use with more sophisticated editing controllers, plug in the SA-K26U RS-422 board. Other boards include the SA-K28UA 45-pin board for connection to older JVC editing systems, the SA-N50U DNR board with time base stabilizer, and the SA-R50U VITC/LTC time code generator/reader.

#### CONTROL TRACK TIME CODE SYSTEM

Built-in time code reader (BR-S500U) and time code reader/generator (BR- S800U) utilize JVC's CTL (Control Track) Time Code System. This system records absolute tape address information (hours: minutes: seconds: frames) on the control track, and provides fast and accurate access to any frame on the video tape. This is far superior to control track counters that lose reference when the tape is removed. CTL Time Code can be added to the tape during the recording process or "post striped". For professional SMPTE time code operation there is the optional SA-R50U VITC/LTC Time Code Reader/Generator card.

#### SUPERB VIDEO PERFORMANCE

Has latest picture improvement technologies for razor sharp images, with over 400 lines of horizontal resolution. Digital Y/C separation, chroma noise reducer, chroma aperture correction and a 3-line cross-talk cancellation all combine to offer outstanding image quality, even when dubbing down multiple generations.

#### 32X VARIABLE-SPEED SEARCH

Front-panel search dials featured on both the BR-S800U and BR-S500U provide fast, accurate picture search at up to 32x normal speed. This is possible due to the incorporation of a heavy-duty direct-drive mechanism similar to that used in JVC's "22 Series."

#### FOUR-TRACK AUDIO

Each features two Hi-Fi stereo channels with a wide frequency response and a dynamic range of over 80 dB and two linear tracks. The linear tracks of the BR-S800U can be dubbed independent of each other and of the video. This is ideal for adding background music or sound effects to an existing audio track. There are two audio level meters, switchable between the Hi-Fi and linear channels. Separate input and output terminals are provided.

### RM-G800U EDIT CONTROLLER

- Has two GPIs allowing automatic triggering of special effects generators, switchers or audio mixers.
- Features automatic assemble and insert editing, audio insert editing, as well as preview/review for checking edits before and after editing, and goto for direct access to any edit point. A capstan bump function is provided to assure greater edit consistency.
- 8-digit LED counter indicates all edit data in either the TC or CTL mode. Switchable between player and recorder.
- The RM-G800U's Jog control is precise and responsive, making it easy to locate any frame on the tape. You can enter the Jog mode directly and switch between the player or recorder at the touch of a button. The Jog dial can also be used to enter and trim edit points and pulse timing from the GPI ports.

NEW! DIGITAL S

**BR-D40** Digital Dockable Recorder

**BR-D50** Digital Player

**BR-D80** Digital Editing Recorder

**BR-D85** Digital Editing Recorder with Pre-Read

## High Quality Digital Editing Is Here and It's Affordable!

An affordable, broadcast quality digital video recording and editing system, the Digital-S series reproduce images that not only are superior to any analog or digital 4:1:1 format but rival even the highest priced digital systems. It offers the robustness and reliability of a 1/2-inch format and combines 4:2:2 component processing with very mild compression to achieve and sustain excellent quality through multi-generation dubbing.

The quality of Digital-S applies equally to acquisition and editing, plus it has the flexibility to easily integrate into any digital or analog format—tape or disc. Purchase the entire system or one component at a time, its flexibility lets you to use existing equipment.

Digital-S starts with the versatile BR-D40 Dockable Recorder. Designed to produce the highest quality raw footage, the BR-D40 features automatic editing which utilizes a built-in time code reader/generator to ensure perfect, frame-accurate in-camera edits. Time code input and output slave-lock function facilitates editing the tapes from multi-camera or ise-cam shooting. Edit with a choice of two powerful editing recorders–top-of-the-line BR-D85 with pre-read and digital I/O or the economical BR-D80. Completing the line is the BR-D50 Player and the flexible BR-D51 Player with S-VHS playback (Available Oct.96). Both players accept the optional SA-D50U digital I/O interface card.

#### Broadcast Quality Digital Video

- Utilize 4:2:2 digital component processing to add a richness and warmth unobtainable with any lesser system. In addition, only 4:2:2 stands up to the rigors of sophisticated chroma-keying, multi-generational editing, special effects, blue-screen compositing, matting, A/D up/down conversion, and multiple transmission/ decoder between compression systems.
- Rep reduces finest colored details and subtlest contrasts while minimizing artifacts using extremely mild compression ratio. Set to 3.3:1 with DCT-based intra-frame coding, Digital S yields a data rate of 50 Mbps, plus it pumps out horizontal resolution of 720 pixels on 540 TV lines. S/N ratio is an incredible 55dB.
- Audio is recorded by 2-channel, 16-bit PCM signals with a sampling frequency of 48kHz. The audio is superior to CD and allows frame-accurate editing. PCM audio channels can be edited independently.
- Standard analog inputs/outputs provide outstanding performance for most applications. When virtually perfect dubs are required, they use S/PDIF 2.59M interface for digital video and AES/EBU for digital audio. The one true digital video standard today, SMPTE 259M permits long cable runs and is ideal for direct professional connection to digital switchers, disk-based recorders and digital tape recorders.

#### Robust 1/2-inch Format

- Achieves its super-high image quality using a robust, 1/2-inch metal particle cassette tape. The cassette housing has a dust-proof structure to increases tape life as well as your images. Tape speed is 57.8 mm/s for a recording time of 104 minutes.
- Digital-S features an extra wide track-width of 20 microns for improved stability and reliability. One frame consists of 10 tracks with the video area on either side of the audio track.
- Equipped with powerful error correction circuitry that not only replaces data in the unlikely event of a tape dropout but continues to play back a picture even with a clogged head.

#### Digital Editing

- Digital-S VCRs are equipped with variable-slow motion which can be accessed by standard editing commands. Smooth and noiseless, the image quality of slow motion is equal to regular playback and is available within a range of ±1/3X.
- Longitudinal tracks include two auxiliary audio (cue) tracks and a control track for tracking purposes. Cue tracks provide easy location of edit points which can be heard at any tape speed.
- Because of its linear control track, Digital-S has a short lock-up time which eliminates long pre-rolls. This feature achieves a stable picture faster, saving precious editing time.
- Auxiliary video (sub-code) area stores two selectable uncompressed lines of video. Suitable for recording closed caption or other information located in the vertical blanking interval.

#### PRE-READ EDITING (BR-D85 Only)

Previously an exclusive feature of very high-end digital systems, video pre-read enables the recorder to first play back the digital signal on the tape, before recording a new signal in its place. Operable with either digital or analog signals, pre-read lets you perform layering and A/B roll editing with only two VCRs, instead of three.

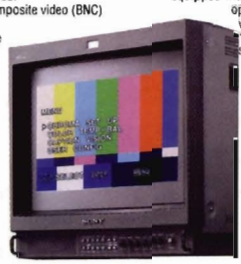
#### Operational Conveniences

- Comprehensive analog inputs/outputs (composite, S- video and component), video and audio monitor output, RS-422 interface, and VITC/LTC time code.
- Jog/shuttle and system trimming controls on the front panel. Footage can be searched in color at up ±32X normal speed.
- They have a self diagnostic warning system plus an RS-232 diagnostic service port measures digital data performance during playback. There is also a standard hour meter.
- They also feature flying erase head, rack mount capability and built-in head cleaner.

# SONY COLOR MONITORS

## PVM-1350 13" Presentation Monitor

- Employs a P-22 phosphor fine pitch CRT to deliver stunning horizontal resolution of 450 horizontal lines.
- Beam current feedback circuit eliminates white balance drift for long term stability of color balance.
- Has analog RGB, S-video and two composite video (BNC) inputs as well as 4 audio inputs.
- Automatic Chroma/Phase setup mode facilitates the complex, delicate procedure of monitor adjustment. Using broadcast standard color bars as a reference, this function automatically calibrates chroma and phase.
- Chroma/Phase adjustments can also be easily performed with the monochrome Blue Only display.
- Factory set to broadcast standard 6500K color temperature
- On power up, auto degaussing is performed. There is also a manual degauss to demagnetize the screen.
- On-screen menu facilitates adjustment/operation on the monitor. Menu display is in English, French, German, Spanish or Italian.
- Sub control mode allows fine adjustments to be made on the knob control for contrast, brightness, chroma and phase.



## PVM-1351Q 13" Production Monitor

**Has all the features of the PVM-1350 *PLUS* -**

- A multisystem monitor, it accepts NTSC, PAL and NTSC video signals. NTSC 4.43 can also be reproduced.
- Equipped with a SMPTE 259M Serial Digital Interface. With optional serial digital interface kit BKM-101C for video and the BKM-102 for audio the PVM-1351Q can accept SMPTE 259M component serial digital signals.
- Equipped with RS-422 serial interface. With optional BKM-103 serial remote control kit, all of the monitor's functions can be remotely controlled.
- Inputs include analog RGB, S-video, component, 2 composite video (BNC) and 4 audio for complete flexibility.
- Aspect ratio is switchable between 4:3 and 16:9 simply by pressing a button.
- Underscan function allows you to view entire image and check the picture edges. Also H/V delay to view the blanking area, sync/burst timing by displaying the horizontal and vertical intervals in the center of the screen.
- Color temperature switchable between 6500K/9300K/User preset. 6500K is factory preset. 9300K is for a more pleasing picture. User preset is 3200K to 10,000K.

