

# VIDEO TOASTER USER

YOUR GUIDE TO VIDEO TOASTER®/TV GRAPHICS™



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**NAB '96**

**REVIEW:  
AMIGA  
4000**

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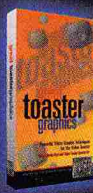
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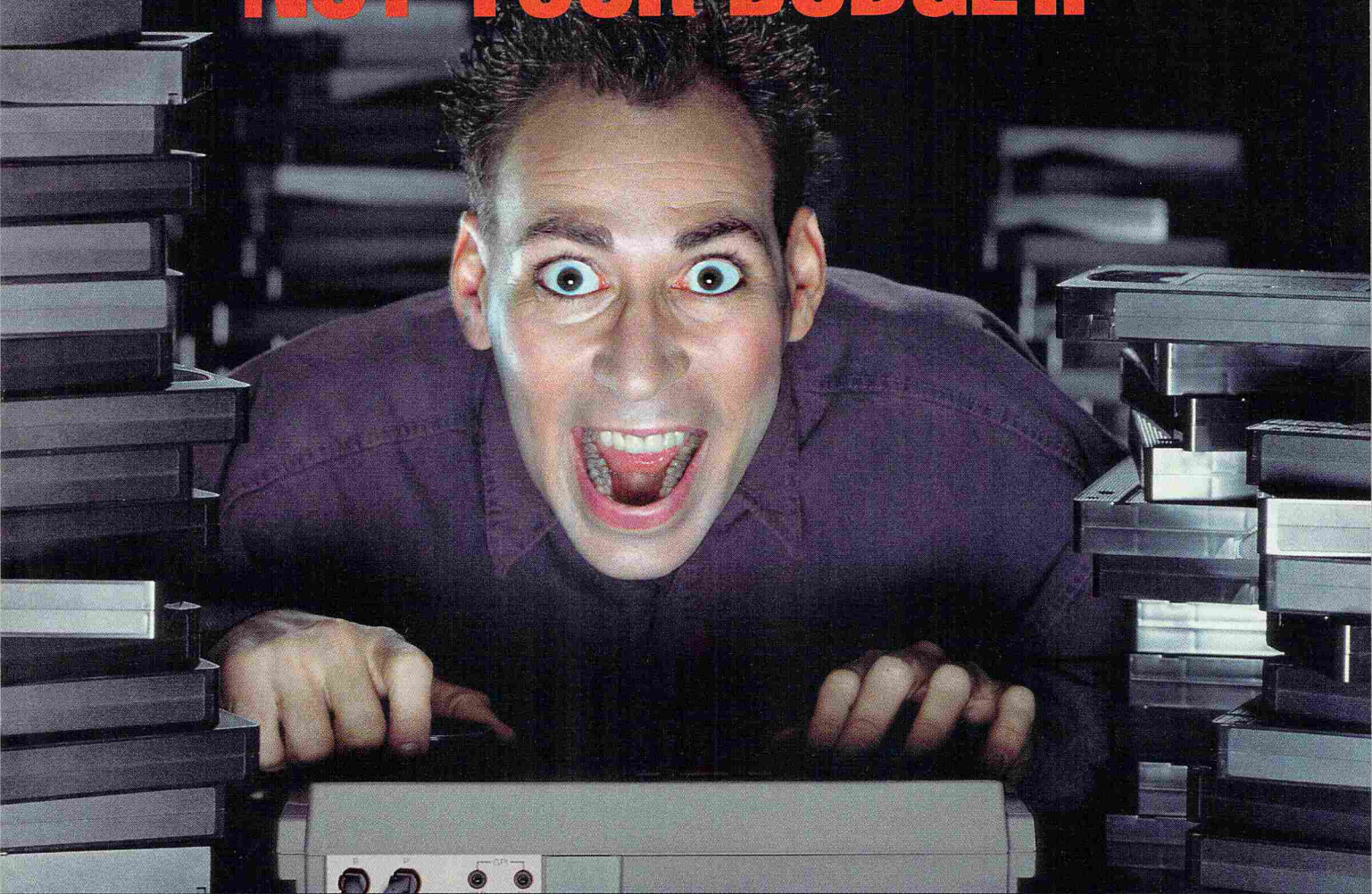
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by Wayne Cole

One man's irreverent look at the big annual National Association of Broadcasters show. Get the history as well as the prognostication with a sidebar by VTU's Editor on NewTek happenings.



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**LIGHTWAVE 5.0**

by Joe Classen &amp; Susan Ishida

We have a new winner! Play 3D animation Jeopardy and you'll win with your first look at NewTek's LightWave 5.0 and a plethora of new features.



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**HOLOGRAMS**

by Alan Rhody

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Cover Design by Bruce Branit; LightWave Model by Bruce Branit; Computer Imaging by Brian Cowen; FryeAllen Advertising, Inc.

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## VIDEO TOASTER USER

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**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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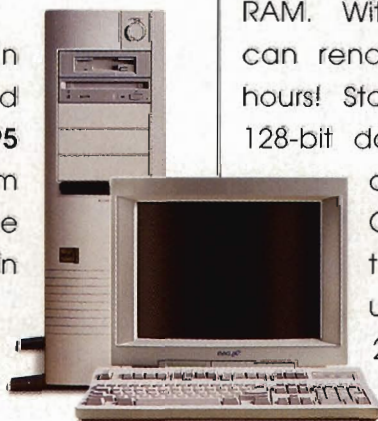


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# TOASTER TALK

## Perception vs. Reality

...And The Somewhere In-between



by Tom Patrick McAuliffe

**O**ne of the things I love about Amiga-Toasterland is that it's never boring, things are always changing. The perception (for some) is that things are bleak, while others say the new Amigas are the best thing since sliced bread. Perhaps the "truth" is somewhere in-between? Whatever the case, if the Amiga and Amiga-based Toaster is to survive, people's perception of the situation and the Amiga's current processing ability needs to improve.

One of my distant relatives was Gen. Arthur McAuliffe from WWII. He's the one who said "Nuts" to the Germans (look it up). I recently spoke with someone who served with the General and was told the following story: A young private had gotten separated from his unit by jumping on a passing train in the night, hoping to get back where he belonged. Before he knew it the door slammed and locked, trapping him inside. Fearing the worst, he got out a piece of paper and began to write a few last words. "I've tried everything, I'm unable to build a fire or break out of here, so I'll surely freeze!" Two days later the train pulled into allied held territory, and sure enough they found the young soldier frozen to death. There was only *one* problem—the temperature had never dropped below 40 degrees! Bottom line? He believed himself to death.

Likewise, if the Amiga's ever going to make a comeback it'll take *all* of our energy, support and positive attitudes to put our money where our mouths are. I recently spoke at an educational symposium (NC5) on computer video only to be told by the uninformed that "the Amiga's dead." Oh ye of little faith! While the patient is still in critical condition, a new team of cutting edge specialists has been brought in. By the time you read this, ViScorp, the Chicago based maker of Interactive TV devices, will have purchased Amiga Technologies from Escom GmbH for \$40 million. What we need now is a balance between the airhead optimists vs. the doom and gloomers.

NAB '96 confirmed for me that computers have conquered video (or vice-versa) once and for all! *Multimedia World*, originally an afterthought, in three short years has grown so large that it now fills a huge convention center (The Sands). (I vote it be moved to the Astrodome!) The explosion of digital video disk recorders, NLE's and digital acquisition systems is blazing a trail into the future while the big boys fumble around trying to figure out what to do or whom to blame. Consider a few facts; 1)

During 1996 more than a quarter million computers will be purchased specifically to create Digital Video and 3D animation. 2) DTV is rated as one of the top 10 home businesses for the late 90's by *several* entrepreneur information sources. 3) The cost of creating true RS-170a, NTSC, "broadcast quality" video has dropped faster than you can say *Flyer*. Watch *VTU* to keep up with the latest news.

### NewTek!

NewTek's outstanding NAB 1996 showing saw large numbers both in visitors and sales. The booth, one of the largest of the DTV manufacturers, had a huge theater area with constant demos. LightWave 5.0 was available for visitors on a variety of workstations. There was also an area showing Toaster for Windows and a literature rack with product information and free *VTU* issues. While the new 5.0 software was the thrust of NewTek's presentation, the 4.1 Flyer NLE wasn't taking a back seat! Additionally, superb demos of Atomic Brand Software's *Flight Gear* and *Radar*, a timeline for the Flyer and OZware's *Co-Pilot* family of Flyer software tools were well received. A large red European phone booth immediately connected visitors to the land of the wizard where their questions were answered and orders taken. NewTek also hosted a great party and had some outstanding announcements:

- A brand new version of multi-platform LightWave 3D (5.0) ready to ship! (I'm going to faint!)
- The porting of LightWave 3D this year to Apple's PowerMAC and support of QuickDraw.
- NewTek will now aggressively support Sun's Java development language for the Internet and WWW.
- The development of a strategic relationship with Apple Computers and Sun Microsystems for the creation of cost effective, innovative digital video tools.

Once again the reality is different than the "perception." For those who thought our friends in Topeka were going to lay down and die—guess again! Are things perfect? No way. But NewTek and the tools it creates are *still* some of the most competitive, creative and fun tools out there, and unlike many others, at least they're shipping. Till next time...see you on the 1996 *VTU* LIGHTWAVEPRO Training Tour!

VTU

Tom Patrick McAuliffe is *VTU's* Editor in Chief and owner of Reel Communications. Reach him on-line at [TomReel1@aol.com](mailto:TomReel1@aol.com)



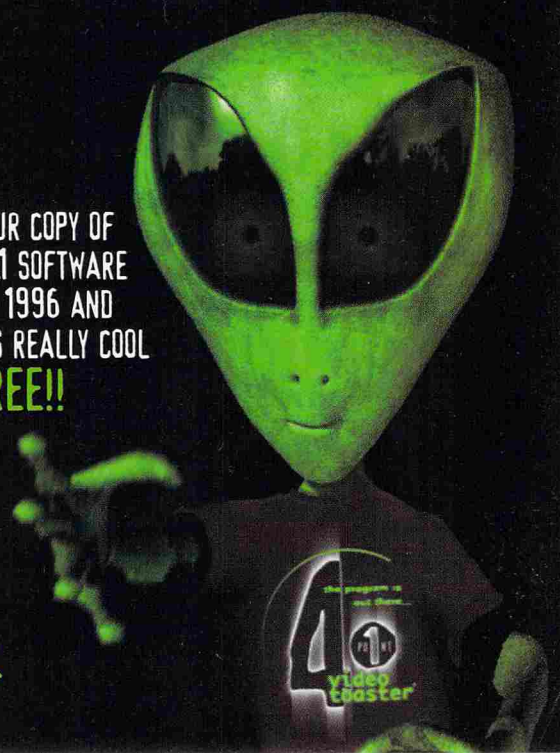
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# TOASTER TIMES

## NAVIGATING THE Repair Process

by Chuck Baker

NewTek, Inc. puts every effort into designing and manufacturing quality, defect-free products, but like anything else made by human hands, now and then a Toaster or Flyer is going to break. Here's the procedure to follow if that happens: All repair of Toasters, Flyers, dongles, DigiViews, etc., is done at NewTek and *nowhere* else. All repairs must be arranged by calling the Technical Support Department, who may have some tests for you to do to confirm the product has failed. If the failure is confirmed, Tech Support will issue a Return Materials Authorization (RMA) number and provide instructions for shipping the unit in for repair.

### Who Ya Gonna Call?

You need the following information handy when you make your phone call:

- The serial number of your product.
- The version of software you are using with the product (i.e. Video Toaster software version 3.1, or whatever is appropriate for your product).
- The make, model and operating system revision of the platform with which you are using the product. For example: an Amiga 2000 with WorkBench 2.1 OS.
- A complete description of the failure you are experiencing (we really need this,


and it is surprising how many times clerical staffers get assigned to make a call to NewTek, and are not told what the problem is with the Toaster, etc.)

- Your shipping address, phone number and fax.
- Your credit card number and expiration date if the product is out of warranty, or if you want the product returned by any means other than ground shipment.

### More Tips

- We accept VISA, MasterCard, American Express, company checks and POs from government agencies or schools as payment for out-of-warranty repairs. No personal checks.
- There is a \$35 minimum bench fee on out-of-warranty repairs and a \$7.50 handling fee.
- You will be charged for parts on expired warranties.
- The ten most common repairs for Video Toasters cost *less* than \$50 for labor and parts.
- If the cost of parts and labor for an out-of-warranty repair is \$50 or less, and you provided a credit card number as payment type when you arranged the RMA, then we will process the charge on the credit card number you

provided, complete the repair, and return the unit to you.

- If the cost is over \$50, or if you indicated that company check or PO would be the method of payment, then you will be called with the repair estimate, and you can confirm credit card payment for the amount at that time. If paying by check or PO, we must receive the check or PO before we will complete the repair and return the unit.
- There is a \$50 minimum charge for Toasters or Flyers found not to be defective.
- If you'd like to check the status of a repair, call our main number, 1-800-843-8934, and ask for the Repair Representative. You should not call Tech Support or Customer Service to check.
- Turnaround time varies with demand. We are working toward keeping it down to 5 to 10 working days, but times of heavy demand can lengthen the process.
- We do have a loaner program, and there is usually a waiting list for this. To inquire, call our main number, and ask for the Loaner Program Representative. 

### Technical Support:

phone: 913-228-8282

fax: 913-228-8222

bbs: 913-271-9299 or telnet to bbs.newtek.com

*Chuck Baker works for NewTek's Technical Support Department.*

### EDITORIAL EVALUATION

#### Circle number on Reader Service Card

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Very Useful  
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Useful  
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## ViScorp buys Amiga Technologies

European computer maker Escom announced recently the sale of its subsidiary Amiga Technologies GmbH to USA based ViScorp for 40 million dollars. After two financially devastating years, Escom no longer had the resources to devote to the Amiga technology, said a company spokesperson recently. ViScorp, a maker of InteractiveTV devices and other products has recently signed on many old Amiga engineers and staff. Plans seemingly indicate a worldwide campaign to bring the computer back to a competitive stance in the marketplace. At press time, no plans for a change in direction at Amiga Technologies is planned once the sale to ViScorp is finalized in early summer 1996.

## Micropolis Leaving the Disk Drive Market

Micropolis Corporation announced that it has entered into an agreement with Singapore Technologies to sell the inventory, property, plant and equipment related to Micropolis' disk drive-related operations. The remaining part of Micropolis will focus on value-added storage systems, including video servers, digital disk recorders, disk arrays and external storage devices. The new corporation is expected to be renamed StreamLogic.

## CD-ROM/ On-line Titles Booming in 1996

The number of CD-ROM titles will be available in record numbers in 1996, according to a new forecast presented by InfoTech, a Vermont-based market research firm. The research from their annual study, "Optical Publishing Industry Assessment, Eighth Edition," finds that "from just 311 [titles] available in 1995, the number of hybrid CD-ROM/on-line titles in print worldwide is projected to more than double to 720 by the end of 1996, constituting 4 percent of all worldwide commercial titles in print." It appears that CD-ROM publishers are using their titles as gateways to the World Wide Web or BBS sites, and/or commercial on-line services. Information about InfoTech and the census survey is available at (802) 763-2097 or on-line at InfoTech@Valley.Net.