## PVM-1354Q/PVM-1954Q 13" and 19" Production Monitors

**All the features of the PVM-1351Q *PLUS*:**

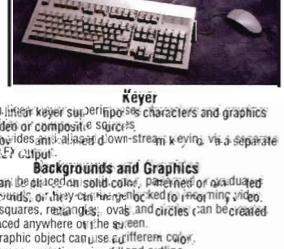
- SMPTE C standard phosphor CRT is incorporated in the PVM-1354Q/1954Q. SMPTE C phosphors permit the most critical evaluation of any color subject. Provides over 600 lines of horizontal resolution
- The PVM-1354Q mounts into a 19-inch EIA standard rack with the optional MB-502B rack mount bracket and SLR-102 slide rail kit same as PVM-1351Q. The PVM-1954Q mounts into a 19-inch EIA rack with the optional SLR-103 slide rail kit.

**Why pay $10,000 to $15,000 for a BROADCAST QUALITY CHARACTER GENERATOR when you can get it for only $2995?**

***Introducing the new.....***

# VIDEONICS POWER Script

## Animated Postscript Character & Graphics Generator



A technological and engineering breakthrough, the PowerScript sets new price/performance standards for broadcast video production, multimedia and industrial applications. It delivers the huge range of titles and graphics supported by PostScript display technology, plus animation, effects, transparency and keying. It features anti-aliased, 17.5 ns (nanosecond) pixel resolution and 4:2:2 broadcast-quality video, plus high-speed RISC processing to provide real-time Level 2 PostScript imaging and fast rendering—even with the most complex images. The PowerScript works stand-alone or with a computer, has a built-in TBC, offers a powerful and intuitive interface, and is suitable for the desktop or can be rackmounted.

#### Powerful Character Generator

- Choose from 35 built-in fonts or download hundreds of PostScript fonts from your computer. It's high-speed RISC processor provides real-time PostScript Level 2 imaging.
- Characters can be rotated at any angle, scaled to any size, stretched horizontally or vertically.
- Styles include available bold and italic, underline and shadow (drop shadow, variable displacement and opacity). Each character can be adjusted separately.
- Text can be positioned anywhere on the screen or automatically centered, vertically or horizontally.
- Left, right, top, bottom & center justification is provided as well.
- Characters are automatically kerned, using the font's standard kerning information.
- Spacing is highly flexible with variable word and letter spacing and line spacing (leading).

#### Intuitive User Interface

- Built-in real-time object-based drawing tool and text editor, no external computer or software required. Design can be done ahead of time and displayed later, or can be done on the fly. Display is real time.
- Supplied keyboard and mouse are used with easy on-screen menus to place and modify graphics and text.
- Customizable function keys let you change fonts, colors, and other characters instantly.
- Separate preview output allows you to create and edit titles while another set of titles is being displayed.

#### Roll, Crawl, Animation, Effects

- Variable speed roll, crawl and push (slide) in all directions.
- Every text object, graphic, and logo can be separately animated. Complex animations include ability to have elements follow paths, bounce, etc.
- Elements can change outline and/or fill color, transparency, position as they move and results are displayed in real time.
- Move individual characters in different directions; make colors change; flash words; make letters and words bounce; spin a letter across the screen.
- Use effects like fades and wipes to transition between titles and video or between two pages of titles.

#### Keyer

- Internal linear keyer superimposes characters and graphics on S-video or composite sources.
- Also provides anti-aliased down-stream keying, via a separate linear KEY output.

#### Backgrounds and Graphics

- Titles can be placed on solid color, patterned or graduated backgrounds, or they can be locked to incoming video.
- Lines, squares, rectangles, ovals and circles can be created and placed anywhere on the screen.
- Each graphic object can use a different color, transparency, rotation, size, fill and outline.

#### Transparency and Colors

- Characters can be made transparent (0-100%) over video, other characters and graphics with 64 levels of transparency.
- Opaque characters can use over 4,000,000 colors, transparent characters can use over 8,000.
- Different colors can be used for fill and outline (variable width) as well as each letter and graphic.

#### Imported Logos and Graphics

- Import and display complex graphics created with standard Mac, Windows, Amiga and UNIX-based programs, such as Photo Shop, CorelDraw and Adobe Illustrator. Accepts most PostScript or EPS format graphics without modification.
- Imported images can be any size and can be scaled, skewed, and rotated when placed on screen.
- Transparency and anti-aliasing can be defined when graphic is generated.

#### Expansion Capabilities

PowerScript operates on its own but you can still add peripherals and connect to a computer or network. Two PCMCIA slots allow the addition of non-volatile flash-RAM and Ethernet cards, and an RS-232 serial port allows connection to computers.

#### Built-in Test Generator

The PowerScript can generate standard video test patterns including color bars, crosshatch, ramp, gray wedge, multi-burst and blackburst. Titles can be placed atop any of the patterns.

**Still not convinced, then call us for a free PowerScript demo tape and see for yourself.**

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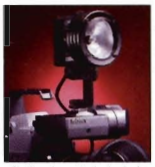
### VIP Video Lighting System

Designed for video, they are capable of 55 to 500 watts of power, can be powered AC or DC, camera or stand mountable. They are all convection cooled and some have adjustable light beam.



### i-light

The tiny i-light provides fill light, eye-light, high-lights, and contrast control in news and documentary shooting

- Multi-use halogen source
- 55 or 100 watt, DC powered light (12 or 14 volts)
- Includes cigarette lighter connector or optional 4-pin XLR
- Optional controls include expandable barndoors, scrims, diffuser, dichroic filter, snoot, umbrella, gel-frame, flags.

### V-light

Efficient enough to light a small room yet small enough to fit in a large pocket, the V-light can be used as a broad, key light, back light or fill light (with umbrella or gel.)

- Extreme wide-angle multi-use halogen source
- 500 watt. AC powered light
- Mounts on stand, clamps, boom, wall, window, door-top.

### Pro-light

Can be used as a low-level key or accent light, fill light (w/diffusion), backlight or background light.

- Multi-use halogen focusing source
- 125 and 250 watt AC powered light or 100 watt at 12 volts
- Optional controls – expandable barndoors, scrims, diffuser, dichroic filter, snoot & umbrella, gel-frame & flags.
- Optional cigarette, 4-pin and 5-pin XLR connectors.

## HORITA

### BSG-50
### Blackburst/Sync/Tone Generator

The BSG-50 provides an economical means for generating the most common RS-170A video timing signals used to operate various video switchers, effects generators, TBCs, VCRs, cameras and video edit controllers.

- 6 BNC video/pulse outputs
- Now available: 6 blackburst, 4 sync, 2 subcarrier
- Each sync output individually settable for composite sync, composite blanking, H-drive, or V-drive.
- Separate buffer for each output–maximum signal isolation
- 1KHz, 0dB sinewave audio tone output, locked to video
- Outputs can easily be configured to meet specific user and equipment needs ..... $269

### CSG-50
### Color Bar/Sync/ Tone Generator

- Generates full/SMPTE color bars, blackburst and composite sync signals.
- Built-in timer can automatically switch video output from color bars to color black after 30 or 60 seconds. Easy and convenient for producing tape leaders and striping tapes with color bars and black.
- Front panel selection of full-field or SMPTE color bar patterns or color black (blackburst) video output.
- Includes crystal-controlled, 1KHz, 0dB audio tone output
- Outputs: video, sync, ref frame, 1 KHz, 0dB
- Audio tone switches to silence and color bars change to black when using 30/60 second timer
- Fully RS-170A SC/H phased and always correct. No adjustment required ..... $349

### WE STOCK THE FULL LINE OF HORITA PRODUCTS INCLUDING:

| | |
|---|---|
| WG-50 - | Window Dub Inserter |
| TG-50 - | Generator/Inserter |
| TRG-50 - | Generator/Inserter/Search Speed Reader |
| TRG-50PC - | Has all of the above plus RS-232 control. |
| VG-50 - | VITC Generator, LTC-VITC Translator |
| VLT-50 - | VITC-To-LTC Translator |
| VLT-50PC - | VITC-To-LTC Translator / RS-232 Control |
| RLT-50 - | Hi8 (EVO-9800/9850)TC to LTC Translator |
| TSG-50 - | NTSC Test Signal Generator |
| SCT-50 - | Serial Control Titler "Industrial" CG, Time-Date Stamp, Time Code Captioning |
| SAG-50 - | Safe Area, Convergence Pattern and Oscilloscope Line Trigger and Generator |

## NEWTEK LIGHTWAVE 3D 5.0

### The Ultimate 3D Rendering and Animation System for Broadcast Graphics

A new release of the all-in-one photo-realistic animation system that has been used in seaQuest DSV, Babylon 5, Hercules, Star Trek: The Next Generation and Voyager. LightWave 3D version 5.0 allows you to view solid objects and lighting effects interactively as animation is created through the implementation of OpenGL.

- Lightwave 3D 5.0 is also the only product to break the polygone/spline barrier with the introduction of MetaNURBS. MetaNURBS performs real time transformations between polygons and splines, enhancing your ability to create organic 3D objects easily. MetaNURBS is the first tool to effectively utilize strengths of both techniques making it easier than ever to create stunning 3D models.
- Another new modeling feature is MetaBalls, which utilizes spheres to quickly approximate complex shapes. MetaBalls automatically generates a skin based upon that approximation, transforming it into a complex 3D model
- Lightwave 3D 5.0 includes over 100 new features that enhance your ability to create visual effects for television, corporate, entertainment and personal 3D animation.

## SANYO

### GVR-S950 S-VHS Single Frame Recording VCR

- Built-in single-Frame Animation Controller eliminates the need for separate or computer plug-in animation controllers. Industry-standard protocols, make it compatible with most popular graphic and animation software packages.
- SMPTE Time Code Generator and Reader with Built-in Drop and Non-Drop Frame Read/Write is fully programmable from an external computer and resettable from the front panel.
- Video and Audio Switcher with Two independent Video and Audio Channels. Each video channel contains both composite and S-Video inputs. Each audio channel contains two linear and two Hi-Fi inputs Switching can be performed either manually, or under RS232 or RS422 control. Video and audio channels are switched independently letting you perform break-away edits.
- Auto-Sensing Single RS422/RS232 input eliminates the need for optional external interfaces. Interface requirements are automatically sensed and adjusted within the recorder.
- Input and Playback Video Processing allows adjustments to the video level of the incoming signal. Signal levels and hue can be adjusted during playback.

**Limited availability of like new "B-stock" .....only $1495.00**

### GVR-S955 S-VHS Single Frame Recording VCR

**All features of the GVR-S950 PLUS** — The GVR-S955 contains an on board two input audio/video switcher. Unlike the GVR-S950, the GVR-S955 can be programmed via the RS-422 bus for complete audio/video breakaway editing. As a result of this "audio/video breakaway" feature, time code can be added to tapes with exisiting video.

## DIGITAL PROCESSING SYSTEMS INC.

### DR-2150 Personal Animation Recorder

The DPS DR-2150 Personal Animation Recorder is designed to record computer animation sequences directly to a hard drive and then play them back in real time. The DR-2150 is a card that plugs directly into an Amiga expansion slot and replaces both the single frame record VCR and the single frame controller. Bad edits, missed frames, tape dropouts and other mechanical glitches common to traditional VCRs are a thing of the past.

- Combines custom ICs and a proprietary implementation of the LSI chip set enabling component 4:2:2 digital recording to a dedicated hard drive.
- The hardware adaptively samples each new video image to determine optimum quality. Although standard compression ratios don't apply you can expect four to five minutes of high quality playback from a dedicated 540 MB hard drive.
- Has composite, S-Video and component (Betacam/MII) outputs. Also has a genlock input enabling it to be easily integrated with virtually any video production system.
- Offers multiple outputs; Can output animation as composite, S-Video and component (Betacam or MII). Also includes a genlock input which enables it to be easily integrated with virtually any video production system.
- Variable speed playback lets you play back 24-bit (16.7 million colors) animation in real-time 30 frames per second, or you can choose a lower frame rate to play back animations in slow motion.
- Supports direct rendering of all common image formats including 24-bit IFF and Video Toaster frame store files and is fully compatible with all popular animation packages including Morph Plus, Lightwave 3-D, Fractle Pro, Imagine, Vista Pro, and Cinemorph.
- Real-time video capture for roto-scoping and other video capture applications is possible when used in combination with a DPS TBC IV card.

### PVR-2500 Digital Video Recorder

The PVR-2500 offers powerful features for awesome animation, morphing and rotoscoping capabilities. With features like 720 x480 resolution, 10-bit 2x oversampled video encoding, better than D1 scaling, component and S-Video outputs, multi-processor support and FAST SCSI-2 hard drive controller, Perception empowers your computer to rival the finest professional production studios.

- The PVR-2500 is a full-length PCI card with a SCSI-II interface which connects to one or up to seven dedicated hard drives. Because the SCSI controller is integrated with the PVR-2500, video data never has to move over the PCI bus during playback. This avoids the bottlenecks found in systems which use the computer's hard drive for video storage.
- Designed to run under Windows NT 3.5 on computers employing 486 (DX2-66 or higher) Pentium, DEC ALPHA or MIPS processors. Perception's software utilizes NT 3.5's native support for multitasking and multiple processors, allowing use with the most powerful computers.
- Perception's exclusive multi-format virtual file system ensures complete integration with your existing Windows NT applications. Any acquired video or computer generated Perception video clips appear simultaneously in many different file formats including TARGA, SGI, BMP and TIFF. Also compatible with new NT versions of Lightwave 3D, 3D Studio, TOPAS 5.1 Pro, Softimage and Elastic Reality.
- Video output section utilizes 10-bit 2x oversampled encoding and provides broadcast quality CCIR-601 (720 x480) resolution. It's dynamic range is in excess of D1 scaling so that images are brighter, have more color and greater spatial resolution. Component, composite and S-Video outputs are provided via the included breakout cables.
- Use with any compatible sound card while synchronization of audio and video is maintained by the PVR software. Captured audio is stored on the computer's system hard drive, not on the dedicated drives. This approach provides maximum flexibility for manipulating audio and video during editing.
- Can perform real-time interpolation of 30 fps video to 24 fps film rates or vica versa.
- Perception controls BVU protocol VCRs for video acquisition. VCR-like controls on the Perception's GUI simplifies the task of batch digitizing and recording. In this mode, reads SMPTE time code from the source deck.
- Drivers for Windows 3.1 are supplied as well so third party editing software like Adobe Premier can be used. In fact the PVR-2500 bundled with the AD-2500 capture card, a sound card, editing software and one or more SCSI hard drives becomes a non-linear editor of unparalled performance at an unbeatable price.

#### AD-2500 CAPTURE CARD

- The optional AD-2500 is a video capture daughtercard, that transforms Perception into a digital video recorder. The AD-2500 has component, composite and S-Video inputs for real-time recording and storage capacity is limited only by the size and number of attached SCSI hard drives. Captured video can also be exported as sequential RGB files for roto-scoping and other compositing applications.
- The AD-2500 incorporates a sophisticated automatic entropy prediction circuit that analyzes the content of incoming video and dynamically calculates the optimum amount of compression on a field-by-field basis—even during real-time recording. You also have complete manual control over compression level/quality settings.

**Turnkey PVR-2500 Animation and Video Editing System:**
• PVR-2500 Perception Card • AD-2500 Capture Card • 220-watt, 6-bay midtower case • PCI motherboard with 256K cache • Pentium 120 MHz processor • Diamond Stealth64 Video 2MB DRAM PCI display card • Quantum 1.28GB IDE system drive • 32MB of RAM • Seagate (Barracuda) 4.2GB SCSI-2 Narrow hard drive • 3.5" floppy drive • Toshiba 4X EIDE internal CD-ROM drive • Creative Labs Sound Blaster 16-bit sound card • Altec-Lansing ACS-51 two- piece speaker system • Princeton Ultra 17 high resolution 17" multiscan monitor • Focus 2001A keyboard, • Microsoft MS mouse MS-DOS 6.22 & Windows 3.11 operating system software • Adobe Premiere 4.2 for Windows video editing software ..... 7495.00

**Additional Options:** Windows NT 3.51 operating system software, Newtek Lightwave 3D 4.0 animation software

## PROFESSIONAL VIDEO TAPE

QUICK DIAL 71

### FUJI

**Professional Grade VHS**

| | | | | | |
|---|---|---|---|---|---|
| PG-30 | 2.29 | PG-60 | 2.49 | PG-120 | 2.69 |

**Superior Grade Double Coded VHS**

| | | | | | |
|---|---|---|---|---|---|
| SG-30 | 3.39 | SG-60 | 3.99 | SG-120 | 4.49 |

**H471S S-VHS Double Coated**

| | | | | | |
|---|---|---|---|---|---|
| ST-30 | 6.99 | ST-60 | 7.49 | ST-120 | 7.99 |

**M221 Hi 8 Double Coated**

| Metal Particles | | Metal Evaporated Position | |
|---|---|---|---|
| P630HMP | 4.99 | E630HME | 8.39 |
| P660HMP | 6.49 | E660HME | 10.49 |
| P6120HMP | 8.49 | E6120HME | 13.99 |

**M321SP Metal Betacam (Box)**

| | | | |
|---|---|---|---|
| 05S | 17.95 | 10S | 18.49 |
| 20S | 19.95 | 30S | 22.95 |
| 60L | 31.95 | 90L | 49.95 |

### AMPEX

**289 Industrial S-VHS**

| | | | | | |
|---|---|---|---|---|---|
| ST-30A | 7.49 | ST-60A | 7.79 | ST-120A | 7.99 |

### maxell

**8Q Certified HI-8 Metal Cassettes**

| | | | |
|---|---|---|---|
| P6-30 HM BQ | 5.39 | P6-60 HM BQ | 6.09 |
| P6-120 HM BQ | | | 20.19 |

**P/I PLUS Expitaxial VHS**

| | | | | | |
|---|---|---|---|---|---|
| T-30 Plus | 1.69 | T-60 Plus | 1.99 | T-90 Plus | 2.09 |
| T-120 Plus | 2.19 | T-160 Plus | | | 2.69 |

**HGX Gold VHS-C**

| | | | |
|---|---|---|---|
| TC-20 | 3.25 | TC-30 | 3.39 |

**HGX-PLUS Expitaxial VHS (Box)**

| | | | |
|---|---|---|---|
| HGXT-60 Plus | 2.69 | HGXT-120 Plus | 2.99 |
| HGXT-160 Plus | | | 3.99 |

**8Q Broadcast Quality Expitaxial VHS (Box)**

| | | | | | |
|---|---|---|---|---|---|
| T-30 BQ | 5.49 | T-60 BQ | 6.19 | T-120 BQ | 7.39 |

**8Q Certified Professional S-VHS (In Box)**

| | | | |
|---|---|---|---|
| ST-31 BQ | 7.19 | ST-62 BQ | 8.09 |
| ST-126 BQ | 8.39 | ST-182 BQ | 14.99 |

**8Q S-VHS-C**

| | | | |
|---|---|---|---|
| STC-20BQ | 7.99 | STC-30BQ | 10.99 |

**KCA 3¼" U-Matic B.Q.**

| | | | | | |
|---|---|---|---|---|---|
| KCA-5BQ | 8.45 | KCA-10BQ | 8.95 | KCA-20BQ | 10.22 |
| KCA-30BQ | 11.31 | KCA-60BQ | | | 14.97 |

**Betacam SP**

| | | | | | |
|---|---|---|---|---|---|
| B5MSP | 15.75 | B10MSP | 17.75 | B20MSP | 19.75 |
| B30MSP | 20.50 | B60MLSP | 29.75 | B90MLSP | 46.49 |