## AMG Media Launches New Magazine

AMG Media, Inc. unveiled their newest publication, *ALPHA Visual FX*—Applications for 3d Graphics and Video Effects, at this year's National Association of Broadcasters (NAB) Convention in Las Vegas, April 15-18. *Alpha Visual FX* focuses on 3D animation, graphics and video applications running of high performance Windows NT systems built around the Digital Alpha microprocessor family. "We've been watching with interest the rapid expansion of Alpha-based desktops from Digital Equipment Corporation in the animation and video markets and it is very clear that the demand for open NT systems using Alpha technology is experiencing explosive growth," said Jim Plant, Chief Executive Officer of AMG Media. "We're excited to be working with Alpha developers, resellers and users to serve this important market," stated Michael Kornet, AMG Media President and Group Publisher.

The quarterly publication will be designed by award winning marketing and design firm, FryeAllen, Inc. President and Owner of FryeAllen, Michael Allen commented, "We Beta tested and currently use Alpha hardware and software application and we love the technology. We're very excited about design-

ing and promoting this publication. It's time has come."

The premier issue was distributed directly to current users and resellers of Alpha-based desktops and to NAB Multimedia World attendees (AMG Media booth # M5266.) "We're pleased that a publisher of AMG Media's caliber recognized the opportunity created by the Alpha's success in the 3D animation and visual effects market," said Bill Johnson, Digital Semiconductor's Director of Marketing. Pat Hart, Digital's Alpha Product Marketing Manager added, "This new information source will be of great value to the expanding Alpha user base."

Sunnyvale California based AMG Media Inc. is a leading authority of information for professional in the personal video production and 3D animation markets. AMG Media publishes Video Toaster User, LIGHTWAVEPRO, ALPHA Visual FX, and REC•>. AMG Media's expansive product line includes magazines, journals, custom publishing, trade shows, electronic publishing and seminars. Visit our World Wide Web site at: <http://www.portal.com/~amg>.

## Amiga Unveils New Products at the Cebit Fair

For the first time in over two years, Amiga computers were presented again officially by the manufacturer at the largest computer fair in the world: The Cebit Fair in Hanover, Germany, March 14 to 20.

The "Amiga Surfer" was introduced as a complete Internet computer with software, modem connection and free hours. And the modular design allows the user to add additional slots, so the basic machine may be converted into a Tower. This new Amiga will be shipped with a revisited version 3.2 of the Amiga-OS.

The Power-PC project is also reportedly moving forward. The first Power Amiga will be available in early 1997. Until then, Phase 5 is also planning to release the first Power-PC cards for existing Amigas.

## NewTek Announces New Prices

Video Toaster 4000, Amiga	\$2395.00
Video Toaster System 4.1, Amiga, Upgrade	\$ 549.00
Video Toaster Flyer, Amiga	\$4995.00
LightWave 3D 5.0	\$1495.00
(available for Amiga, platform Intel, DEC Alpha, MIPS)	
LightWave 3D 5.0, Amiga, Upgrade	\$ 295.00
LightWave 3D 5.0, Upgrade	\$ 495.00
(available for Intel, DEC Alpha, MIPS)	
LightWave 3D 5.0, Competitive Upgrade	\$ 895.00
(available for Intel, DEC Alpha, MIPS, Amiga)	

Lightwave 3D 5.0 SGI, call XAOS Tools at 415-487-7000  
Amiga Upgrade: Pricing good only for existing Amiga LightWave 3D, stand-alone or Video Toaster versions.

Competitive Upgrade Packages eligible include; 3D Studio, Alias, WaveFront, TrueSpace, Crystal Topas, SoftImage, Strata Studio Pro, Electric Image, Imagine 4.0. Title Page and serial number required. Prices and specifications are subject to change without notice.

For a Dealer nearest you, call 1-800-TOASTER or 1-800-847-6111 (913-228-8000, outside the USA). On-line ordering: [orderincustomerservice@newtek.com](mailto:orderincustomerservice@newtek.com)

VTU



# NEW PRODUCTS

Compiled by  
Rosemary Picado

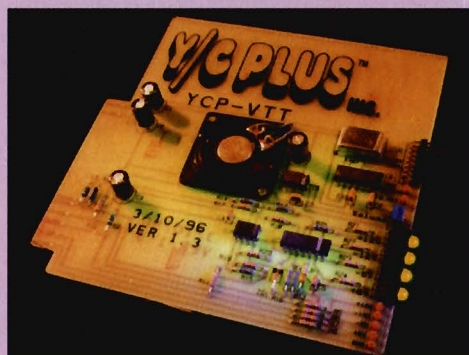
## Y/C Plus Inc.'s Toaster Tester

### Test Your Toaster

Product: Video Toaster Tester  
Description: Crystal Oscillator Calibrator  
Price: \$169  
Y/C Plus Inc.  
310 SW 6th Ave.  
Topeka, KS 66603-3109  
Phone: (800) 578-1700  
Fax: (913) 235-3485

Eliminate "Toaster Not Responding, Toaster Will Not Genlock or Toaster Will Not Auto Hue," glitches with the YCP-VTT Video Toaster Tester Crystal Oscillator Calibrator. It plugs into a PC slot in the Amiga computer and connects with the supplied JP6 ribbon cable to the Video Toaster. The VCP-VTT allows you to adjust the emitted tone to a lower and lower frequency until it clicks, meaning you are within 10 Hz of the 3.579545

mHz Crystal Oscillator. The VCP-VTT also supplies convenient test leads for a Frequency Counter or Oscilloscope, as well as easy to read LED's for your Amiga power supply. The LED will not light if the voltage drops under 0.2 of a volt of the listed voltage. Also, test leads are sup-



plied for voltmeter and can also test the power supplies in you IBM computers. An instructional video tape accompanies the Toaster Tester.

**FOR INFORMATION CIRCLE 1**

includes over 100 LightWave home furnishings in the style of Architect and interior designer Frank Lloyd Wright. This collection includes seating, tables, storage, lighting, rugs, artglass, glassware and dining room accessories complete with textures, browser images and scene files.

The Camelot Collection is a collection of over 250 LightWave objects containing



a complete English Medieval castle with all furnishings, circa 1200 AD. The Camelot Collection includes royal apartments, gatehouses, functional drawbridge, portcullis, great hall, kitchen, blacksmith shop, stables, elaborate chapel, animated torches, armory stocked with weapons, five towers, spiral staircases and more.

**FOR INFORMATION CIRCLE 3**

### Toaster Mount

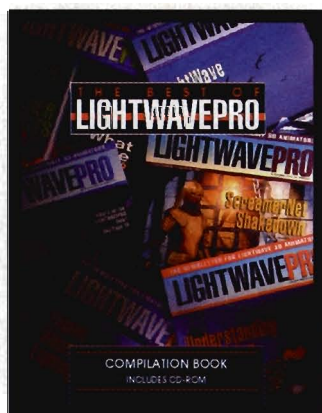
Product: MCS 4200  
Description: Rack mount chassis for Video Toaster.  
Price: \$625  
MultiMedia Computer Solutions Inc.  
400 Union Ave, Unit #4  
Haskell, New Jersey 07420  
Phone: (201) 839-3300  
Fax: (201) 839-8890

### Attention LightWavers!

Product: LIGHTWAVEPRO Compilation Book and CD-ROM  
Description: Articles up to December 1995.  
Price: \$39.95  
AMG Media Inc.  
1308 Orleans Dr.  
Sunnyvale, CA 94089  
Phone: (800) 322-2843  
Fax: (408) 743-9251

The LIGHTWAVEPRO Compilation Book is here with the best articles, tutorials and tips from the early days of LIGHTWAVEPRO all the way up to December 1995. It's a must for every serious LightWaver's library. The book includes a free CD-ROM packed with over 600 MBs of objects, scenes, images, utilities and information. The CD also includes AREXX macros, Modeler macros for the Amiga,

PowerView Plug-ins for the Alpha, Amiga and PC versions of LightWave 3D, as



well as useful programs, setups and docs to add to your animator's arsenal. Created by today's top 3D animators, the disk also includes data from the LIGHTWAVEPRO subscriber disk series, also from AMG Media.

**FOR INFORMATION CIRCLE 2**

### Replicate a Home—or a Castle!

Product: Interior Design Collection, the Wright Collection and the Camelot Collection.  
Description: Object Collections for LightWave 3D.  
Price: \$195 each, or all three for \$495.  
Replica Technology  
4650 Langford Rd.  
N. Collins, NY 14111  
Phone: (716) 327-0621  
Fax: (716) 337-0642

The Interior Design Collection from Replica Technology is a collection of over 500 real-world scaled LightWave 3D objects on CD-ROM that allows you to create complete and furnished home environments. All objects are fully detailed, surfaced and functional. (See Dough Johnson's review, page 52.)

The Wright Collection



The MCS 4200 rack mount chassis for the Amiga/Video Toaster is made of 16 gauge steel and measures 17" wide by 7" high by 17" deep with the front panel measuring 19". All cards, cables, FDD/ CD-ROM/ DAT drives and reset buttons are accessible. The chassis also contains rubber bumpers and poly/rubber shock mounting material. When used in conjunction with MultiMedia's Shock Mounted rack, the system becomes portable. Custom colors and logo generation are available.

**FOR INFORMATION CIRCLE 4**

### The Intelligent Recorder

Product: QuBit Recorder  
Description: Intelligent Digital Video Recorder  
Price: under \$20,000  
QuVis Corporation

369-B Third St., Suite 171  
San Rafael, CA 94901  
Phone: (415) 457-3005  
Fax: (415) 456-3801  
e-mail:

<http://www.quvis.com>

QuVis Corporation announced the birth of QuBit at NAB this year. QuBit can record, capture, store,



playback and process audio, video and still images. The standard QuBit recorder provides user selectable recording quality from D-1 to film resolution; industry-standard video I/O (parallel and serial digital, Betacam, SMPTE time code, XLR

audio), user accessible built-in computer processor and digital signal processors and industry-standard computer I/O (RS232, RS422, SCSI II, 10BaseT and 100BaseT). As a DVTR, QuBit can handle standard NTSC video images at 720, 960, or 1080 pixels by 486 lines (vertical interval lines may also be recorded if desired). QuBit also supports the PAL format, and a dual-channel option enable QuBit to automate the process of broadcasting delayed network feeds.

As an image file server, QuBit can handle 4-component images in sizes up to 4000 x 3000 pixels at 12 bits per component. As a DDR, it can record approximately one hour of high quality CCIR-601 digital video at 4:2:2 recording. As

a peripheral for computer animators, QuBit acts as a network image server, video capture card, backup device, single frame controller and recorder/player.  
**FOR INFORMATION CIRCLE 5**

### Get in Motion!

Product: MotionCLIPS  
Description: Digital Sequence Library CD-ROM for LightWave 4.0/ IBM Universal  
Price: \$99  
Accadia Electronic Arts  
436 West Delavan Ave.  
Buffalo, NY 14213-1413  
Phone: (716) 881-5215  
Fax: (716) 882-1774  
WWW: <http://www.blue-moon.net/~accadia>

MotionCLIPS is over 8,000 frames of royalty free stock footage on one CD-ROM. Images are 752 x 480 24 bit JPEG sequences. This volume contains 20 image

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**FOR INFORMATION CIRCLE 191**

### YCP-VTT TOASTER™ CALIBRATOR AND AMIGA & IBM POWER SUPPLY TESTER

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**Plus**, as a added bonus, it also checks your Amiga or PC (IBM) Power Supply!

Supplied with instructional video tape.



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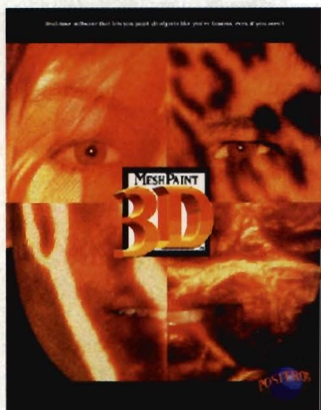
913-235-5014 FAX 913-235-3485

YCP-VTT & VIDEO TOASTER REGISTERED TRADEMARKS OF NEWTEK, INC.

**FOR INFORMATION CIRCLE 198**



sequences all at 30fps. An image processing program



can be utilized to batch process these frames to change screen size, format, or to modify the frames. This is a one time buyout price, so no yearly license fee is required.

**FOR INFORMATION CIRCLE 6**

### The Black Box

Product: Audio Black Box™  
Description: Flyer Utility  
Price: \$49.95 + \$3 s/h  
ProWave  
7950 Highway 72 West  
Unit G102  
Madison AL 35758  
Phone: (800) 930-2646  
e-mail: ProWave@aol.com



ProWave announces the release of Audio Black Box™ for the Flyer. This utility allows users to load most common audio files and save them as Flyer Clips. It also supports AIFF, AD516, WAV, VOC, AU, RAW, and IFF formats at any sampling rate.

**FOR INFORMATION CIRCLE 7**

### Fresh Baked Music

Product: Buy-Out  
Production Music  
Description: New CDs compatible with TuneBuilder

Price: \$59.00 each  
Phone: (800) 229-0313  
WWW: <http://www.musicbakery.com>  
The Music Bakery  
7522 Campbell Rd.  
Dallas TX 75248

The Music Bakery has recently added to their growing library of ready-to-use Buy-Out production music featuring performances by professional studio musicians playing acoustic instruments. Every CD is now encoded for use with AirWorks Media's TuneBuilder self-editing software while the Music Search feature selects the right cuts for your project. New categories include Comedy & Animation, Action Sports Themes, High-Tech Industrial, Positive Motivation, and Contemporary Underscores. For a free demo, call the Music Bakery today.

**FOR INFORMATION CIRCLE 8**

### New Composites

Product: Composite Studio Professional  
Description: Graphic and Animation creation program  
Price: \$169.95  
Dimension Technologies  
1156 West 8th St.  
Erie, PA 16502  
Phone: (814) 838-2184  
Fax: (814) 454-4483

Composite Studio Professional is a Toaster Paint add-on available for Toaster versions 1.0 through 4.1 and allows users to now place any image inside of framed



hearts, stars, diamonds, circles, etc. Animate multiple Flyer Clips, Flyer Stills, Framestores, IFF sequences

in any direction on top of a static or moving background. Other updates include softedge shadows, new templates, 24 bit frames and faster rendering. Registered users of Composite Studio 1.1 may call Dimension Technologies for special pricing.

**FOR INFORMATION CIRCLE 9**

### Paint Away!

Product: MeshPaint 3D 1.5  
Description: Paint Program  
Compatible with LightWave 3D  
Price:  
Intel Version: \$499.95  
Alpha Version: \$699.95  
Positron  
1915 N 121st St. Suite D  
Omaha, NE 68154  
Phone: (402) 493-6280  
WWW: <http://www.3dgraphics.com>

MeshPaint 3D 1.5 allows animators to paint directly on the surface of a 3D object and is supported by both Mac and PC platforms. It also allows an object to be moved in any direction while painting in millions of colors and textures. With the Brush Hose™ feature, animators may select specific, complex brush tips, such as lizard scales, and interactively spray them on the object's surface. MeshPaint also allows the user to create custom image brush tips and paint multiple textures on a single object. MeshPaint 3D will also be used to help create the upcoming sequel to *Jurassic Park*. MeshPaint also supports Autodesk's 3d Studio Release 4 and Studio Max, and also exports VRML with texture data.