### DV 6mm DIGITAL TAPES

**Panasonic**

| | | | |
|---|---|---|---|
| AY DVM-30EA | 9.95 | AY DVM-60EA | 13.50 |

**Sony**

| | | | |
|---|---|---|---|
| DVM-30ME | 15.99 | DVM-60ME | 19.95 |

### SONY

**Hi-8 Professional Metal Video Cassettes**

| | | | |
|---|---|---|---|
| P6-30 HMPX | 4.59 | P6-30 HMEX | 7.99 |
| P6-60 HMPX | 6.59 | P6-60 HMEX | 11.49 |
| P6-120HMPX | 8.89 | P6-120HMEX | 15.49 |

**NEW! HI-8 Metal Evaporated Editor (HMEAD)**

| | | | |
|---|---|---|---|
| E6-30 HMEAD | 10.49 | E6-60 HMEAD | 14.89 |
| E6-120 HMEAD | | | 20.19 |

**PR Series Professional Grade VHS**

| | | | | | |
|---|---|---|---|---|---|
| T-30PR | 2.39 | T-60PR | 2.59 | T-120PR | 2.79 |

**PM Series Premier Grade Professional VHS**

| | | | | | |
|---|---|---|---|---|---|
| T-30PM | 3.49 | T-60PM | 3.99 | T-120PM | 4.79 |

**BA Series Premier Hi-Grade Broadcast VHS (In Box)**

| | | | | | |
|---|---|---|---|---|---|
| T-30BA | 3.59 | T-60BA | 3.99 | T-120BA | 4.79 |

**MQ Master Quality S-VHS (In Box)**

| | | | |
|---|---|---|---|
| MQST-60 | 7.99 | MQST-120 | 8.39 |

**BRS 3/4" U-matic Broadcast Standard (In Box)**

| | | | | | |
|---|---|---|---|---|---|
| KCS-10 BRS (mini) | 8.29 | KCS-20 BRS (mini) | 8.99 | | |
| KCA-10 BRS | 8.19 | KCA-20 BRS | 8.69 | | |
| KCA-30 BRS | 9.59 | KCA-60 BRS | 13.39 | | |

**XBR 3/4" U-matic Broadcast Master (In Box)**

| | | | | | |
|---|---|---|---|---|---|
| KCS-10 XBR (mini) | 8.79 | KCS-20 XBR (mini) | 10.19 | | |
| KCA-10 XBR | 9.29 | KCA-20 XBR | 10.69 | | |
| KCA-30 XBR | 11.99 | KCA-60 XBR | 15.69 | | |

**KSP 31/4" U-matic SP Broadcast (In Box)**

| | | | | | |
|---|---|---|---|---|---|
| KSP-S10 (mini) | 9.59 | KSP-S20 (mini) | 11.09 | | |
| KSP-10 | 10.09 | KSP-20 | 11.59 | | |
| KSP-30 | 12.99 | KSP-60 | 16.99 | | |

**BCT Metal Betacam SP Broadcast Master (Box)**

| | | | | | |
|---|---|---|---|---|---|
| BCT-5M (small) | 14.99 | BCT-10M (small) | 15.99 | | |
| BCT-20M (small) | 17.99 | BCT-30M (small) | 18.99 | | |
| BCT-30ML | 21.49 | BCT-60ML | 27.99 | | |
| BCT-90ML | | | 41.99 | | |

**BCT Metal Professional Series**

| | | | | | |
|---|---|---|---|---|---|
| UVW-30MLA | 18.95 | UVW-60MLA | 24.99 | | |
| UVW-90MLA | | | 39.95 | | |

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## SAMSON

### MR-1 Wireless System

- The MR-1 micro receiver is a professional VHF wireless receiver measuring less than 4" long and 2" wide.
- FCC licensed in 14 channels from 174 MHz to 213 MHz.
- Truly switchable balanced mic level (600 ohms) to unbalanced (-10 dBm) output.
- dbx noise reduction to simultaneously increase dynamic range and eliminate noise.
- Receiver squelch, level & headphone level output controls.
- Can be powered by a 9V battery for 10 hours.
- SH-2 hand-held transmitter can be used with mic elements like Shure SM 58 dynamic mic or Audio Technica Pro 4.
- ST-2 (L) body pack transmitter can be used with leading lavalier mics like Sony ECM-144 or Audio Technica 831.

### Lavalier (clip mic) Systems

- ST-2(L)ECM-144 Transmitter with Sony mic & MR-1 Receiver ..... **367.95**
- ST-2(L) ECM-44 Transmitter with Sony mic & MR-1 Receiver ..... **419.95**
- ST-2(L) AT 831 Transmitter with Audio Technica unidirectional mic & MR-1 Receiver ..... **419.95**

### Hand-Held Systems

- SH-2/PR4 Audio Technica Dynamic mic element & MR-1 Receiver ..... **369.95**
- SH-2/58 Shure SM58 Dynamic mic element & MR-1 Receiver ..... **434.95**
- SH-2/85 Shure SM-85 condenser mic element & MR-1 Receiver ..... **592.95**

### SUPER TD SERIES TRANSMITTERS

For the serious professional who wants true step-up quality features. Lavalier (clip mic) systems each includes:

**MR-1 Micro Receiver, TX-3 Body-Pack Transmitter, Lavalier Mic with Multi Pin Plug**

Sony ECM-144 ..... **507.95** Sony ECM-44 ..... **544.95**
Sony ECM-55 ..... **653.95** Sony ECM-77 ..... **724.95**
Senheiser MKE-2 ..... **747.95**

## SENNHEISER

### MKE-300 Short Shotgun

- Lightweight electret condenser mic to support the excellent video capabilities of most camcorders with the superior audio they deserve.
- Ideal for mounting on camcorders with an integrated shoe assembly and an extremely lightweight compact design.
- Tight, supercardioid polar pattern has the ability to pick up only those sounds that correspond to the scene being filmed and rejects any disturbing ambient noise.
- Integrated wind screen eliminates handling and wind noise.
- Operating time of over 200 hrs. using its own built-in battery so will not put added strain on your camcorders already limited power supply ..... **179.95**

### K6 MODULAR ELECTRET MULTIMIKE SYSTEM

This rugged system has separate capsules and a powering module that can be combined to produce a wide variety of microphones. It converts quickly from one type of microphone to another by simply threading together various system components. All capsules use back-electret technology for uncompromised quality. Output of the powering modules is balanced, low impedance (200W) and terminates in a standard 3-pin XLR connector.The K6 series was designed to bring studio quality sound to the broadcast and field recording market. The K6 power supply can accept microphone capsules ranging in polar pattern from omnidirectional to highly directional shotgun, as well as special application lavalier microphones.

#### K6

Microphone handgrip and power supply capable of battery/phantom powering all microphone capsules in this series. One "AA" battery supplies power for approximately 150 hours or phantom power (12-48 volts). The K6 power supply has an integrated bass roll off switch and on/off switch with LED indicator for battery condition ..... **219.95**

#### ME 66

Short shotgun capsule. All sound coming from the rear and sides of the ME66 is greatly attenuated, thus allowing this microphone to pick out specific sounds in noisy environments. Great for interviews in crowded situations, as a camera microphone for electronic news gathering (ENG), for unobtrusive theater sound reinforcement and as a podium mic. Frequency response: 50-20KHz ± 2.5 dB ..... **209.95**
ME66 with K6 Powering Module ..... **429.95**

#### ME64

Cardioid capsule. Feedback resistant due to its well defined directional polar pattern. This feature, as well as its extended frequency response, make this microphone capsule ideal for use in sound reinforcement or recording in noisy environments. Frequency response: 50-20KHz ± 2.5 dB ..... **159.95**
ME64 with K6 Powering Module ..... **369.95**

#### ME62

Omnidirectional capsule. Very broad and smooth frequency response, without proximity effect. Its low handling noise and integrated pop screen make it ideal for interviews and live recording. Frequency response: 20-20KHz ± 2.5 dB ..... **139.95**
ME62 with K6 Powering Module ..... **349.95**

## MACKIE.

### MICRO SERIES 1202-VLZ

#### 12-Channel Ultra-Compact Mic/Line Mixer

Usually the performance and durability of smaller mixers drops in direct proportion to their price. Fortunately, Mackie's fanatical approach to pro sound engineering has resulted in the Micro Series 1202-VLZ, an affordable small mixer with studio specifications and rugged construction. It delivers no-compromise, non-stop, 24-hour-a-day professional duty in permanent PA applications, TV and radio stations, broadcast studios and editing suites—where nothing must ever go wrong.

- Working S/N ratio of 90dB, distortion below 0.025% across the entire audio spectrum and +28 dB balanced line drivers.
- 4 mono channels with discrete, balanced balanced mic/line inputs and 4 stereo channels (12 inputs total).
- Line inputs and outputs work with any line level, from instrument level, to semi-pro -10dB, to professional +4dB.
- Switchable phantom-powered (48v) inputs for condenser mics.
- Every input channel has a gain control, pan pot, low EQ at 80 Hz, high EQ at 12.5 kHz and two aux sends with 20dB gain.
- Master section includes two stereo returns, headphone level control and metering.
- Sealed rotary pots resist and other contaminants.

NEW!

### MS1402-VLZ

#### 14 x 2 Compact Mic/Line Mixer

Mackie's fanatical engineers have done it again. Balanced inputs and outputs, 3-band EQ, AFL/PFL and deluxe tape monitor/Control Room feature. Nice long 60mm faders, six studio-quality mic preamps and extra Alt 3-4 stereo bus—in less than 1.3 square feet of space.

- Studio grade mic preamps (chs. 1-6) with high headroom, low noise and phantom power. Also incorporate low cut filters to cut mic handling thumps, pops and wind noise. Lets you safely use low shelving EQ on vocals.
- Trim controls (ch. 1-6) with ultra wide range (+10 to -40dB) handle everything from hot digital multitrack feeds to whispering lead singers and older, low output keyboards.
- Pan control with constant loudness and high L/R attenuation so you can pan hard left or right without bleed-through.
- Two aux sends per channel with 15dB extra gain above Unity.
- 60mm log-taper faders are accurate along their whole length of travel and employ a new long-wearing contact material for longer fader life & uper resistance to dust, smoke etc.
- Control room/phone matrix adds incredible tape monitoring, mixdown and live sound versatilit y.
- Mute switch routes channel output to extra ALT 3-4 stereo bus. Use if for feeding multitrack recorder channels, creating a sub-group via controlroom/phones matrix, monitoring a signal before bringing it into the main mix or creating a " mix minus".
- Solid steel chassis instead of aluminum or plastic.

***The new MS-1202, 1402 and 1604 all include VLZ (Very Low Impedance) circuitry at critical signal path points. Developed for Mackie's acclaimed 8•Bus console series, VLZ effectively reduces thermal noise and minimizes crosstalk by raising current and decreasing resistance.***

NEW!

### CR-1604 VLZ

#### 16-Channel Mic-Line Mixer

The hands-down choice for major touring groups, studio session players, as well as broadcast and sound contracting.The new CR-1604 VLZ features everything you would expect from a larger console, and then some! 24 usable line inputs with special headroom/ ultra-low noise Unityplus circuitry, seven AUX sends, 3-band EQ, constant power pan controls, 10-segment LED output metering & discrete front end phantom-powered mic inputs.

- Lowest noise and highest headroom (90 dB working S/N and 108 dB dynamic range). Many drummers consider it the only mixer capable of handling the attack and transients of acoustic and electronic drums.
- Genuine studio-grade phantom powered, balanced input mic preamps on channels 1-6. All CR-1604 VLZ (and optional XLR10 for ten more) discrete input mic preamp stages incorporate four conjugate-pair, large-emitter geometry transistors. So, whether recording nature sound effects or heavy metal, miking flutes or kick drums, you get the quietest, cleanest results possible.
- True 4-bus design with channel assigns to 1-2, 3-4 or main L-R.
- 3-band EQ with mid-frequency sweep and low cut switch.
- AFL/PFL solo and mute switches with overload andsignal present indicators.
- Rear panel features include insert points and 1/4-inch /XLR connectors on every channel, as well as RCA tape inputs/outputs.
- New, standard size channel trim pots are found at the top of each channel.
- Rotary input/output "pod" allowing three different positions for set-up.

## AZDEN® PRO SERIES VHF WIRELESS MICROPHONES

The **AZDEN PRO SERIES** brings you high performance VHF wireless at an affordable price.. Built around a two-channel design they allow selection of a frequency for the cleanest signal - delivering clean, reliable RF performance for up to 250 feet. The Pro Series includes handheld and lavalier mic systems as well as the WMS-PRO which includes a lavalier and handheld mic.

### COMPLETE SYSTEMS

#### WMS-PRO

- Professional VHF wireless system with 250 ft. range
- Two switchable frequencies (169.445 and 170.245 MHz)
- Includes handheld and lavalier mic for extra flexibility
- Compact transmitter attaches to belt or fits in a pocket
- Includes earphone monitor
- Battery-powered receiver comes with belt-clip, velcro and shoe mount for added versatility ..... **169.95**

#### WLX-PRO

- Sensitive lavalier mic with attached tie clip
- Lightweight belt-pack transmitter with two frequencies
- Includes wind screen, earphone monitor, shoe mount and velcro ..... **159.95**

#### WHX-PRO

- Handheld microphone with built-in transmitter
- No wires, no beltpack, no tangle-hassle free
- Operates on one AA battery for up to 8 hours
- Has a combination on/off-mute switch for quiet switching
- Includes shoe mount, velcro, earphone monitor ..... **189.95**

### PRO SERIES COMPONENTS

#### WL/T-PRO

- Lavalier mic with belt-pack transmitter
- Same as WLX-PRO except without receiver
- Combine with the WHX-PRO and have a complete system of one handheld and one lavalier mic with receiver ..... **109.95**

#### WM/T-PRO

Now owners of the WMS-PRO can get a completely wirefree VHF handheld microphone with transmitter built in.

- Combine it with the receiver from the WMS-PRO or WLX-PRO and you now have the ultimate quality microphone for interviews or pass around
- 3-position switch for on, off and "standby" for quiet switching
- Choose from 2 frequencies for cleanest sound ..... **129.95**

#### WR2-PRO

- Unique new receiver which allows you to use any two Pro Series mics simultaneously.
- Each transmitter can be 10 to 250 ft. from the receiver.
- Size of a cigarette pack the WR2-PRO mounts on a camera with supplied shoe mount or velcro
- Operates on a 9 volt battery and with optional adapters on 12 volt DC or 120 volt AC ..... **199.95**

### 111 PRODUCER SERIES

Designed for professional videographers who need excellent audio reproduction, the 111 Producer Series is a professional VHF wireless microphone system that delivers excellent RF performance and wide frequency response - even under adverse condiions. Available in 10 frequencies, the Producer series has a range of 300' and is offered in handheld lavalier or plug-in systems. Each Producer series system comes packaged in a black leatherette carrying case.

#### 111R RECEIVER

The heart of the system, the 111R Receiver features output volume adjustment, balanced or unbalanced output capability and adjustable mute/squelch. It also has headphone output with volume adjustment, removable rubber ducky antenna and 9volt battery or DC 12volt power input. It includes a mini-mini output cable, with mini to XLR & mini to phone plug, available as options.

#### 31 HT HANDHELD TRANSMITTER

- High quality uni-directional dynamic element
- Unique rubber-coated durable ABS housing for comfortable feel and low handling noise
- Has 3-position power switch with standby for muting the audio
- Supplied with additional range-extender antenna

#### 31 LT LAVALIER BODYPACK

- Choice of high quality plug-in omni or uni-directional electret condenser microphone
- Input level control for maximum flexibility
- Consructed of durable ABS housing
- 3-position power switch with standby for muting sudio

#### 31 XT PLUG-IN

- Unique plug-in transmitter turns any dynamic "wired" microphone with XLR output into a wireless
- Full range of on-board controls, including power on/off, audio mute and status LED
- Input level control for maximum flexibility

## NRG

### POWER BELT SERIES

NRG power belts are the ultimate power solution. They provide the power to run lights, camcorders and decks without the fear of shutdown. Advanced high-density nicad power cells provide the lightest weight and longest service life of any power products made. Innovative features such as dual power outputs, power indicator, removable packs, plus accessories like high-speed chargers, solar panels and high-current cables combine to form the complete power solutions for any kind of users.

### 880 Power-Pro +

- High capacity quick-charge capable 12-volt 10-amp sintered nicad power pack (removable).
- Power chassis with dual 3-pin XLR inputs allows for pack interchange without shutdown.
- 2500-cycle cell life provides lowest cost per cycle.
- Microprocessor-controlled 5-step multi-color power indicator display.
- Belt with cellpack weighs only 4.9 lbs for all day comfort.
- Dual outputs allows simultaneous powering of two devices (eg. camera and light). Output configurations include cigarette lighter and 4-pin XLR in any combination.
- Charge in under 2 hours with the optional 650-III charger.
- Includes Power-Pro+ belt and power chassis, 12-volt 10-amp cell pack, model 600 *overnight charger* and comprehensive owner's manual. Fits waist size 30"- 40". (Available in large size 40"-52" if needed).

### 970 Power-MAX

Same features as 880 Power-Pro + Belt ***Plus–***

- Highest capacity quick-charge capable 12 Volt 14-AMP sintered nicad power pack (removable).
- Rugged high-grade, black leather belt case; chassis assembly with dual 3-pin XLR inputs for pack interchange without shutdown.
- Belt with cellpack weighs a comfortable 7.5 lbs.
- Includes Power-MAX belt and power chassis, 14-amp cell pack in 12V or 13.2 volt configuration, model 600 overnight charger, comprehensive owner's manual. Fits waist size 29"-44".
- Also available in 13.2-Volt 14-amp version. The 13.2-Volt version offers 15-20% longer runtimes because industrial VCRs shut off at higher voltage levels.By not shutting off the Power-MAX is allowed to fully discharge, thus the longer running time.

### VARA-LITE PRO

#### Professional DC On-Camera Light

The revolutionary new NRG Vara-Lite Pro combines the ruggedness, light efficiency and versatility of NRG's best selling Versalight Pro (DC only) with a sophisticated electronic light management system. Thanks to on-board control IC's using NRG's Light-Gate technology, light intensity can be infinitely adjusted by the user within a range of 10% to 100% of the lamp's rated power. Now instantly adjust light output to exactly meet changing light requirements. Best of all, the Vara-Light Pro virtually eliminates color shift and dramatically conserves precious battery power by using only the power required for the selected light level.

- Accomodates bulbs from 20W to 100W DC.
- Prismatic dispersion grid provides smooth even light ouput and reduced glare without changing light intensity.
- Sturdy all-metal click tilt mounting bracket with ratchet action. Eliminates shake under action shooting conditions.
- Optional barn doors enhance light control capabilities.
- Front retainer assembly pops off for instant bulb access without the bother of screws.
- Rugged milled aluminum light head disperses heat and provides years of service under adverse conditions.