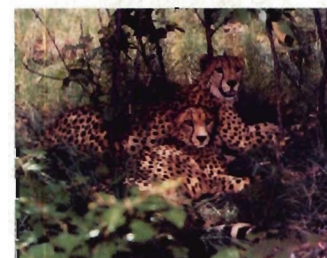
**FOR INFORMATION CIRCLE 10**

### EnPrint 2.1 Upgrade

Product: EnPrint 2.1  
Description: Epson Stylus Color Printer Driver Upgrade  
Price: \$44.95  
Endicor Technologies  
P.O. Box 29000 #355  
San Antonio, TX 78229

Phone: (210) 650-4988  
Fax: (210) 650-0054  
e-mail: [info@endicor.com](mailto:info@endicor.com)

EnPrint 2.1, supporting the Epson Stylus Color, II, IIs and Pro printers is based on a portable 24 bit printing engine instead of the standard Amiga 12 bit engine. The driver is a standard



Workbench preferences printer driver plus a 24 bit printing utility. This provides user-accessible controls for gamma, intensity range, color correction, dithering and color-to-grey conversion. Also included is a printing program that uses the printing engine directly, providing 24 bit capability to users who don't have other software supporting 24 bit printing.

**FOR INFORMATION CIRCLE 11**

### 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  
1308 Orleans Dr.  
Sunnyvale, CA 94089*

*For more information, call  
(800) 322-2843.*



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Sunnyvale, CA 94089

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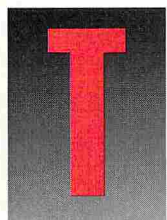


# THE FLYER SUITE

## The Secrets of Success

### Tips for Flyer Pilots

by Joe Tracy

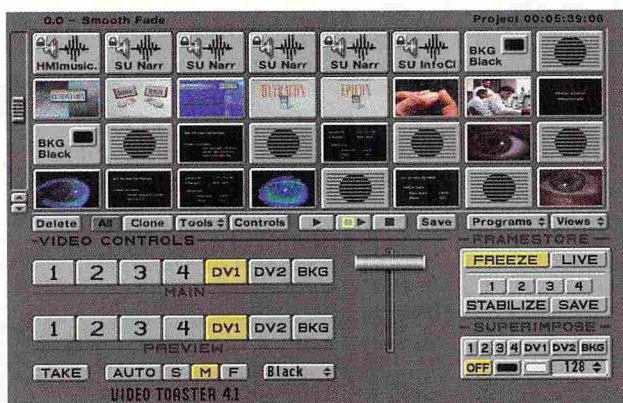


There are literally thousands of shortcuts and new ideas waiting to be discovered on Video Toaster Flyer systems—shortcuts that make your job as a producer/editor easier, and your equipment more powerful. I'd like to share a few ideas and shortcuts with you that have given more impact to the TV shows and video projects my company produces. And all of these ideas and quick tips can be applied to the Flyer without the use of any third party software!

#### Blue Screen Effect

The Blue Screen effect allows you to put your subject in front of a white wall and replace the white background with any still or moving video. In this case, approach it as if you're using a Framestore or CG page.

(1) Create your Framestore or CG page and save it. Then render out your page to either DV1 or DV2 (it will show one of these on your switcher screen).



Be it the Flyer 4.1 NLE system or Video Toaster 4.1 the switcher looks and functions the same with a few exceptions.

We'll assume it loaded into DV1. Make sure that your subject is not wearing *any* white.

(2) Put your subject against a solid bright white background. Sometimes a well lit regular white wall will suffice.

(3) Run your camera output to Toaster input #1.

(4) Make sure that you are on the main switcher screen (Figure 1). On the Main Bus, select DV1 (the background) and on the Preview Bus, select input #1 (the camera).

(5) At the bottom right hand corner of your switcher is a Superimpose box with two rows and a box with three numbers. On the first row, select Input #1. On the second row, select the white box. You are telling the Flyer that you want the background that is cur-

rently selected to fill in the white parts of Input #1 on your command.

(6) To execute the command, place your arrow cursor in the box with the three numbers. Hold down your left mouse button. Now move it up and down to change the numbers (usually between 120 and 180 gets best results) and as you do, you'll see your subject appear, and whatever was white will be replaced with your background.

By utilizing additional lighting on the wall and subject, you can get rid of any white peeking through or background or showing up on lighter parts of your subject's skin or clothing. Create special effects by giving your subject a white strip of cloth and have him place it around his neck. His neck is now invisible! By utilizing this tip, you can create elaborate set designs and video special effects.

Once you have everything set, you can record it to your hard drive by holding down the shift button and selecting the (~) tilde key. An abbreviated Record panel will appear on your switcher screen allowing you to record the clip.

#### Making a Video Clip Into a Brush

In one of our TV shows, *Pet Watch*, we came across the need to take video clips of animals, shrink them into small pictures, and place three of them on a CG page.

(1) Record the clip you want, move it into the project window, open up the control panel and move the in point cursor until you find the picture you want. Write down the in point number on a piece of paper. Note: If you saved the clip as a Flyer still, you can skip this process.

(2) Open up Toaster Paint and on the bottom row select the Process button.

(3) At the top left hand corner of the process menu, you'll see a Source Clip button. Press it. This takes you into a menu of what is on your hard drives. Find the name of the clip you want the picture from (you may have to change the path name if you need to access a different drive) and double click it. You are now returned to the process screen with your clip loaded.

(4) At the bottom left of the process screen you'll see a Frame # box. Type the in point from in step one. Now select one of the three buttons to the right of the Frame # box (Load Field 1, Load Field 2, or Load Frame). The picture is now displayed on your main toaster paint screen.

(5) On the bottom row, select the Tools button.

(6) On the top row you'll see a square box. Select it.



Now three buttons to the right of it you'll see a box that says Solid. Select it. Now click the scissors button and the main TPaint screen and cut out the part of the picture that you want to keep.

(7) Hold down the shift key and click the (k) button on your keyboard. The background picture should disappear. If your Tools box has disappeared too, hit the (Esc) key to bring it back.

(8) In the middle row on the right hand side you'll see a Draw Mode box that should say Normal on it. Place your cursor over this box and hold down the left mouse button to bring up a list of options. While still holding the mouse key, scroll down until you come to TxMap. Highlight it and let go of the button. TxMap should now be displayed, and your brush has apparently disappeared.

(9) Move your cursor to the main paint screen and by pressing down the left mouse button and moving it, you will draw out a square box. Let go of the mouse button and the box will fill in with the video picture you cut out! Now, make it whatever size you want.

(10) Once you have the size you want, cut it out again. Then select the button on the bottom row titled Disk. Under the Save column, click Brush. Make a note of the path name displayed (you can change it if you want) and then under File type a brush name. Click Save Brush.

Congratulations! Your brush has now been saved and can be loaded into any of your Character Generator projects through the + Brush button in Toaster CG. Once you've loaded the brush into Toaster CG, it can be accessed by holding down the left mouse button over the "pop-up current font menu" (top row, middle). You will see the name of your brush and can highlight it, displaying it (in a boxed form) on your CG screen.

## Quick Tips

• **Audio Increase** - If you have an audio clip that you need to play back louder than the clip will allow, simply clone the audio clip! The clip will now playback almost twice as loud.

• **Echo/Stadium Audio Effect** - Do the same as above, but set the Start Time of your second clip to two frames. Now, when played back, you'll hear an echo effect. Increase the Start Time to make the effect more noticeable.

• **Change Abbreviated Record Screen Audio Levels** - When you record from the switcher screen, you'll notice you don't have audio level controls. Go to Project/Files, click the Record button at the bottom of the screen and set your audio levels. Now click cancel and return to the switcher screen. Even though you clicked cancel, it will remember your settings and use them on the abbreviated record screen.

• **"Fatal Error on Restore, Possible Bad Media"** - If you get this message when trying to restore a project from your Exabyte backup unit, it is most likely because there is not enough room on your hard drives to restore your projects. Clear up more room on the drives and try again.

• **Flyer Error #65** - Many times this can mean that your hard drive is bad. Notice once this message is displayed, you can't record. But you can move clips from another drive to this one and record more on the drive without the error. To "fix" the problem, you have to back up or move the clips from the drive and reformat it. Sometimes getting rid of a few clips and clicking reorganize on the record screen will work too.

• **Backing Up Projects** - If you use a Framestore as a background to one of your CG pages, or brushes on your CG pages, be sure to back them up with your project or they will be forever lost if ever deleted.

• **Changing Tab Keys** - At the bottom the project/files menu there are tabs to select in order to go to a specified area (Effects, Projects, ARexx, etc.). To the right of those is a button called Set Tab. You can change any of those tabs to go to whatever area you use most. For example, to change the NewTek tab to go straight to the area that displays CG pages, you'd do the following: first select the Set Tab button. Now, at the top of the left hand side scroll bar, you'll see an arrow. Click it. You should now see a screen that displays icons and names of all available paths. Double click the CG icon and it takes you to the CG display screen. Now go down to the NewTek tab and select it once. A box will come up allowing you to change the name. Change it to CG. Now the tab displays CG and whenever you click it, you will be taken to that path!

• **Recording CG Keys Over Video** - Make a CG key in ToasterCG and save it. Now go to files/projects and find the CG page you created. Move that page

to the projects window. Now go to the main switcher screen. Select the CG key once, and bring up the abbreviated control panel by holding down the shift key and selecting the (~) tilde button. Begin recording. Start playing back the video you want the CG key to appear over, and at the time you want the CG key to appear, click the Auto key and it will appear. To fade it out, click the Auto key again. By putting the CG key on when recording the clip, you've now allowed yourself more freedom to use other keys or effects during editing.

• **Play From Effect** - Older versions of Flyer software made you watch the entire previous clip in order to see the effect transition leading to the next clip. With 4.1, however, you can highlight the effect transition you want to see in the project, select the play from button, and it will automatically play the last 3 seconds of the previous clip then complete the transition!

• **ARexx Scripts** - Learn how to use the ARexx scripts that came with your Flyer software. The OZ scripts give you some powerful audio options and ARexx scripts, like FlyerProc, which allows you to do slow motion, speed up, reverse, and strobe effects.

• **Readme Files** - Whenever you get a new upgrade, take time to look at the Readme file that came with it. Often Readme files contain valuable information on new features, bug fixes, and shortcut commands.

• **Toaster Manual** - Few people like to read manuals because they are often so "technical". Few documentation sources, however, are as informative as the Video Toaster manual. Take time to do the tutorials, look up definitions and discover areas where you can experiment.

• **Have Fun!** - People are often amazed at how quickly kids pick up on new technology. Kids experiment until they create a solution. They don't think about rules or "it has to be this way or it won't work". If a problem arises, they use the resources at hand to solve the problem. By digging deep down and bringing out the kid in you, you may discover hidden Flyer powers.



Joe Tracy produces TV shows, national infomercials and corporate videos, at Studio Visions in Roseburg, OR. Reach him at [svisions@sisna.com](mailto:svisions@sisna.com) or at P.O. Box 236, Roseburg, OR 97470. Frank Kelly is on vacation.



# TOASTER POST

## Toaster Brushes and Toaster CG

Getting the Most out of Your Toaster Software

by Chris Fenwick



One thing you have to say about the Video Toaster is, no matter how you feel about the software, everything is well integrated. That is, the different applications that come with the toaster work well with each other. What I want to share with you is a combination of two features of the software that most people don't fully take advantage of. The first is ToasterPaint's brushes and the ability of ToasterCG to use those brushes.

Recently I read a post by a guy on-line asking for ToasterCG objects. (I hate it when people get their nomenclature wrong.) I'll assume what the guy was asking for was stuff that is not fonts. The only way to place something that is not a font in ToasterCG is to make a brush. (There are also "boxes" but we won't get into that here.)

If you were to go through the demo that comes with ToasterCG, you'll come across a bunch of neat stuff. To be honest with you, most of that stuff was deleted off my drive long ago, but I think there were some pictures of Kiki and a couple of marble samples. To the best of my knowledge, the guy on-line was referring to these as objects. These are in no way as complicated to create as an object in LightWave 3D. All you need to have is a basic understanding of TPaint, and you can create brushes for use in ToasterCG all day long.

There are several ways to make brushes in TPaint. First, you could use the scissors tool and select a square or rectangle area of your image and save that as a brush. You could also use the lasso tool and selectively draw around a portion of the image, making an irregular shaped brush. In TPaint "brush" file format, there is an extra hunk of information that tells the software, both TPaint and ToasterCG, what the shape of the brush is. This is an example of how the two sub-applications can use the same file format with ease.

Another method of picking up a brush in TPaint is using the No Background Option. Press your right mouse button if you haven't come across the menus yet, scroll over and down and select No Background. Now, when you select around an image it won't bother picking up the background color.

Take for example an image that might be a hand drawn squiggle. When you first start TPaint, pick a few colors and draw a few random lines. You should be drawing on a black background. The default background that TPaint loads is 0, 0, 0, or black, and it's the color that TPaint will ignore when the No Background feature is on. So, if you were to pick up this area of the screen with the scissors tool you might notice that you do not get all the black around your little lines.

### Super Tip

Here's a trick that most people don't know about—call it a super tip. TPaint considers black, or 0, 0, 0, to be the background color, right? Well, usually. While working for a client, I was trying to make brushes of images of CPUs with monitors on them. Monitors usually have black in them, and when I tried to do a "No Background Lift," as I call it, I was getting transparent monitors because the software was ignoring any pixel that was 0, 0, 0 in value. Then I learned that you could choose any color as your transparent color. First I would grab an image of a computer, then I would carefully draw the default palette pink around the CPU and monitor.

Why did I choose this color? Well after careful study I determined that this color existed nowhere in the natural universe. After you draw around the image, select Copy Color from the Palette Menu and while you have a funny little arrow pointer, select No Background. What you have done is told TPaint that pink is now the background color, and when you select around images you should ignore that color. This way, when you pick up things that have black in them you can preserve the black pixels without having them turn transparent on you.

### Other Brushes

Back to our different brushes. You may also want to take an entire screen and shrink it down into a brush. This is a good way to use a full size screen for an over the shoulder news graphic. The method I'll show you here is a way to make your graphics perfectly uniform.

The first thing you want to do is to create two templates. One will assure you that the images are shrunk to the correct size in TPaint, and the other will make sure that you place the image in the correct spot in ToasterCG. First make the TPaint template. Remember, I've already determined that the pink on your color palette will probably never interfere with colors in the known universe, so select that color and push the lowercase (w) key. This will paint the entire screen pink. Next draw a black box the size you would like your shoulder graphic to be. I personally like to use the middle of the monitor as a guide for the inner edge and safe title for the outer edge. The position is not important yet, and if the black box is in the middle of the screen, it is fine as long as it's the right size.