### POWER STATION-2 SERIES

Just plug the PowerStation-2 into any AC outlet in the world and out comes perfectly regulated 12-volt DC power through four 4-pin XLR connectors and one cigarette lighter connector. It uses an advanced pulse-width-modulated power supply which allows for ultra-light weight and small size. It operates with little heat even at full output. The PowerStation-2 is the ultimate multiple-output professional power source for cameras, decks, lights, monitors, and a host of other video accessories.

- 85-264 volts worldwide auto-adjusting input (just plug in).
- Supply is fully protected from overcurrent.
- Ultra-light weight - under 3 lb.
- Outstanding 300,000 hour mean time between failure is far in excess of any other manufacturer.
- Ultra-efficient PWM regulation generates far less heat than linear type supplies.
- Provides the ultimate in performance and reliability in a universally compatible and compact package.

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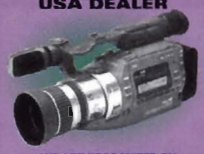

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| CL250 F4 Reflex Lens | 539.95 |
| CL10-100 10X Image Stabilization | CALL |
| CL-2X Extender | 299.95 |
| EOS Adapter VL | 299.95 |
| FS-72U Filter Set | 99.95 |
| HC-2000 System Case | 239.95 |
| RS-1000 Rain Shield | 49.95 |
| FP-100 Film/Slide Adaptor | 129.95 |

**NEW! ES-3000**
- Hi 8mm
- 20x Optical/40x Digital Zoom
- Advanced FlexiZone AF/AE
- Built-in Auto Editing Function
- Color Viewfinder

## SONY

**SVHS SVO-2000**

$979.95

*This Sony SVO-2000 is an easy to use S-VHS Hi-Fi Editing Recorder. Used in combination with the optional RM-250 Editing Control Unit, the SVO-2000 creates a simple and cost effective two machine editing system. The SVO-2000 features a Dual Mode Shuttle Ring, Auto Repeat, Index Search & Control-S in/out terminals.*

RM-250 Edit Controller.....249.95

## S-VHS VCR's

### Panasonic

| | | | |
|---|---|---|---|
| PV-S4566 | 359.95 | PV-S4670 | 354.95 |
| PV-S4680 | 439.95 | PV-S4690 | 679.95 |

### JVC

| | | | |
|---|---|---|---|
| HR-S5200 | 469.95 | HR-S5300 | 469.95 |
| HR-S7200 | 559.95 | HR-S7300 | 599.95 |

## Panasonic.

**AG-DP800H**
SUPERCAM
- Industrial S-VHS • 3-CCD • Digital Signal Processing • 750 Lines Of Resolution

**New! AG-456**
SVHS Camcorder

- VITC Recording
- 12x1 Zoom
- Hi-Fi Stereo
- S-VHS
- Super Low Light Shooting
- Variable Digital Functions

**AG-EZ1 Kit**
3-CCD Digital Video Camcorder

- 500 Lines of Resolution
- Digital Image Stabilizer
- 1.5" Color Viewfinder
- 270,000 Pixel CCD
- 10x1 Optical Zoom • 20x1 Digital Zoom.

SHAN-MC1 Mic Kit f/AG-EZ-1.....CALL
AG-BP25 Battery Pack.....CALL

**AG-1980**
S-VHS Editing VCR

$1189.95

- Full Field TBC • Digital Noise Reduction
- Separate Audio In/Out • Jog Shuttle
- 3-D Digital Y/C Separation.

**AG-DS540/AG-DS550**
S-VHS Digital Editing System

- Built-In LTC/VITC Time Code Generator/Reader • 3-D Time Base Corrector • Y/C Digital Noise Reduction
- RS-422A 9 Pin Serial Interface • 32X High Speed Search • Jog/Shuttle Dial

**New! AG-DS850H/840**
S-VHS Digital Slow Motion Editing System
Call For Configurations

| | | | |
|---|---|---|---|
| AG-188 | 574.95 | AG-1310 | 219.95 |
| AG-195 | 1029.95 | AG-196 | CALL |
| AG-2550 | 319.95 | AG-5210 | 689.95 |
| AG-5700 S-VHS Hi-Fi RS-232 Editing VCR | | | 1409.95 |
| AG-A570 Editing Controller | | | 593.95 |
| AG-A96 Editing Controller | | | 369.95 |
| AG-W1 Multi Standard Single Converter | | | CALL |
| AG-710 Player 12V DC | | | CALL |
| AG-720 Recorder/Player 12V DC | | | CALL |
| AG-750 S-VHS DC | | | CALL |

### Video Printers

| | | | |
|---|---|---|---|
| AG-EP50 | 1149.95 | AG-EP60 | 749.95 |
| PT-L290 Proj | CALL | AG-EP80 | 949.95 |

### Monitors

| | | | |
|---|---|---|---|
| CT-1331Y | CALL | CT-1384VY | 299.95 |
| CT-1384Y | 254.95 | CT-2084VY | 374.95 |
| CT-2084Y | 359.95 | CT-2584VY | 579.95 |
| CT-S1390Y | 299.95 | BT-S900Y | 879.95 |
| BT-S901Y | 634.95 | BT-S1000N | 614.95 |
| BT-S1360Y | 809.95 | BT-S1370Y | 894.95 |

### VCR/Monitor Combos

| | | | |
|---|---|---|---|
| AG-550 | CALL | AG520A | 519.95 |
| AG-513A | 379.95 | AG-513B | 389.95 |

### Digital A/V Mixers

| | | | |
|---|---|---|---|
| WJ-AVE55 | 1124.95 | WJ-MX30 | 1699.95 |
| WJ-AVE7 | 759.95 | WJ-MX50 | 3399.95 |
| WJ-TTL7 | 279.95 | WJ-KB50 | 494.95 |

## JVC

SVHS Camcorder

**New! GY-X3U**
3-CCD S-VHS

- Three High Sensitivity 1/3-Inch CCDs
- Superb Low Light Performance Down To 4 Lux
- 60db Signal To Noise Ratio
- Full Size 1.5 Inch Viewfinder
- Full Automatic Shooting (FAS)
- Time/Date Generator Built In
- 14x Servo Zoom Lens Included
- Built In CTL Time Code Generator

**GY-X2BU**

- 750 Lines Of Resolution
- Pro S-VHS
- 3-CCD Chip
- LCD Display
- 3 LUX Low Light Capable

**GR-DV1**
World's Smallest and Lightest Digital Video Camera

GV-PT1 Printer.....In-Stock!

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|---|---|---|---|
| KY-27U 3-CCD Dockable Video Camera | | | CALL |
| BR-S378U | 899.95 | BR-S822DXU | CALL |
| SR-S360U | 859.95 | BR-S622DXU | CALL |
| BR-S525U | | | CALL |

### JVC Monitors

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|---|---|
| TM-550U 5.5" AC/DC | 609.95 |
| TMA-9U | 409.95 |
| TM-91SU 9" S-VHS | 489.95 |
| TM-900SU 9" S-VHS AC/DC | 524.95 |
| TM-131SU 13" S-VHS | 254.95 |
| TM-1400SU 14" S-VHS | 634.95 |
| TM-2084SU 20" S-VHS | 429.95 |
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**JVC Edit-Desk**

BR-S800U Record/Player S-VHS.CALL FOR
BR-S500U S-VHS Player.....SPECIAL
RM-G800U Edit Controller.....PRICE!

| | | | |
|---|---|---|---|
| SAK-26U | CALL | SAN-50U | CALL |
| SAR-50U | CALL | SAK-37U | CALL |
| SAK-33U | CALL | SAK-27U | CALL |

## GO.VIDEO

### Dual Deck VCR's

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|---|---|---|---|
| Dual Deck Director f/GV-8050 | | | 74.95 |
| GV-6010 | 359.95 | GV-8020 8mm | 599.95 |
| GV-4020 | 469.95 | GV-4010 | 419.95 |
| GV-4060 Mirage | | | 589.95 |

## Video Tape

### Fuji

| | | | |
|---|---|---|---|
| T-60 HQ | 1.95 | STC-30 S-VHS-C | 5.29 |
| T-120 HQ | 1.99 | STC-40 S-VHS-C | 7.99 |
| T-160 HQ | 2.49 | P6-30 8MM | 2.19 |
| T-60 SHG | 2.59 | P6-60 8MM | 2.99 |
| T-120 SHG | 2.39 | P6-120 8MM | 2.99 |
| T-160 SHG | 3.19 | P6-150 MP | 4.65 |
| T-20 SHG | 2.79 | P6-30 HG | 2.75 |
| T-30 SHG | 3.29 | P6-60 HG | 3.10 |
| T-120 AV Master | 4.29 | P6-120 HG | 3.89 |
| T-120 AV Master (Box) | 5.39 | P6-30 Hi-8MP | 3.49 |
| ST-30 S-VHS | 5.35 | P6-60 Hi-8MP | 4.09 |
| ST-60 S-VHS | 5.89 | P6-120 Hi-8MP | 4.89 |
| ST-120 S-VHS | 5.29 | P6-30 Hi-8ME | 6.39 |
| ST-160 S-VHS | 6.99 | P6-60 Hi-8ME | 7.69 |
| STC-20 S-VHS | 4.25 | P6-120 Hi-8ME | 9.89 |

## Pro Video Tapes

### Fuji M221 Hi 8mm

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|---|---|---|---|
| P6-30 HMP | 4.69 | P6-60 HMP | 6.49 |
| P6-120 HMP | 8.89 | P6-30 HME | 7.89 |
| P6-60 HME | 10.39 | P6-120 HME | 13.79 |