Save this as an RGB file (P). Give it a name like "TEMPBOX". (I always save my templates with a temp prefix so they will all be together in the file requester.)

**TOASTER POST** continued on page 20





# VIDEO TOASTER FLYER<sup>TM</sup>

## T A P E L E S S EDITOR

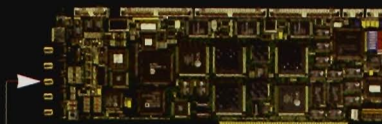
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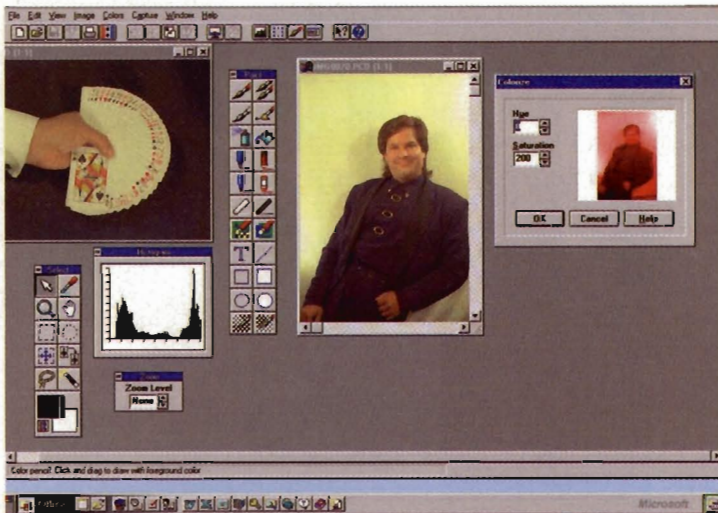
# CYBERSPACE

## The Amiga Comes Through

by Geoffrey Williams



Sometimes a utility can really save you a lot of time. During an agonizing ordeal while my PC was flying back and forth across the country in a seemingly endless attempt to get it repaired, I had to use my Amiga for tasks I normally don't. One of those tasks involved hunting down some clip art for an interface I was designing. The clip art was on a multimedia authoring CD-ROM for my PC, and I knew just what I wanted was on there somewhere.



Paint Shop Pro is a handy and inexpensive program, allowing you to see a miniature version of your image as you manipulate it. (See this month's disk offer.)

### FastView

Unfortunately, all of that clip art was in BMP format. I can load BMP into my Amiga though either Ad Pro or Image FX, but neither one of these is particularly well suited to the process of viewing image files. John Hendrikx's FastView, a utility readily available on-line, came to my rescue. It can load and display BMP, PCX, GIF, JPEG and of course, Amiga IFF formats. The author also says he is working on adding PNG support.

Running FastView from the Workbench brings up a standard file requester. You can multiply select using the shift key, or show the entire directory by not selecting anything. The images are displayed to the screen immediately, drawing them down visually so you can tell what an image is—even before the entire image is displayed. This typically takes two to three seconds if you're displaying a full screen image with dithering turned on. The images are displayed in standard HAM or HAM8 format.

Another thing that makes FastView so quick when showing a series of pictures is that it loads the next image while displaying the current image. This is handy for simple slide shows. You can turn off the visual loading feature so transitions between images are cleaner, and set a delay time between images instead of clicking the mouse button to display the next image.

Running FastView from the CLI, or using a config file or tooltypes, offers a number of options. You can scale images to fit the screen as well as have an optimized HAM palette created that is encoded in the picture's comment line. It will be used the next time you display that image. You can force AGA mode so it will display AGA using the Retina card, the filename, size and depth. You can also create your own custom command for the TAB key while images are being displayed. I did have some problems with the save feature writing non-standard IFF files that I could not load in other programs. Despite that one little problem, this is a great program and extremely handy to have around. I heartily recommend you seek it out.

### ScaleIcon

Frøde Fjeld's ScaleIcon is not exactly a killer app, but I did find it handy. I keep the Toaster Switcher icon on my Workbench with the leave out option. I disliked it because it was so big, but I never did anything about it until I discovered ScaleIcon. It does just what you think: load it up, drag an icon onto its interface, and it lets you scale the icon in a number of ways. I halved the Switcher icon, bringing it down to the size of the other icons on my Workbench. You can scale icons up as well, and you can size them using either the height, width, or proportionally. If those big icons annoy you like they do me, this utility lets you easily and quickly cut them down to size.

If you have both an Amiga and a PC, one of the most basic things you will want to be able to do is send files back and forth between a PC. Omnicode's Twin Express is a file transfer program that lets you quickly transfer files between two computers via a null-modem cable connected to their serial ports. For serial transfer, it's as adequate as it is reasonably fast, although nowhere near the speed of network transfers. Exchanging data between two 12.5 MHz AT-type computers or two Amiga 3000 computers takes place at about the rate of 22,000 bytes per second. This is two times faster than other utilities and seven times faster than those relying on the serial handler of AmigaDOS.

TwinExpress includes one program to run under DOS and another for your Amiga. It even has the ability



to translate some special characters in text files. While it lacks the ease of use of a commercial product like Legendary Design Technologies' Link-It, it gets the job done. There is also a way to use Twin Express with Directory Opus using the TwinOpus 2, utilizing ARexx to control it. Speaking of the PC, there is a lot of useful and cheap hardware out there for Amiga users can take advantage of.

### Wacom Tablets

Wacom is one of the most respected names in pressure sensitive tablets. Roland Schwengel's Wacom 11 is a commodity that enables you to use a pressure sensitive digitizer tablet from Wacom with your Amiga. The Amiga mouse pointer is controlled by the driver so it can be used with almost any program. The digitizer tablet can be used in either pressure sensitive or in normal mode. You can even scale the active area on the tablet to coincide with the active area on your screen. The tablets supported by the version of the driver I have currently include SD-013, SD-113, SD-210, SD-310 SD-311 SD-312, SD-320 SD-321 SD-322, SD-420, SD-421, SD-422, SD-510 and all digitizers of the new UD-Series. The tablet connects to the serial port of your Amiga, and works with the Multi-IO board. It also includes a drawing of the cable you will need (you can use the cable included with the UD series on your Amiga).

### Zip Drives

The Zip Drive from Iomega has become tremendously popular on both the PC and Macintosh computers. In fact, many stores have trouble keeping them in stock, sometimes selling out the day they come in. I don't know why the Zip drive is so much more popular than competitors such as the SyQuest EZ, but it is. The Zip drive offers cartridges that can store 100 MBs of data. The drive itself sells for \$199, and the cartridges sell for \$19 each, three for \$49, or 10 packs for \$149. The drive is portable, and comes with software that makes it easy to quickly plug in and use to transfer data.

There are two flavors of Zip drives: the PC version plugs into the parallel port while the Mac version (which also works on the PC) plugs into the SCSI port. The important thing to know about them is that only the SCSI version

works on the Amiga. Assuming you have a SCSI port, you can plug it in directly using the supplied cable. Just as with SyQuest cartridges, the Amiga operating system is smart enough to handle a wide variety of media, and the Zip drives are just another variation of the SyQuest cartridge.

Zip drives come with software that include the ability to write-protect the disk. It is also possible to do this on the Amiga, using ZipTool by Oliver Hitz. You can specify whether the disk will be unprotected, temporary unprotected, write-protected, write-protected with password, or read/write protected. Of course, one of the things you'll want to be able to do is read and write PC and Macintosh formatted disks so you can easily transport information between those computers and your Amiga. ZIPMount by Stefano Cairolì contains two mountlists; one for the PC and one for the Macintosh. All you need do is copy the mountlists (including the icon file) to the Devs/DOSDrivers, or the Storage/DOS Drivers directory of your boot disk. You need CrossDOS and/or CrossMAC installed to use these mountlists.

Since we are on the subject of transferring files, there is a PC shareware program that you should know about. It's from JASC, Inc., and it's called Paint Shop Pro. This program is important for Amiga users to know about because one of the formats it can load and save in is Amiga IFF. It also handles BMP (OS/2 and Windows), CLP (Windows Clipboard), CUT (Dr. Halo), DIB (OS/2 or Windows), EPS (Encapsulated Postscript), GIF (the former Compuserve standard), IMG (Gem paint), JIF (variant of JPEG), JPG (JPEG standard), LBM (IBM version of Deluxe Paint), MAC (MacPaint), MSP (Microsoft Paint), PBM (Portable Bitmap), PCX (Zsoft Paintbrush), PGM (portable Greymap), PIC (PC Paint), PPM (Portable Pixelmap), PSD (Adobe Photoshop 2.5), RAS (Sun Raster Images), RAW (Raw file format), RLE (Compuserve and Windows format), TGA (Targa Truevision), TIF (Tagged Image File), WMF (Windows Meta File) and WPG (WordPerfect format).

It's great as a general paint program, with a full range of paint tools including a magic wand for area selection based on color range. The tool bars are floating and can be turned on or off. You can also have as many windows with

images in them as memory will allow.

The load file menu has a useful browser option, that makes a visual menu showing miniature versions of all of the images in a directory. You can click on an icon to load it or highlight a series of images and have them loaded in overlapping windows. You can also use this to copy, delete, move and rename files, which is very handy while looking at all of the images.

### Paint Shop Pro

Paint Shop Pro has a full range of image manipulation abilities where you can flip, mirror, rotate, add borders, enlarge the drawing area, resize the image and create masks. There are 11 adjustable deformations such as wind, skew, perspective, and cylinder, and you can use the browser to see how they effect a miniature of your image. There are 21 filters, such as mosaic, despeckle, emboss, edge enhance and trace contour. The browser makes it easy to instantly see what effect each one has on a miniature of your image.

You can adjust brightness, contrast, gamma, highlight, midtone, shadow, hue, saturation, luminance, RGB values and colorsize the image, greyscale, colorize, posterize, solarize, negative, equalize and stretch the histogram, all with the interactive browser so you can instantly see the effects. You can also manipulate the palette and decrease or increase the color depth.

Paint Shop Pro is also able to capture images. You can choose an area, a full screen, a client area, a window, or an object. Paint Shop Pro will disappear until you hit the hot keys and capture the image you want. It will then appear in a window in the paint program, ready for additional manipulation or saving. It's fast, easy to use, and one of those programs that no PC user should be without. Since you can try it for free in a completely uncrippled version and honestly own it for only \$69, it's worth a look.

As usual, if you don't want to hunt down these programs, they are available on disk. If you want the Amiga programs, request the Amiga Hardware Disk Offer. If you want the Paint Shop Pro disk, specify the PSP Disk Offer. Send \$5 for each to: Geoffrey Williams, Disk Offer, P. O. Box 10095, Glendale, CA 91209.

VTU



By saving as an RGB file, there will be no degradation next time you load this image.

At this point, to go to the swap screen by pressing (j) and load an image to use over the shoulder. Now press the (R, b, w). This will select the Filled Rectangle Tool and the scissors tool. Then select the entire screen as a brush. Now you have this huge unmanageable brush that needs to be "poured" into the black hole on the other screen which involves the Texture Map feature of TPaint. Texture Mapping allows you to force an image into a different size. TxMap is used on brushes or any image that is picked up in the same fashion as a brush.

First, select "Copy This Brush" from the brush menu, placing the image into a buffer that TxMap can use. Then turn on the TxMap with the (7) key or from the mode menu. Select the flood fill tool and swap (j) to the other screen. At this point, if you click once in the black square you'll see the image get scaled down to the smaller window, however it can be better. Press the (F4)

key to undo the last operation and then Press (F1). On this screen there is a small triangle that has a smooth edge to it. Click it. This is the antialias button and it will slow the operation of TxMapping, but it will improve the outcome. Now without clicking anything else, press (F5) and redo the last thing that you undid. Notice the improvement in the quality.

This image is ready to pick up and take to ToasterCG for compositing over live video. Select the pink color of the background as your active color swatch. Now select "Copy Color" and again with the little arrow pointing left select "No Background." Pick up the image by pressing (R, b) to select the filled rectangle tool and the scissors tool. Draw a box around the whole image—don't worry about the pink, TPaint will ignore any instance of pink that you attempt to pick up. This new image can be saved as a brush "O". Call it "Box.bsh", so you know it's a brush. Now we're ready for ToasterCG.

### Compositing Over Live Video

Go to ToasterCG and find the Load

Brush Icon. Look for the Brush that you just saved as "Box.bsh" and select it. What this does is load it into the current Book or Project that you are working on. Now click your mouse anywhere on the screen so you have a small cursor mark, then pull down the font menu. You'll notice that your new brush is available. When you select it, ToasterCG will put an outline of the brush on the page for you to position. Now if you press (F7), ToasterCG will buffer the page for faster loading and you can now (Esc) to the switcher and load that page to key over live video.

It is important to remember that you can load any number of differently shaped brushes created with the techniques above and layer them. I believe the limit is 255 layers, and you even get four levels of transparency, controlled from the Palette menu in ToasterCG.

VTU

Chris Fenwick owns Broadcast Business Graphics in Redwood City, Calif. Reach him on-line at [www.bbgroup.com](http://www.bbgroup.com). Burt Wilson is on vacation.

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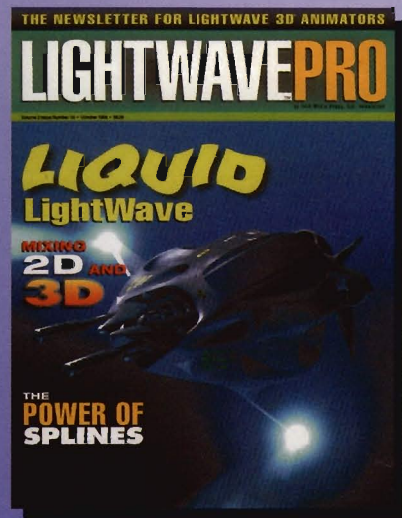
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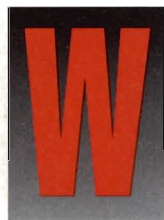


# TAMING THE WAVE

## My Sphere Runneth Over

Image Sequences and LightWave

by David Hopkins



Welcome to another edition of Taming The Wave, the column that dares to expose you to different approaches to 3D animation. This month we're going to take a look at a nifty effect you can achieve with image sequences and your favorite 3D program, LightWave. Grab a cool refreshing beverage, take a seat in front of your machine and try this out!

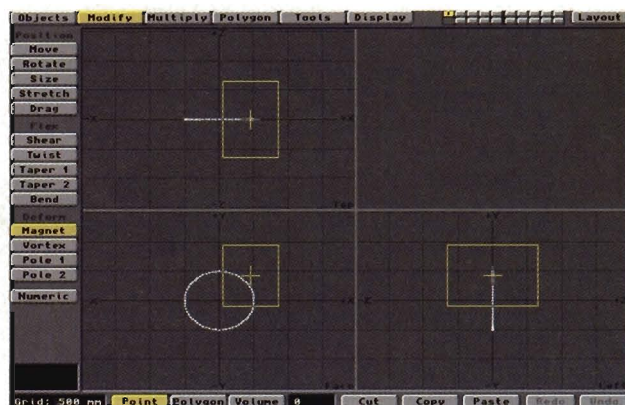


Figure 1

### Here We Go

Let's start in Modeler. Click New to get a nice fresh copy. In the first layer, choose the Disc tool and press "n" on your keyboard to bring up the numeric input window. Hit the Reset button to clear any changes you made. Set the sides to 64, Bottom to 0, Top to 0, and Axis to Z. Leave the rest of the values alone, click OK, then Make.