### Fuji H471 S-VHS

| | | | |
|---|---|---|---|
| ST-30 | 7.09 | ST-60 | 7.49 |
| ST-120 | | | 7.89 |

### Sony Professional

| | | | |
|---|---|---|---|
| MQST 30 S-VHS | 7.10 | MQST 60 S-VHS | 7.65 |
| MQST 120 S-VHS | 7.99 | P6-30HMPX | 4.69 |
| P6-120 HMPX | 8.35 | T-30 PM VHS | 3.59 |
| P-60 PM VHS | 4.04 | T-120 PM VHS | 4.75 |
| E6-30HMEX | 7.69 | E6-60HMEX | 10.79 |
| E6-120HMEX | 14.49 | P6-60 HMPX | 6.49 |

## lowel

### On Camera Lighting

| | | | |
|---|---|---|---|
| Pro-Light 125/150 Watt AC/100DC | | | CALL |
| I-light 55/100 Watt DC | | | CALL |
| V-Light 500 Watt AC | | | CALL |

### Rifa-Lite System

| | | | |
|---|---|---|---|
| LC-55 500 Watt | CALL | LC-66 750 Watt | CALL |
| LC-88 1000 Watt | | | CALL |

**Lowel Elemental Kit TO-98**
- 1 Tote-light (less Lamp) with 16" Cable & Protective Screen, T1-10 • 2 Omni-Lights (Lens Lamps) with 16" Cables, #1 Reflectors & Protective Screens T1-10 • 3 Omni stands 01-33 • 2 Barndoors, 01-20
- 1 full Scrim, 01-54 • 1 Tota-brella, T1-25
- 2 Tota frames, T1-20 • 1 Assorted Gels, TO-78 • 1 Tota/Omni Lampak, TO-61
- 1 Tota/Omni Case, To-87

## NRG

**Varalight Pro**
Professional On Camera DC light
For Advanced Consumer & Broadcast Use

*Now light output can be instantly adjusted to meet changing light requirements, without removing hot bulbs or fussing with power robbing diffusion filters. The Vari-Lite accepts DC bulbs from 20w-100w and allows them to be instantly adjusted from 10%-100% of the lamp's power. The Vari-Lite Pro virtually eliminates color shift and dramatically conserves battery power.*

| | |
|---|---|
| Varalight Pro, Cigarette | 223.95 |
| Varalight Pro, 4Pin XLR | 238.95 |
| Mite-Lite 30 Watt DC | 93.95 |
| Highlite Dual Beam 20/35/55 Watt DC | 118.95 |
| Versalite 100W DC/250W AC | 118.95 |
| Versalite Pro 100 W DC/300 W/AC | 158.95 |
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**New! Micro Series 1202VLZ**
**12 Channel Audio Mixer..CALL.**
1402 VLZ.....CALL CR 1604 VLZ.....CALL

**Quick-Draw Professional**
For Camcorders or Stand Alone Cameras
- Heavy Duty Shoulder Strap. • Comfortable Leather Hand Grip. • Crush Proof Aluminum Guard Protects Viewfinder. • Secures In Back Seat • Fastens Securly With Seat Belt.
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- Dual Purpose Rear Pouch Is Expandable Battery Chamber or All Purpose Pocket.

## AZDEN

### Pro Series

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| WHX-PRO | 164.95 | WLX-PRO | 139.95 |
| WLX-PRO/1 | 144.95 | WMS-PRO | 149.95 |
| WDR-PRO | 199.95 | WR2-PRO | 154.95 |
| WM/T-PRO | 114.95 | WL/T-PRO | 79.95 |
| WR-PRO | 79.95 | WMS-200 | 89.95 |
| ECZ-990 | 53.95 | DMH-80S | 49.95 |
| CAM-3 | 44.95 | DM-100 | 69.95 |

### Wireless Mics

| | |
|---|---|
| 661VR/HT Multi Channel VHF | CALL |
| 661VR/LT Multi Channel VHF | CALL |
| 151VR/LT Wireless Lapel MIC | 132.95 |
| 151VR/HT Wireless Hand Held | 147.95 |
| 351VR/LT Wireless Lapel | 154.95 |
| 351VR/HT Wireless Hand Held | 194.95 |
| VCM-100 Boom MIC | 44.95 |
| SBM-500 Stereo Boom MIC | 31.95 |
| CTM-600 Unidirectional MIC | 44.95 |
| NHM-200 Monitoring Headset | 19.95 |
| AVM-300x Audio Mixer/Video Fader | 53.95 |
| MCM-400 Portable Audio Mixer | 39.50 |

## GLIDECAM

**1000 Pro Stabilizer**
*The GlideCam 1000 Pro is a light weight hand held camcorder stabilizing system which works so well that it allows you to shoot incredibly smooth and graceful shots even while going to extremes like running up and down stairs or traveling over rugged terrain. And when it comes to normal shooting like walking or moving the camera slowly around someone, the results are equally magical.....159.95*

**New! Glidecam 3000 PRO**
Supports any camcorder weighing from 4 to 10 lbs.....469.95

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|---|---|
| Glidecam Dual G | CALL |
| Glidecam Body Pro | 119.95 |
| Camcrane 100 | 429.95 |
| V-16 (f/cameras weighing from 10 to 20 lbs) | CALL |
| V-20 (f/cameras weighing from 15 to 26 lbs) | CALL |

STEADICAM JR

*Imagine that your camcorder seems to be floating, balanced at all times. Supports any 8mm and VHS-C camcorder up to 4 lbs.....349.95*

| | |
|---|---|
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| L-Type Adapter Kit f/Canon L-1/L-2 | 62.95 |
| Steadicam Jr Pal | 529.95 |
| Steadicam Video SK | CALL |

## bogen

**Cine-Video Tripods**

| Legs | w/o Head | w/3063 Head | w/3066 Head |
|---|---|---|---|
| 3061 | 211.95 | 301.90 | 476.90 |
| 3068 | 174.95 | 264.90 | 439.90 |
| 3181 | 162.95 | 252.90 | 427.90 |
| 3185 | 217.95 | 307.90 | 482.90 |
| 3190 | 312.95 | 402.90 | 577.90 |
| 3191 | 312.95 | 402.90 | 577.90 |
| 3058 | 250.95 | 340.90 | 516.90 |

For black anodized finish.....add 12.95

**Video Heads**

| | |
|---|---|
| 3063 Mini Fluid Head | 88.95 |
| 3066 Cine/Video Fluid Head | 261.95 |
| 3147 #510 Pro Video Head | 694.95 |
| 3274 #316 Video Head | 534.95 |
| 3126 Micro Fluid Head | 48.95 |
| 3130 Micro Fluid Head w/Quick Release | 53.95 |
| 3160 XL Fluid Head w/Quick Release | 55.95 |

**Video Tripod Dollys**

| | |
|---|---|
| 3127 Portable Video Dolly | 73.95 |
| 3056 Auto Dolly Black | 82.95 |
| 3137 Variable Leg Spread Portable Dolly | 83.95 |
| 3156 Folding Auto Dolly | 113.95 |
| 3254 Folding Auto Dolly Black | 128.95 |
| 3067 Cine/Video Deluxe Dolly | 168.95 |
| 3198 Video DLX Dolly f/Tripods w/Spiked Ft | 187.95 |

## bescor

**Available Dual Outputs Include Cigarette Lighter or 4 pin XLR on any configuration.**

**Lightweight Slimline Pro 12v Battery Belts**

| | |
|---|---|
| SLM-10 (8.6AH) | 131.95 |

**Lightweight Slimline Pro 14v Battery Belts**

| | |
|---|---|
| LA-149 (8.6AH) | 235.95 |

**Pro 14v Battery Brick**

| | |
|---|---|
| LA-144L(4.2AH) w/ Dual Outputs | 135.95 |

ATM Automatic Chargers...CALL

**Video Juice Box**
f/Sony Digital/TR 200-500 & Hitachi VM-H81A

| | |
|---|---|
| JB-4D | 75.95 |
| JB-5D Hi-Capacity | 101.95 |

Replacement Batteries Available f/ All Camcorder Models...CALL

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**Perpetual Power Belt Series**
The Ultimate Power Solution!

*NRG power belts provide the power to run lights, camcorders, and decks free from the fear of shutdown.*
*Advanced memory free high-density sintered Ni-Cad power cells provide the lightest weight and longest service life of any power product made. Dual power outputs, electronic power indicator and removable packs, along with accessories such as high-speed chargers, solar panels, and high current adapter cables form a flexible system that can be configured to the needs of any user.*

| | |
|---|---|
| 880 Power Pro - 12 volt/10 Amp | 338.95 |
| 970 Power Max - 12 volt/14 Amp | 473.95 |

Available Dual Outputs Include Cigarette Lighter, 4 pin or 5 pin XLR on any configuration.

| | |
|---|---|
| Cell Pack 12V 10 Amp | 213.95 |
| Cell Pack 12V 14 Amp | 298.50 |
| Cell Pack 13.2V 14 Amp | 328.95 |
| Campak 12V | 153.95 |
| Campak Pro 12V or 4 Pin XLR | 168.95 |
| 650-3 Fast Charger | 223.95 |
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|---|---|
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| View Sonic 17GS | 649.95 |
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- 4x CD-ROM
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- CD-Solutions 1401

**$5,495.00**

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- Amiga 4000 -T
- 040 40 mhz • 22mb RAM
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| Wipe Studio | 129.95 |
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| Teak 6x CD-Rom SCSI | 179.95 |
| Panasonic 8x CD-Rom SCSI | 219.95 |
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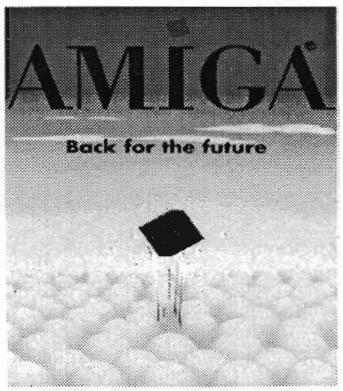