Make sure you are in Polygon Select Mode (at the bottom of the screen) and press the "q" key on your keyboard to bring up the Change Surface requester. Set the name to "liquid" and press Return. Liquid? Why'd we name it liquid? Because we are going to cause a liquid-like flow over an object. Just follow me here.

Save this disc as "LiquidOriginal.lwo". Copy the disc and paste it into layer 2 of Modeler. Now, select the Magnet tool from the Modify menu. Use the left mouse button to drag a box in any two views so it resembles Figure 1. Click and hold the right mouse button anywhere in the Face view and drag to the upper right. You should end up with something approximating Figure 2. When you do, release the mouse button. Note that a magnet's push may look angular as you move it, but will usually be smooth when released. By the way, you could put layer 1 in the background so that you can see the original shape while you work on the new one.

With the left mouse button, pick up the Magnet influence box in the Face view and move it to another edge. Use the right mouse button again and drag to pull that

edge. Push and pull until you get a fairly "splattery" shape along the lines of Figure 3. You can use Move or Bend or any other tool you wish, but be sure to do this work in the Face view so the polygon itself remains flat! Also, don't add or remove any points to the form. When you have a shape similar to mine, click on Size, then press "n" for Numeric. Set the Factor to 1.5 and click OK. Save the object as "LiquidPosition1.lwo".

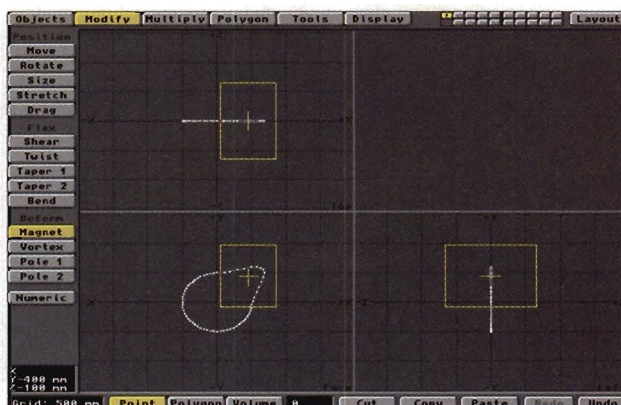


Figure 2

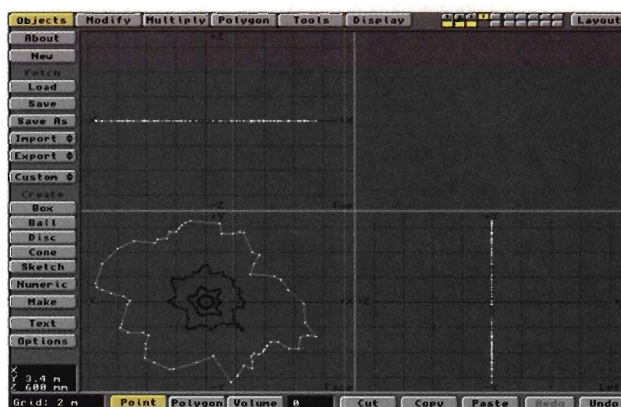


Figure 3

### What Now?

So what's next? Do it again! Take a look at Figures 4 and 5. These are "LiquidPosition2.lwo" and "LiquidPosition3.lwo", respectively, with the earlier positions in the background. The object is to have the "arms" of "liquid" expand further in each object, but retain a similar distance between them. Imagine that you are creating time-lapse frames of a splash which, in fact, is exactly what you are doing! Note that the form is likely to get more angular the farther out you push it. The more points you start with, the smoother it stays.





Figure 4

Go back to layer 1 (the original disc) and hit the Scale button. Set the Factor to .01 and save it as "LiquidPosition0.lwo". Now it's off to LightWave!

Load all of these objects except "LiquidOriginal" into LightWave, hopefully keeping them in order (Position0, Position1, Position2, then Position3). Enter Layout, choose Camera View and leave only the Z Axis punched in. Move the camera closer to your rings until the outermost one (Position3) is just outside the viewing area. You'll want to move a little, then let it redraw, then move, then redraw. This way you'll be able to see when the edge of the last position first sneaks off screen. When you've found the right camera position, create a key at frame 0.

In the Objects panel, select LiquidPosition0.lwo. Enter the Metamorph Envelope by clicking the associated "e" button. Create a key for the envelope at frame 15 and set the value there

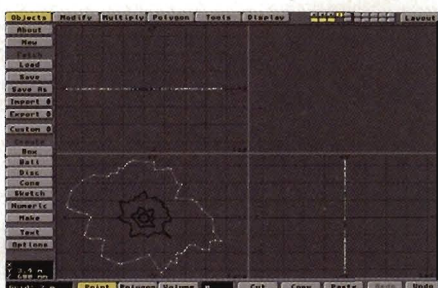


Figure 5

to 100%. Click Use Envelope. Set the Metamorph Target to be LiquidPosition1.lwo.

Now, choose the LiquidPosition1 object. First, set the Object Dissolve value to 100%. This object is a morph target so it shouldn't be seen on its own. Go into the Metamorph Envelope here and create a key at 15 and another at 30. The key at 15 should have a value of 0 (and Linear turned on in the Spline Controls) and the key at 30 should have a value of 100%. Use Envelope. The Metamorph Target will be LiquidPosition2.

On to LiquidPosition2. Object Dissolve

to 100%, Metamorph Envelope with keys at 30 (value 0, Linear) and 45 (value 100). See this pattern developing? The Metamorph Target is LiquidPosition3.

Finally, LiquidPosition3. All you have to do here is set the Object Dissolve to 100%. Because this one is the final position, it won't be morphing.

Now, go back to Layout and make a wireframe preview of frames 1 through 45. See how the shape spreads and distorts, much the way a liquid would flow outward from the source? Our example is just a little rough to show you the basics. You could use more morph targets if you want, change the speed, or whatever. Now then, let's do something with our example.

Go to the Surfaces Panel and select the Liquid surface. Set the Surface Color value to a deep blue, like 0, 33, 200. Luminosity should be at 100% because the final images will be applied to another lighting environment. Diffusion of 0%. We want color with no shading.

Now, enter the Effects Panel. Make sure Solid Backdrop is turned on and set the color to 200, 0, 0, for a bright red. In the Camera Panel, set Medium Res with at least Low Antialiasing, and Motion Blur if you have the rendering power. Set a save path for your RGB Images (DON'T make an anim!), save All Objects and Save Scene, then render away.

### Back at the Ranch

OK, it should be done rendering now, right? Clear the scene and hop off into Modeler. You can hit New again to clear it out. Choose Ball, then press "N" on your keyboard for Numeric. Hit Reset, then set it for 32 sides and 20 segments. Leave the sizes alone and click OK, then Make.

Press "q" on your keyboard to bring up the Surface requester and set the name of this surface to "Sphere". How's that for creative? Go ahead and save the object and load it into LightWave (or export). In the Images panel, choose Load Sequence. If you are using LightWave 4.0 (or better), just double-click an image in the sequence. If not, click an image in the sequence once, then remove the numbers from the end of the name.

Go to the Surfaces panel and select the "Sphere" surface. Click the "t" button next to Surface Color to apply a Texture. Select Spherical Image Map, set the Texture Image to your image sequence and Texture Axis to Y. Click Use Texture.

You can go ahead and render this to see how it looks. You'll see the blue

"flow" progressively cover more and more of the red sphere. (Figures 6, 7, and 8) Now this is only one use for an idea like this. Imagine using a similar effect as a Specularity Map, Transparency Map, Diffusion, Bump, or all of them! And, of course, you're not limited to this technique for making the "wipe" either. Give it a shot, goof around with it. This is how you will become a better animator.

As always, if you have LightWave questions, tips, tricks, or whatever, feel

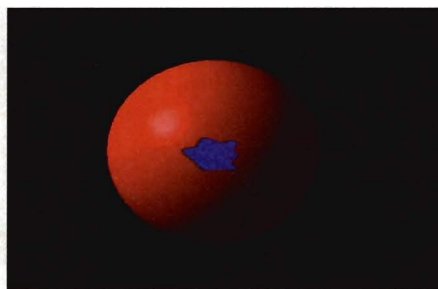


Figure 6

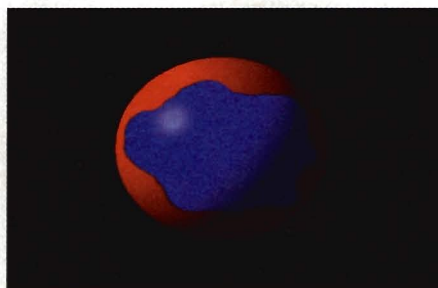


Figure 7

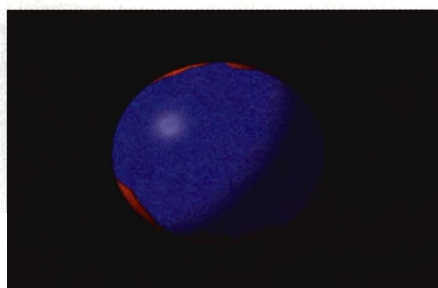


Figure 8

free to send them to me on-line at lthouse@primenet.com. You can also check out my website at <http://www.primenet.com/~lthouse>. Until next time, keep up the great work and remember—practice makes perfect!

VTU

EDITORIAL EVALUATION		
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# SLICES

## The Annual Resource Roundup

### Credits and Catalogs

by James Hebert



**E**very year I like to pass on sources for materials and ideas that will spur creativity with the video tools you use. As a technical writer and graphic designer, I scour industry and trade publications for tips, tricks and inspiration in any form. You never know when an idea will gel from your exposure to something, be it last week or last year. Consequently, my office is a mess because (now, this is not necessarily a really bad habit) I'm always poking my head into either a magazine, catalog, or book every few minutes, and (here's the really bad habit) I like to spread things out in front of me as I



work. Worse (now the ax falls) I am a poor filer. So, if any of you who share my propensity for a messy office have found a solution that works for you, let me know! Write, call, e-mail—what have you. I'll let you know what worked for me, and then others can benefit from our shared knowledge.

#### Thank You

Speaking of correspondence, I want to say a heartfelt thank you to Robert S. Thompson for writing me recently. Due to a fortuitous error in shipping, Robert received a second set of LightWave 3D manuals in the mail. His habit, as he works through materials, is to mark it up with questions, discoveries, and notes. This he did. Then, Robert's unexpected surprise was turned into a rare gift for me and anyone else who uses LightWave in the future—he turned around and shipped his annotated manuals to me so that I might improve the next version of the LightWave documentation. I now have a set of documentation complete with the "average" user's questions, thoughts, and reactions to the written material. Believe me, I will make use of it.

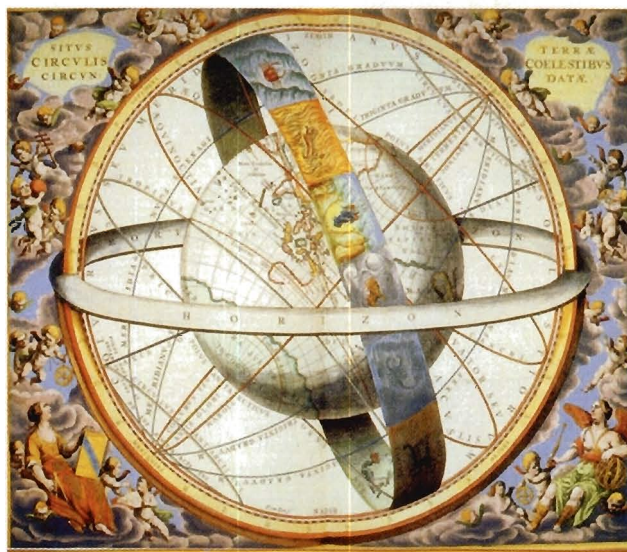
Robert made several kind statements about the documentation for LightWave 4.0, which was a huge effort

that included the work of John Gross (formerly of Amblin Imaging), Bruce Branit (of FryeAllen), Brad Peebler, Bob Anderson, Jason Linhart (all of NewTek), and David Hibsher (Toaster trainer and freelance writer). Others contributed time in proofing, generating imagery, capturing screenshots, or just dealing with my frantic efforts to tie together some 850 pages of documentation.

#### Behind the Scenes

The LightWave documentation was originally conceived as a different beast than that which ultimately shipped. Due to the lateness of the program code itself, constantly shifting ship dates, the busy schedule of our writing team, and paper shortages in the marketplace (you'd be surprised), it changed quite a bit. At the outset, we had intended to ship an install guide and a user's guide. The idea was to move away from the more clinical "reference only" style of docs we had created for previous versions of LightWave. John Gross would handle the huge duty of writing the user's guide. Who better than someone who uses LightWave every day of his life (I know you, John!). However, as any professional animator at a working studio facility will tell you, the volume of work quickly expands to encompass every waking hour.

During this time I was also preparing the manual for the ever-changing Flyer release. There would be a mad rush to update LightWave every so often, in between protracted periods of working on the Flyer manual. As material began to coalesce, we then real-





ized that we had not planned the LightWave do s as well as we had thought. A user's manual generally explains how to use a package in an easy-to-read, informative style. However, as any experienced user of LightWave knows, you just don't need to use every button every time you sit down to create a scene! How do you cover every button, when some items on the screen are highly important while another feature right beside it is used .001% of the time?

Our solution was to bring back the original reference-style documentation to accompany the user guide. This would allow us to cover each function in terms of what it does, how it works, and whether there were any special tips we could pass on about it. And, it would free up John from having to write about every button. The dual manual approach seemed the best way to cover all the bases.

There are many similarities in the two manuals. Some tips appear in one, some in the other, and some in both. We chose to go this route because we felt that many users disliked the reference style (too much like a dictionary), but the user guide alone would not have covered every facet of every button (forcing a user to read about aspects of a control that he may not care about when all he wants to know is "how do I use this?"). So, as Robert pointed out to me, if you want the full story on something you may have to hit both books. But if you want "just the facts" you know to go to the reference. If you'd prefer to get a better understanding of a feature and perhaps more about the context in which it is most effective, turn to the user guide.

We also thought that, since some folks like to take a manual with them on trips or to read while commuting (not driving, uh...passenging) that having the complete material on both Layout and Modeler in a single volume was a benefit. This was another reason to go with user material in one and reference material in another.

As time goes by, and more users give us feedback on our manuals, we may change the book design again. One approach would be to create a Modeler and a Layout book, complete with user's guide and reference manual materials for each program alone. An installation and tutorial book

LOWTECH FONT  
Quasar Font  
Corporate Compressed  
Classic Garamand  
NATIVIDAD

1 2 3 1 2 3 □ □  
BIRWOOD SSK  
BREAKAWAY CAPS SSK  
*Magellan Script SSK*  
MY STUFF CAPS

There are a plethora of inexpensive font collections available for Toaster users, many of which are free in the public domain.

would complete the picture.

As a person who writes for a living, I share Robert's penchant for clarifying the things that confuse me by annotating the books I have. In fact, it was my general unhappiness with the original 1.0 Video Toaster manual that ultimately led me to Topeka! It is an accurate statement to say that I have a fond place in my heart for NewTek and the Toaster. I always will. A while ago, I did say I would pass on some unique sources to you, didn't I? Well, here they are, along with some sample imagery.

#### Font Mania

I love fonts. Period. With the PC in my life, I suddenly have a *huge* library of PS and TrueType fonts open to me that I was unaware of before. I picked

up two inexpensive font collections that I can use not only for publishing and layout work, but also for LightWave and Toaster work, on both the Amiga and the PC.

Both of these collections are fairly inexpensive, so they are not "letter-perfect" as you would expect from Adobe or Monotype or Bitstream. However, they represent great value (and great variety). The money you spend for either collection is less than that you would spend for a single professional font, so if you get one good set of characters that you wanted out of it you've received your money's worth. If you find more, even better.

For about \$30, you can find the Fonts Pro 3003 collection from SoftKey. This collection contains 3003 PostScript Type 1 and TrueType for-



mat fonts. There are occasional errors in the collection, such as a letter P that is solidly filled in and looks incorrect, but it appears to be only about 2-3% of the fonts in the set. (If you have TypeSmith for the Amiga, you can load them in and correct them if you wish.) On the whole, this collection contains a broad variety of fonts, and some display symbol fonts that are pretty neat. SoftKey also includes a font viewer/installer for Windows and Windows 95.

Another collection, about \$15, is called TypeCase 2001 from Swifte International. These fonts exhibit better quality control than the SoftKey set. This is a more professionally put together collection, with fewer off-the-wall display fonts. For Windows users, there is a font viewing utility, but no installation utility.

I found both collections locally, one at a computer store and the other at an office supply store that had a large computer and computer software selection. Both companies put out other collections under the Fonts Pro and TypeCase brand names, with fewer fonts, so you might find one or another in your travels. You might see these in a mail order catalog, although I tend to think that the less expensive collections won't be there. These are what you might call an impulse buy item, but a worthwhile one.

### Speaking Of Catalogs

Get the catalog from the Image Club, even if you have no interest in buying from them. Call them at 1-800-661-9410 and request one now. Ask them to send the Planet Art catalog as well.

The Image Club is a mail-order business from Canada with a US-based catalog fulfillment center. They cater to the publishing and multimedia industries, primarily. Their catalog contains a really neat selection of fonts, funky clip art, excellent photograph collections, and best of all tips from people in the media industry. For example, the latest issue has over 17 insider tips scattered among 63 pages of merchandise. These are quick tips for achieving a certain look in Photoshop, how to create a unified look in advertising materials, adding dimension to a texture, distorting text, using script type in a

design, tiling a texture, using rules and borders, and more.

The benefit of having tricks like these dispersed throughout the catalog is that more often than not you can use these design tips when creating graphics with LightWave and the Toaster. Such tips can be applied in a fairly universal manner. No kidding.

Are you a Web page designer, or interested in whipping up your own page? Ever noticed that your computer screen pretty much approximates the 4:3 aspect ratio of television? The vast majority of the techniques you've learned from the pages of VTU that pertain to video graphics can be redirected solidly at the Web page on your RGB monitor screen. The Image Club catalog is packed with some slick designs and layouts and a lot of sample art using their merchandise and clip art materials. It's a good source for inspiration and ideas, as well as creative support materials.

The Planet Art catalog is a collection of CD-ROMs with multimedia and clip art ranging from Renaissance artwork to 1850's woodcuts to mid-1900's fruit crate labels. You'll find ancient maps, angels, Egypt, posters, costumes, native American art and more. All images are license-free, meaning that you can purchase and use them in your paid-for work. Images are on disc in five sizes (up to 2000 x 3000 pixels), and if you have the latest Flyer or Toaster software (4.1) you'll be able to load them directly (using the built-in HIIP loaders for TIFF images). Best of all, each CD contains 100 images and costs you only \$59. Order the sampler CD for \$49 and get an idea what the entire catalog is all about. Use just one image from it in a job and it will have paid for itself. Best of all, the Image Club backs their products with a 30-day no-risk guarantee. If you do pick any of these items up, let me know what you think. Or, send me your resource lists and I'll pass them on. Until next year's resource column.



James Hebert

## Flyer Tip

### *Note on Stutter Prevention:*

Many effects default to an odd-numbered frame length, in the standard time setting (Slow, Medium, Fast). This is fine for live operations, but causes stutter in sequences. Be sure that the duration of all effects used in a project sequence is an even number of frames.

In- and out-points set by slider always jump two frames at a time and maintain the colorframe. Still, many users type in In- and Out-points, and when doing so, if the In- or Out-point splits a colorframe, stutter and glitches will result.

Be sure the duration of any clip, still, store, etc., is always an even number of frames, and in the case of video clips, that no in- or out-point breaks a colorframe.

*Chuck Baker works for NewTek's Technical Support Department.*



# LIGHTWAVE 3D™

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Star Trek: The Next Generation



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FOR INFORMATION CIRCLE 123



The National Association of Broadcasters Convention and Exposition, more commonly called NAB, is a place to go to take the pulse of the media delivery business and to observe the trends in media production. Historically, the show was predominantly the domain of the analog culture, and trends were firmly in the grasp of the "big guys" like Philips, Sony, Panasonic, JVC and a handful of smaller players. They also seemed to firmly control the pace of change: incremental improvements from year to year, maybe a new tape format every 7 years, then double its resolution in four years. It was like a soap opera—miss a few episodes, and it was no big deal. Tune into the next episode and you find you hadn't missed much.

# NAB 1996

## One Man's

by Wayne Cole

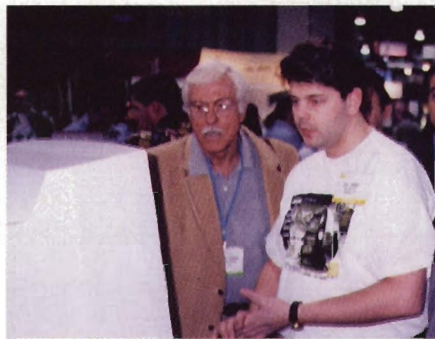
But around 1992, the pace of change began to quicken, pushed along in no small measure by a little upstart company from Topeka, Kansas that didn't play by the big guy analog world rules. And with evangelical zeal, NewTek and its disciples greased the skids as media production began the ever accelerating "descent" (as the old boys would have it) into the digital domain. For the next three years, the small companies and individual creative geniuses of computer geekdom with pocket protectors firmly in place, broke out of the pack and set a blistering pace of development and bang-for-buck ratio improvement. The big guys were waddling behind as fast as they could, ties and tongues flapping in the breeze, desperation etched on their faces as they realized they had lost control of their industry. Yes, there were the NLE and digital folks before at the Abekas, Avid and IMmix companies. But they more or less played by the rules—system prices well into six figures—or quality suitable only for "off-line" or "multi-media" production. To be fair, individual hard drive performance just wasn't there. So to get the data bandwidths necessary to support video, exot-



ic technologies like disk arrays specialized smart buffers and even huge ram disks were employed, yet provided video recording times that were pathetic by today's standards.

By 1994, NLE (non-linear editing) was more than a curiosity or a buzz-word. There was a variety of practical NLE set-ups available from smaller companies with better quality and smaller price tags than had yet been seen. And nowhere among the cast of reasonably priced systems were the names of Philips, Sony, JVC, or Panasonic to be found. The leading edge of the video industry had left them behind while the face of video production was changed for good. Yes, tape based linear editing may be useful, usable and even necessary for some jobs for several more years. And tape has an even longer life expectancy as a video delivery system. But clearly, tape is increasingly heading the way of paper tape and punch cards.

guys pause to ponder where they are headed, because it is quite possible their customers are moving in a different direction. Consider, for example, that NAB convention attendees are probably 20% broadcast people, (some of which are radio broadcasters) and the rest are non-broadcast media professionals. The exponential growth of the multi-media section of NAB is a direct result of this market shift.



Among the jaws that dropped with the release of LightWave 5.0 was that of TV legend and 3D Animator Dick Van Dyke shown here with YTV columnist Dan Ablan.

largely people came into the Panasonic booth enthused and excited, hoping for FireWire news and consumer editing solutions for DV only to find DVC Pro decks with price tags in excess of \$20,000 for an editor, \$12,000 for a player and *no* FireWire connectors! "D1 compatible" serial digital connectors, yes. FireWire, no.

### A Non-Standard Standard?

But it gets even worse! DVC is a standard, right? Well, not exactly. It seems that the agreement between the supporting companies was that the low end consumer version had to comply both in codec and media form factor. In other words the same encoding and compression algorithm would be used and the same tape size would prevail. However, it seems that Sony decided to use a 19 micron track pitch whereas Panasonic used a 15 micron track pitch when laying its DV encoded bit stream to tape. What does this mean in practical terms? For starters it meant that I couldn't find anyone

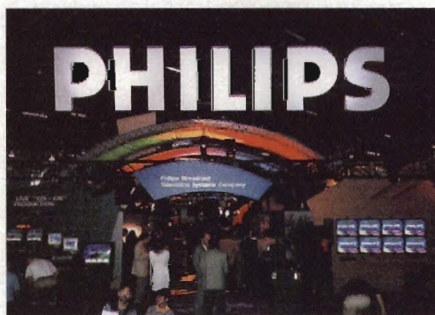
# Irreverent View of the Big Show

## And the Big Guys Got Scared

Voila! In less than 18 months, a standard of sorts, DVC, was devised, and signed onto by over 50 companies while product started to ship. The speed with which it came about makes one wonder if DVC technology was not on the shelf cooling its heels while the big guys were still king of the heap. In a simplistic sense, it is no great leap from existing analog component technology. Instead of encoding the digital information from the camera's CCD's to analog signals to be recorded on tape, the CCD information was encoded in digital format (with compression, of course) and recorded to tape.

So, why do we find the prices of NLE systems falling with image quality improving, while the big guys' prices for digital hardware is higher than corresponding analog technology with the same image quality? Could this be one aspect of the Beta SP/ M II/ D3/ D5/ S-VHS life support program? If it is, this year's NAB should give the big

Even on the main floor of NAB, the big crowds of people not wearing three piece suits (a.k.a. the non-



A pleasant surprise was the large booth from the new and improved Philips Corp.

broadcast media professionals and the local TV station broadcasters) were located in the Avid booth at the MCXpress NLE software demo, Data Translations Media 100 demos, TrueVision's Targa RX displays, DPS Perception audio and video hardware demos, in:synch's Razor Mach III demos...you get the picture. Yes, there were the usual pack of suits in the Sony booth and there was a fair amount of excitement at the Panasonic DVC Pro displays. But

in the Panasonic booth that would go on record to say that their equipment could read a tape recorded with a Sony DV camera. Further digging into the DV/DVC Pro situation revealed even more news that indicated the entire thing was run more by marketers than by committed video technical folks trying to deliver high quality stuff at a fair price.

It seems that the professional side of DV, that is the DVC Pro portion of the "standard" only requires the manufactures to comply at the codec level. Media format and form factors are at the whim of the individual companies. So, Sony decided, apparently, that a tape recorded in a DV consumer camera will not be usable with their DVCPro equipment. Hence the inclusion of the FireWire on the camera. You will have to play back from the camera, via FireWire to get the taped material onto media with which to edit on Sony's DVCPro decks. If this DV to DVCPro connection solution was showing at NAB, it was incredibly low key as I have not been able to locate anyone who saw it.



Panasonic has a more reasonable approach. You take the tape shot with their PV DV100 or AG EZ1U and use them in the pro-industrial decks. So, if you stick with Panasonic from consumer to pro, the lack of FireWire is almost a non-issue.

### May The Best Format Lose

JVC is the company with the better mousetrap, doomed to failure and oblivion the way better computer technologies, in my opinion, were killed off by Microsoft. And with Sony and Panasonic (i.e. Matsushita) doing a lot of yelling about DV and DVC Pro, very few people have even looked at Digital S-VHS. JVC has also made its own mistakes that just worsen the problem.

First, there is the name—Digital

consumer digital format will most likely be Panasonic's version of consumer DV). Add to that the lack of plans to produce a one-piece camcorder like the GY-X2 or GY-X3 with Digital S-VHS capacity, the refusal to revive the GY-X1 or other S-VHS-C form factor compliant capability, and you have a textbook recipe for a repeat of the betamax phenomena: the highest quality format will fail in a few short years. Especially in light of the Panasonic-like pricing schemes (\$20,000 plus for editor up to \$15,000 for player). Now, it is true that with Digital S-VHS one has infinite pre-read capability just like Digital Betacam and can therefore do true A/B Roll with only two decks. But \$35,000 for a marginalized format A/B Roll suite? Get real! For that kind of money you could put together a beta suite based on PVW decks with AFM audio upgrade mods and still have money left for a nice Alladin or Pinnacle Genie card to use as a switcher/DVE unit—and you would be *industry standard compliant*.

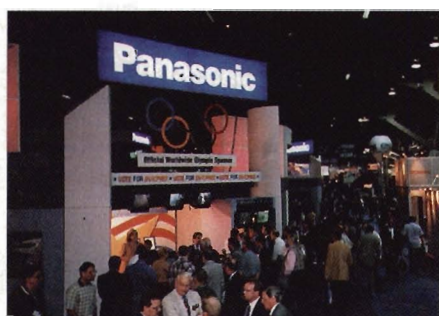
### They Still Don't Get It

Panasonic has their Postbox NLE and JVC claims it will have an NLE too, but, couple a deck or two with their NLE's and there you are hanging out in the price range nearer to six figures again.

So, the new generation of video professionals, I should say the digital video professionals (you can claim that title if you use a computer in video production at all) wandered off, enthusiasm crushed until they landed someplace like Data Translation's Media 100 booth, or Targa booth or DPS's Perception demo. These people who may not have any idea what an ADO 3000 is, or have never laid eyes on a GVG 3000, are nonetheless smart, and not easily impressed by past deeds. So these people, being the vanguard of the new video production market, know they can put together a nice NLE consisting of a Pentium workstation, UVW-1800 Betacam SP deck, Perception board with capture option, DPS audio card (premiered at NAB) Razor Pro Mach II and Hollywood Effect for around \$20,000—the price of a single DVC-Pro deck. And guess what? The quality at 4:1 or 5:1 which is within



VTU Training tour instructor Rick Bertuot checks out the new QBit Digital Video Recorder from QuVis Corp.



The Panasonic, JVC and Sony booths were jammed with folks from around the world trying to figure out which DVC or format will be king.