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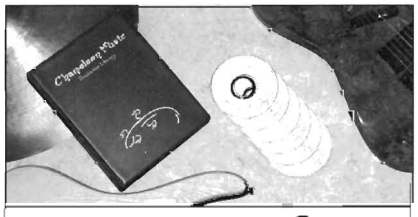

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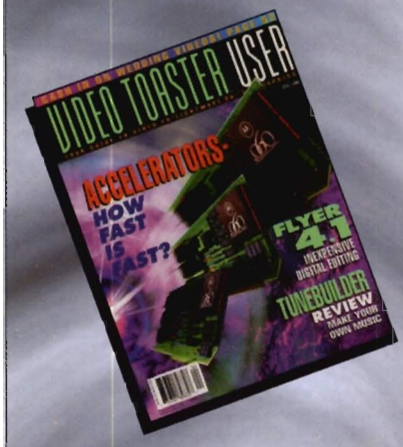


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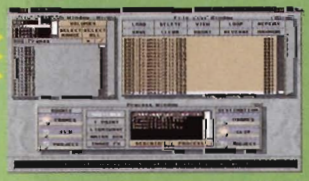

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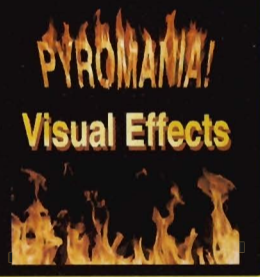

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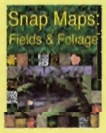

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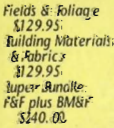

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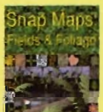


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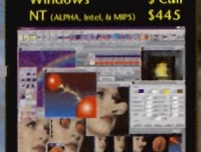

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# LAST WORD

## Back From New Orleans

### Wine, Women and, oh Yeah, SIGGRAPH

by Mojo

I'm just now wrapping up my summer vacation. The last two weeks have centered around a trip to New Orleans—drinking, eating, raving, romancing and never waking up before noon. Without doubt, Siggraph had plenty of neat stuff to show (more on that later), but what I learned more than anything is how important it is to get away once in a while! Ladies and gentlemen, let me lay down the final word: No matter how much you love your job, there are times when you just don't want to go back. I may have finally come to grips with the fact that, in the long run, a job is nothing more than a means to finance reckless hedonism.

**The Great Escape**

If you haven't tossed responsibility to the four winds in over a year, then you're due. Call in sick tomorrow and don't go back for at least a week. If anyone calls, just leave some coughing sounds on your answering machine and maybe the noise of a phone dropping. If you're employed as an animator, take as much time off as you like, because no animation company in their right mind will fire you.

If you aren't an animator, vacation time can still be arranged at a moment's notice. Simply show up for work an hour earlier than anyone else. Be sure you're wearing the same clothes as the day before (leave them in a crumpled ball beneath a phone book overnight for that slept-in look) and place a few old, crusted coffee cups (prepared the night before) around your desk. For the final touches, mess up your hair as much as possible make sure you haven't shaved. Just as you hear someone about to enter the workplace (preferably the boss), drop your face into your keyboard and don't move. Reactions will be the inevitable, "Bob, you've been working too hard—you need a vacation!" Ah, the thrill of victory.

Now you need to figure out what you're going to do on your vacation. The most important rule to remember is *do not stay home*. Surfing the net all night and sleeping until 2 p.m. the next day for a week is *not* a vacation (believe me, I know). This means that as long as you get on a plane and stay in a hotel somewhere, you're well on the way to a four-star vacation.

This doesn't have to mean spending a lot of money. Just taking the plane from Los Angeles to San Diego and staying at the Extra-Room Inn for two nights can achieve the same effect as going to Disney World and lavishing it in the Floridian. The trick is to just *get away*. If you're *really* low on cash, simply fill up the tank with gas, drive as far as you can and sleep in an empty U-Haul. If this is too hard on the wallet, then sell your computer and start a new career—it ain't paying off!

The next thing to decide is *who* you're going with. For many of you, this may already be decided by the existence of a spouse or significant other(s). Perhaps you're in the mood for a real vacation and you'll pass on the whole family thing and invite a drinking buddy along. This will doubtlessly inspire mixed reactions from your loved ones, so perhaps another version of the crumpled-clothes and crusty coffee-cups is in order. To *really* get away from everyone and everything, simply leave a few empty gin bottles and crack pipes in easy-to-find places. When your (fill in the blank) discovers them, promise that you'll be going into rehab for two weeks. See? Easy!

In the event that you don't have someone special to share your time with, you still have a few options: Call all your friends and even remotely romantic interests and invite each one of them to join you for a week of fun and sun at the Econo-Lodge. If you're lucky, one of them will accept (you can tell any others that wish to go that you got sick—refer to earlier paragraph for instructions). Unfortunately, unlike myself, many of you probably have friends who actually work for a living and won't be able to accept even if they wanted to. In this case, you can pick up hitch-hikers (see the U-Haul scenario above) or go by yourself and try to meet some other cool people on vacation. If you're the shy, perhaps a t-shirt emblazoned with, "Will You Be My Friend?" will help.

No matter where you go or who you go with, make sure you do something different on your much-needed vacation. Nothing sparks the soul more than new experiences, so dare to be different. Eat what you would never try; drink more than you should; jump out of a plane; ask that girl to dance. If you're not sure you should do something questionable, always answer yourself with the phrase: *The hell with it, I'm on vacation.*

When you get back, you should feel re-energized and ready to take on the world. But wait a minute—wouldn't a vacation like that make you *dread* going back to work? Of course it would. But you need to stash that cash for the next vacation, don'tcha?

Last minute note: It is vitally important that you return to work on a Tuesday, never a Monday. Your first day back on the job will be infinitely more tolerable if you can skip that wretched first day and only work a four-day week!

Oh yeah, and Siggraph was OK.

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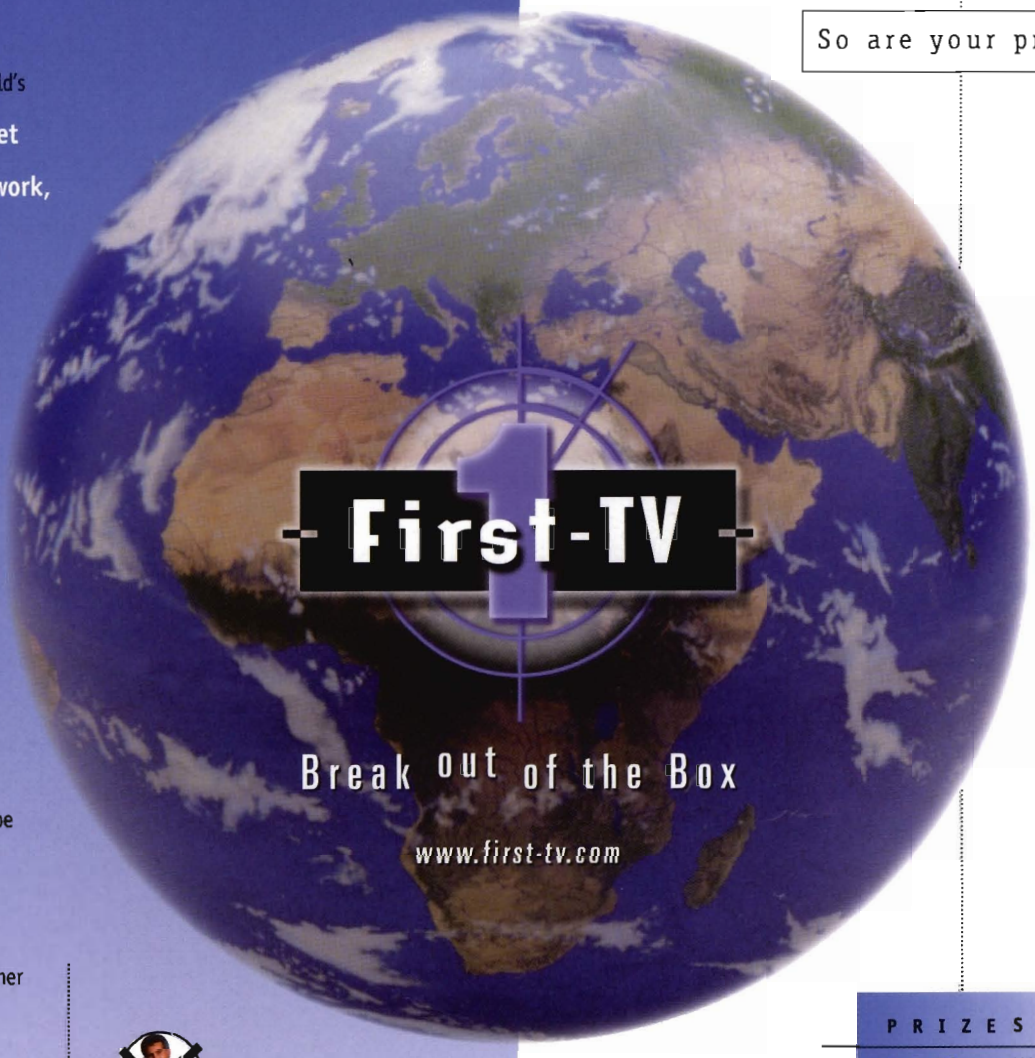


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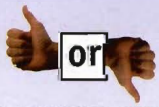


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All videotapes submitted will become the property of First-TV and may be used for display or publication. Due to the volume of response, First-TV will not be able to acknowledge receipt of or return entries. All videos must be the original creation of the entrant and may not include any copyrighted material of any third parties. The first place winner, recipient of the $15,000 first place prize, shall transfer ownership, including copyright, to CMP Media Inc. for the winning material.

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