S-VHS. Makes it sound like merely digitally encoded Y/C, yet it is really 4:2:2 component compressed to 3.3:1. It is noticeably superior to DVC's 4:1:1 component with 5:1 compression. JVC has also maintained the VHS cassette tape size. While at first this may seem really dumb, consider their reason for doing it: their top-of-the-line Digital S-VHS deck will playback either standard analog VHS/S-VHS tapes or Digital S-VHS tapes. So, a person equipped with S-VHS equipment could make step-wise upgrades into the digital realm to get near Digital Betacam quality while the DVC user is more likely to have to upgrade much of his equipment all at once to make his format transition from Y/C or Umatic. And, JVC is providing a dockable Digital S-VHS unit that will use existing KY-27 and KY-19s as a front end.

JVC is helping the cause of DVC in their refusal to create a consumer counterpart to Digital S-VHS. (Their

Perception's capability will be indistinguishable from DVC-Pro output. Don't like that solution? How about Targa 200 Pro, or 2000 Pro RX and Avid MCXpress software that even includes a built-in software waveform/vectorscope? Or step up to the glorious 2:1 compression and real-time effects of Data Translation's new Media 100 offering.

In the multi-media pavilion you could choose from Matrox Studio, Interactive Images' Plum board coupled with Adobe Premier, an Intergraph Z-card equipped workstation and Adobe Premier, NewTek's Video Toaster Flyer coupled with OzWare's co-pilot, Harold Russel's Radar and Flight Gear. All these NLE solutions in tandem with a single component deck can still come in at a price that is under that of a suite based on a digital deck and the "NLE" solution provided by any of the big guys. The distinction between multi-media production and video production has all but



disappeared, but the big guys still haven't figured that out yet. To borrow NewTek revolution-speak, they just don't get it. To serve the new generation of producers properly—the new market place—the digital decks should have list prices that are somewhere between 2/5 and 1/2 of the announced prices.

## 6: 6: 6—The Sign Of QuBit

The most immediate and direct assault on the big guys comes from—you guessed it—NewTek alumni who are now part of a company called QuVIS. They were showing a device called QuBit, “the intelligent digital video recorder.” By showing, I mean they had boxes that were supposedly QuBit machines, on display, but not fully operational. Their media presentation was done with an Amiga behind the curtain (proving once again that the Amiga is the most popular secret machine, I guess). Anyway, this box (that will be available, according to some accounts, by the end of the year) should really worry digital tape deck makers.

While the front panel may be the

optional second video processor card you **can** simultaneously record and **playback** two unique video streams at once. By looping one of the outputs back to an input you could conceivably do real-time lossless compositing of two video streams from a single unit.

So, what does this “intelligent video recorder” cost? It seems that while the specs are on paper the price is word of mouth. And the current word is \$20,000 for the base unit, and \$5000 for the second video processor board. At first you might think, “well, this is no better than the big guys low end digital formats”. Yes, that may be correct, but only partially so. In reality, the QuBit with the second video processor is either an A/B roll or NLE suite for Y/C, composite, Beta, Beta SP, Digital Beta, D1 on up to film resolutions, multi-media production and presentation machine, and CD quality audio production studio all in one box for the amazing price of \$25,000! Want to price compare? Call BTS and ask for the price of a single D1 tape deck. What makes this system even more

dit of the popular computer press. The booth was large and busy every time I went by it. Lots of users, from the geeky variety to the well-heeled were showing interest in Apple's products and demonstrations that indicated the press reports of Apple's total collapse have not bothered them at all. (Perhaps they've heard it all too many times before.)

Two demonstrations in particular caught my eye. First was the internet-based video teleconferencing application. To be sure, the slow scan video was quarter screen and jerky. But the resolution was quite good. One window contained a document that various parties in the conference, (including the demonstrator at the show) were annotating and highlighting with “colored pencils” all at the same time while having “face-to-face” conversations in other active windows. By itself, this may not seem that new or impressive, especially to someone like me who worked on a similar system in a small now defunct company in 1984-1985. But now, as opposed to 10 years ago, corporate culture is ready for this level of communication. Also, considering

# NAB 1996

essence of stylish simplicity, the QuBit's back panel is a technomaniac's dream, bristling with all manner of input, output and control connectors. But there is no video tape port anywhere on the QuBit! Instead, there is an Exabyte 8 mm tape drive. The specs are awesome! The QuBit will support recording in 4: 1: 1 (DVC Pro), 4: 2: 2 (Digital S-VHS to D1 resolutions) 4: 4: 4—what QuVIS refers to as full-band chroma recording, 4: 4: 4: 4, full chroma plus alpha, and 6: 6: 6: 6, a high band recording format so unthinkable that no one has named it yet. (They didn't bite onto my suggestion of Q6.)

The base unit will support one hour of video recorded to disk or two hours to the Exabyte tape. And the amazing part is that you can record direct to the Exabyte tape in real-time at BetaSP quality according to company representatives at NAB '96. With the addition of the

of a “big guy slayer” is that QuVIS representatives were openly discussing a QuBit camera back that would dock to existing 3 chip cameras. A single QuVIS system would reduce a full-on network broadcast or film quality editing suite to a single desk with room left over for the paperwork.

## So, What are They Up To?

In the absence of hard information, inquiring minds are left to read whatever they can into this three partner agreement of Sun Microsystems, Apple and NewTek. So, taking up a collection of rumors, show observations and innuendo, I built a scenario that depicts this team as a smart synergistic relationship.

First, I visited Apple's booth at the multi-media hall, and was surprised by what I found after reading all the doom and gloom pieces regarding Apple written by the pun-



The NewTek booth, one of the largest at the show, featured a theater area with round-the-clock LightWave/Pyre/Toaster demos.

that the major excitement in Internet circles these days is the impending bandwidth leap, the slow scan video may give way to compressed real-time video. And Video FAX for document transmittal may replace current scanning FAX as the transmission mode of choice.

The other demo that was quite intriguing was the “Net Broadcasting” system. Apparently several telco's and cable companies are also very interested in this development. Basically it allows broadcasters to move to the net as a content delivery system instead of



using the current satellite dish/cable/antennae based systems.

NewTek was demoing LightWave 3D on everything from A4000 Towers to Intergraph machines to Digital Alpha's. LightWave and the Amiga based Flyer were demonstrated to the larger sit-down demo audiences, while the portable Windows based Flyer was showing at one of the smaller stand-up demo stations found around the booth. A nice red phone booth was set up on the floor with a direct line to Topeka for people to place upgrade orders for LightWave 5.0 and Toaster 4.1 software. It was a very popular attraction. This was, no doubt, due to the impressive new features found in LightWave. I watched, amazed and amused as a body-pierced youth with black-polished long fingernails made a box in modeler, and using new nurb-like metaform features, created from it things like a hair-dryer and a cartoon rabbit in something less than five minutes.

But in terms of the teaming arrangements, the most interesting item was a persistent unverified rumor that the Flyer for Windows was delayed because the code that runs on the Flyer board itself was being rewritten from the ground up in Java. Consider that Java was created by Sun to address certain issues with porting applications from one platform to another and also developing for and updating target computers over a network. Basically a Java compiler does not produce executable code, and thus it is platform independent. What it does produce is byte string code that a Java runtime "server" or host on any platform can translate into machine code on its host platform and execute. Java runtime is currently available for Windows 95/NT, Sun Solaris operating systems and has been announced for Macintosh, Linux, and OS/2. In fact, there are indications that these operating systems in later releases may just build the Java runtime into the core operating system. Since Java is supposedly easier to learn and avoids some of the common snake-pits of C/C++ (e.g. Java has no pointer types, no operator overloading, no multiple inheritance) it is touted by some as a language for the "computer revolution". That is, it places a tool to create power applications, and to execute

them on any host platform over the Internet in the hands of the *common man* rather than the hands of the super nerds and big software producers. In other words, Java will supposedly be to the Internet and World Wide Web what the Toaster was to video.

### It Could Be A...

OK. Now for a little flight of fancy. Taking the rumors, innuendoes and salting them with a few facts, a very interesting picture begins to form. First, the facts: according to an editorial piece in one of the PC mags, Apple took back 10% of the market in media production and delivery services from the Wintel combine. The next fact that astounded me was that the Macintosh was the most numerous platform found among web site hosts, with Sun workstations running a close second. Add to these tid-bits Apple's commitment to (and projects involving) media delivery over the Internet, Sun's involvement with networking and networked multi-media production technology (including Java) and NewTek's involvement with real-time video compression, decompression, F/X generation and video editing.

If I was a Billy G. strategic planner who had to guess where the competition was headed so they could be thwarted, I'd be guessing that this alliance of Sun, Apple, and NewTek might be heading toward an Internet based broadcasting network based on a new type of digital "TV" that can interact with the broadcast media and also double as a media production and distribution tool of its own. And anyone equipped with a such a device, could become a content producer/net broadcaster much like you can have a web page today. Only with this hypothetical new machine, the content would be full motion, full screen video with CD quality stereo sound. Since this broadcast—or really multi-cast - network—would be Internet connected it would be beyond corporate and government control. The Internet is, if nothing else, truly a democratic entity. And while Mr. Couch Potato might have to navigate past the "channels" with nudies of the wife or haranguing black-shirted goons preaching the liquidation of all peo-

ple with big noses, he could probably zero in on content whose quality and interest to him was far more to his liking than the pabulum served up by the current crop of broadcast and cable companies.

As outlandish as this speculation might seem, one could build many alternative, even more bizarre scenarios that are equally probable given what little hard information is available. That being the case, I should like to suggest the following publicity campaign to the triad: put on an international "What are we up to?" contest where people try to guess what the Sun-Apple-NewTek team is planning. The one who comes closest would win a brand new, shiny, Sun-Toasted-Flying-Apple system.

**e thing** @The Beach

**NEWTEK AT NAB '96**

**BY TOM PATRICK McAULIFFE**

By the time you read this, the NAB "Big Announcements" (or lack thereof) will have faded. Some of these roll-out extravaganzas and hype-circuses leave you with more questions unanswered than when you started. But one of the most intriguing "announcements" was the Apple Computers - SUN Microsystems-NewTek team up. All three companies, leaders in their respective fields, had senior representatives at the NewTek sponsored party (nicknamed "A Thing at the Beach"). Held after NAB show hours at "The Beach" nightclub across from the Las Vegas Convention Center, the event was by invite only. While the get-together was mainly for VIP's and a limited number of end users, NewTek also held its

**NAB 1996** continued on page 69





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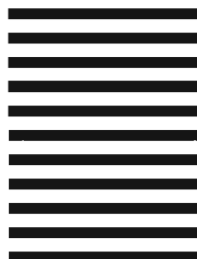
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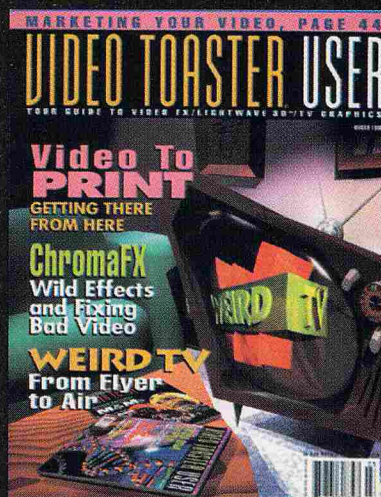
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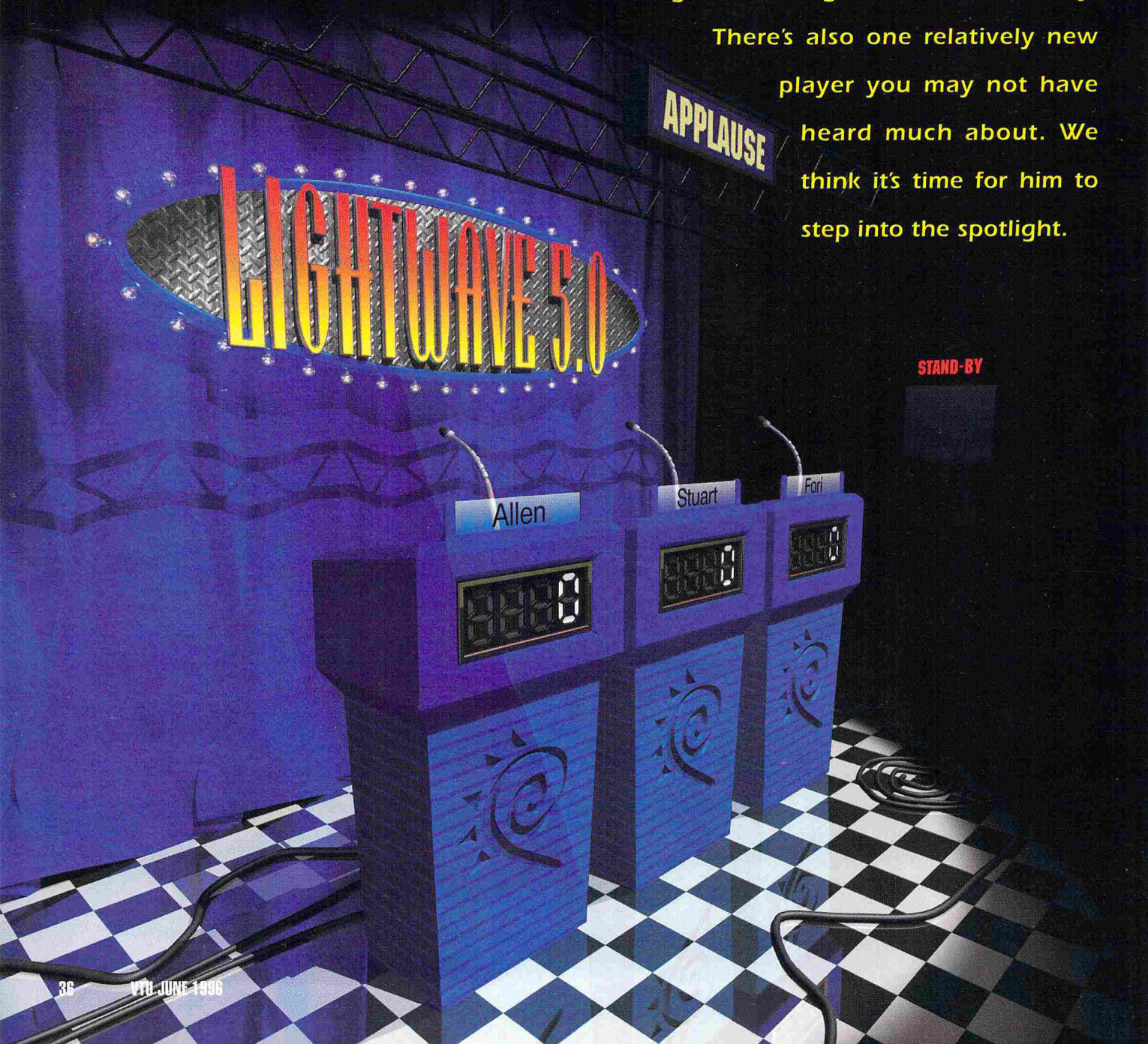
## Don't miss another issue.



If you recently felt a powerful jolt accompanied by a deafening rumble, don't worry, it wasn't an earthquake. It was just the sound of many thousands of jaws dropping at the sight of NewTek's latest triumph, LightWave 5.0. The official unveiling was at the 1996 National Association of Broadcasters convention in Las Vegas, but the aftershocks are being felt throughout the industry. Thanks to the talent and hard work of the NewTek programming team, LightWave 5.0 is a revision with the emphasis on vision. As always, Allen Hastings and Stuart Ferguson were the primary forces, but there are other programmers on the LightWave team including Arnie Cachelin, Dan

Milling, Ernie Wright and Steve Worley.

There's also one relatively new player you may not have heard much about. We think it's time for him to step into the spotlight.





### 3D Jeopardy!

Ready contestants? Listen closely. The game is 3D Jeopardy and these are the answers. For 200 points: This NewTek programmer flunked geometry twice, but went on to create MetaNURBS, the first 3D modeling tool that allows objects to be handled as both spline and polygonal objects. (A problem neither Alias nor SoftImage has yet solved.) For 400 points: This new addition to the NewTek programming team created PowerView, LightWave Modeler's innovative real-time shaded previewer and created PowerTexture, the true WYSIWYG surfacing tool. For

### The Tools

Fori is the very clever and improbably tall fellow who created the MetaSuite features for LightWave 5.0—and these aren't just another set of cool LightWave plug-ins. These are the tools that will not simply allow you to keep up with pricier 3D software packages, but in many cases, leave them choking on your stardust. Sounds like hype? Actually, it's more like hyperdrive.

LightWave has long been a powerhouse 3D package, but in recent years we've been seeing some enviable features emerging on some of the more expensive 3D programs. Real-time shaded objects, effortless object defor-

highlights all in real time. "Gosh," you're thinking, "It's too bad you can't save any surface attributes from Modeler." Well perhaps you'd better take a look at what's behind door number three.

Congratulations! You have just won the ability to load an image into Modeler in real time, as you watch, move, stretch and adjust how the image will wrap onto your object. Move your mouse and the texture moves with it,

# WE HAVE A WINNER!

600 points: In his spare time he created

Metaballs, Metaform Plus (metaforming with polygons greater than quads and special triangle metaforming), Metamotion (on-the-fly, animated metaforming), and Autopatcher (automatic spline patching). For 800 points: As the result of these accomplishments, if you were to roam the halls of NewTek on a Friday, he's the one being referred to as, "The Man." And finally, contestants, for 1,000 points and the ability to model, surface and animate better, faster and easier than you ever thought possible, the final answer is—Fori Owurowa!

Don't feel bad if your hand never made it to the buzzer. 3D software is a fast moving game and thanks to Fori, we've just entered the lightning round. Fori is the guy who questioned a couple of LightWave's limitations and ended up becoming the answer to every 3D modeler's prayers. Not bad for a self-taught programmer from Brooklyn fiddling with a program most of us thought was pretty close to perfect already. With the stunning release of LightWave 5.0, a lot of people including some unhappy execs at Alias and SoftImage, are going to be asking the question, "Who is Fori Owurowa?"

by Joe Classen and Susan Ishida

mation, features to enhance character animation and tools for modeling organic objects have all started to make us worry if the grass renders greener elsewhere. Never fear. With LightWave 5.0 and Fori's MetaSuite of tools, you'll be able to model your grass in an instant, view and texture it in real time and have it dance an Irish jig, if you so desire, all before your first coffee break.

### PowerView and PowerTexture

LightWave users got their first look at PowerView at the 1995 Video Toaster Expo. The unprecedented sight of a real-time shaded previewer in LW Modeler was so astonishing that it left some skeptics assuming that an expensive Open GL board or some secret 3D acceleration hardware was involved. The truth is, the power was all in the software and within a few months, PowerView was available as a LightWave plug-in.

PowerView opens a window in LW Modeler and displays your current object, fully shaded and rotating in real time. Use your mouse to zoom in and move the object, toggle between flat and smooth shading, control the diffuse color and the color and size of specular

wrapping onto your object in real time. Say good-bye to the guesswork, the endless typing new sets of numbers for



Note the smooth shading from a NURBS object.

image size and center, and wearing out your keyboard's F9 key to render quick tests to see how your image is wrapping. Once you're happy with the way your image is wrapped, you can save the surface information from PowerTexture.

But wait—there's more! Not only can you apply and save image map information with your object in the new LW Modeler, you can also set diffuse color, specular, glossiness, double sided, smoothing and smoothing angle all within Modeler and save those surface attributes with your object, thanks

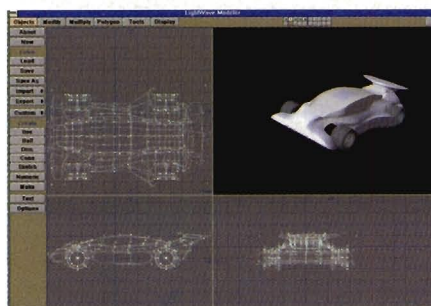


to the new Change Surface menu, courtesy of Allen Hastings and Stuart Ferguson. You can also instantly preview these changes using Allen and Stuart's brilliant new Open GL preview option.

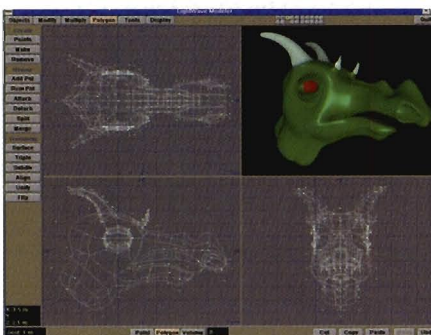
## MetaNURBS

Forget about the way you used to model. It just became obsolete. Now that we have your attention, let's take a look at one of the coolest developments in 3D modeling since LightWave itself. In the dark ages of 3D modeling, the era that shall hereafter be referred to as BMN (Before MetaNURBS) there were polygons and there were splines and there was a gulf between the two worlds bigger than a spokesmodel's hairdo. Sure, you could create a spline based model and turn it into polygons, but it was strictly a one way trip.

MetaNURBS is a hybrid form that allows your objects to essentially exist in both worlds at once. Create a



Car object with the Modeler screen created by Forl.



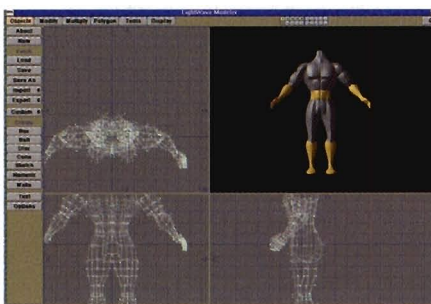
Here is an example of an extremely complex object done with just a few polygons and MetaNURBS.

***"Who will have the tools to build tomorrow's virtual shopping malls, workplaces and entertainment centers?"***

***"Once again, NewTek has provided us with the tools to lead the revolution."***

polygonal box, hit the TAB key and the box becomes a smoothly rounded spline object with a set of handy control points. Use these control points to push and pull your object like a piece of virtual clay. Prefer to work in the world of polys again? The TAB key lets you simply toggle back and forth between splines and polys. Don Pardo, tell the folks what they've just won. It's the ability to sculpt models with unprecedented ease, within the beloved and familiar environment of LightWave, and without sacrificing any of LightWave's vast array of tools and features.

MetaNURBS is not only powerful, it's fast, easy and intuitive. With only the briefest instructions, experienced modelers and non-modelers are creating beautiful, complex objects. Objects that might have taken days or weeks to model are being created in minutes. Ken Wilder of OCS and president of the Los Angeles Toaster Group created a wonderful dragon's head and a fairly complex spaceship each in about ten minutes. Rumor has it that even NewTek's own Brad



Character animation is now a hundred times easier thanks to MetaNURBS.



Peebler has suddenly become a modeling fiend, modeling with such ease and speed that he's taken to timing himself with a stopwatch (dog's head: three minutes).

# LIGHT FIVE

## Open GL Without Open Wallet

High end 3D programs like SoftImage achieve their wickedly fast real time displays through the use of Open GL boards. The bad news is, these boards, like the Lockheed Real 3D and Elsa boards, don't come cheap. We're talking cash and prizes starting at several thousand dollars. To make matters worse, until recently, LightWave offered no support for these boards, so the option didn't even exist. The good news is that LightWave now supports the Open

GL boards. The better news is, thanks to LightWave's new Open GL software, you may not need an Open GL board at all.

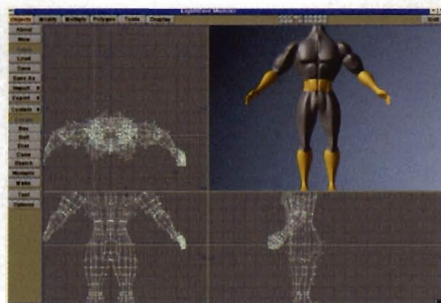
The beauty of LW Open GL is that any system running Windows NT or Windows95 with Open GL is capable of using the new real time previewing features. This means solid, shaded objects in both LW Modeler and Layout where previously we've seen only wireframes. A look at the new Layout screen is a look into a brave new world. Gone are the wireframes (they're still available as an option) and in their place, solid, shaded objects. Diffuse color, specular and up to eight lights (you even see the effect of the light's color) are now part of your Layout view in Open GL.

The minimum hardware requirement to run LW Open GL is a graphics board supporting a minimum of 65K colors. To research this article, we're using a 133MHZ Pentium with a Matrox Millennium Graphics card with 4 MB WRAM. The screen redraws, depending on the complexity of the scene, range from fast to

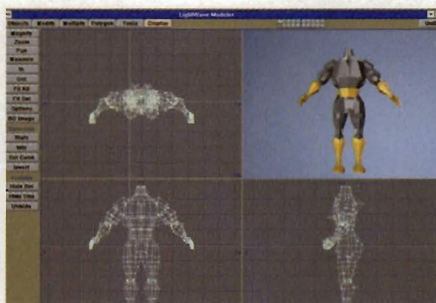


# LIGHTWAVE 3D

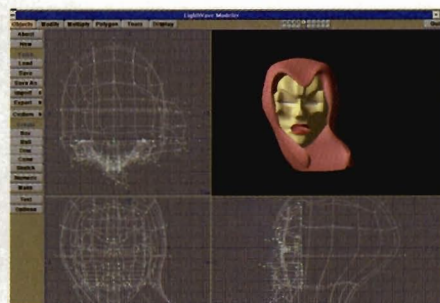
## POINT ZERO



Muscles can now flex with the press of a TAB key.



Hero object created by Fori.



Facial expressions can be formed by moving a couple of points and saving the object as a morph target.

instantaneous. An Open GL board will give you increased speed, particularly in playing back the solid shaded motion previews, but again, LW Open GL mode is fast and highly productive even without the costly Open GL board.

The demand for 3D content is tremendous at the moment, and if you think things can't get any hotter for 3D artists—just wait. 3D graphics boards including the 3D Blaster and Diamond Edge are just starting to become the next *must have* item. New 3D boards are entering the battle constantly and may soon become as standard as sound cards on PCs. It's pretty safe to assume that all those proud owners of new 3D cards will want some attractive 3D applications to run. From GUIs to games, the demand for 3D content is on the rise.

Additionally, 3D games for consoles like the Sony Playstation and Sega Saturn can be developed on standard PC's instead of SGI workstations. Most of the major game platforms already offer PC developers' kits. Of course, all this is just the tip of the virtual iceberg. With the Internet's VRML (Virtual Reality Markup Language), our 2D vision of what makes up the visual interface of the computer world will quickly become as quaint as the original Mac's nine inch black and white screen. 3D API (Application Programming Interface) will exist on Mac platforms in Quickdraw 3D and

on PC platforms with 3DR. Who will build these 3D worlds? Who will have the tools to build tomorrow's virtual shopping malls, workplaces and entertainment centers? Once again, NewTek has provided us with the tools to lead the revolution.

### Freeform3D

In a way, FreeForm 3D is the program that started the whole Fori phenomenon. This simple but deceptively powerful Amiga modeler shows the flexibility of B-Splines and NURBS in modeling. It excels at organic modeling, allowing fast shaded previews (in greyscale), bones, I.K., animation features for saving morph targets, and a host of features that have made it invaluable for projects.

The rail and morph-rail extrudes have to be seen to be believed. Freeform3D exports to a Videoscape/LightWave format with the ability to adjust the complexity or density of polygons. You can even export FreeForm objects into LightWave as MetaNURBS objects. It also supports Real3D and RIB format conversion. Freeform3D will even create animations, ideal for previewing object morphs. A demo version is available on the LightRom CDs, Viewpoint Datalabs' Avalon website or CD and numerous bulletin boards. The full version of FreeForm 3D is \$85.00 and can be purchased directly from Fori.

At the 1996 NAB convention in Las Vegas, the contestants emerged from their soundproof booths and revealed their answers to the big money question,

"Who has the winning 3D software package?" Congratulations, LightWave users, because you are the winners. LightWave 5.0 is proof that NewTek leads the pack in delivering power, innovation and value. We've described only a fraction of LightWave 5.0's new features here. Thanks to brilliant programmers like Allen Hastings, Stuart Ferguson, Fori Owurowa and the other NewTek coding demons, this latest release is so densely packed with new surprises that we could only begin to describe them here. Don't touch that dial, folks, the excitement is just beginning!

We'd like to thank the folks at home for joining us in this exciting game of 3D Jeopardy. Our thanks go to NewTek for their help and cooperation, big thanks to Ken Wilder, president of The Los Angeles Video Toaster Group and finally, many thanks and a big round of applause for Fori.

VTU

### Product Information:

FreeForm 3D Direct orders  
\$80 +\$5 S&H  
Fori Owurowa  
1873-75 Cropsey Ave.  
Brooklyn, N.Y. 11214  
enigma@dorsai.org

*Joe Clasen and Susan Ishida run Joe's Desktop Bar & Grill. They're currently working on a 3D game title for Triac Software and Virtual Love, a feature film. E-mail them at: Susan-3diva@aol.com or surfrjoe@delta.net.com.*



# The Amiga 4000 Tower

## The Return Of A Classic

by Rick Bertaut

**T**he Amiga 4000 Tower is one of the first computers born from the ashes of the now defunct Commodore Business Machines. If you were introduced to the Amiga as a video workstation, you probably have no idea how much life this computer still has in it. A look into the history of the Amiga tells a story of trial and tribulation. As if created as a "made for TV" movie, the story is filled with classic characters wearing the appropriate white or black hats.

### A Little History Lesson

The Amiga started as the quintessential game machine by a California startup company of the same name. We all know that a game machine really doesn't need a keyboard, but the Amiga's creators had something else on their minds. Remember, this was 1983 and computers only displayed columns of characters on green screened spreadsheets in techno-accounting circles. All of the cool computer graphics were coming from the dedicated video game market.

When the Macintosh was released in 1984, the world was presented with a different view of computing reality. Instead of characters and prompts ruling the inner world of the computer, all of a sudden we had a little friend called the "mouse." This mouse was our communication link to a faster and easier method to interact with the inner world of the computer. The mouse had been used on some industrial systems, but it had never been a part of any system produced for the masses. That's you and me!

By the end of 1984, the Amiga team was well on their way to the completion of their dream machine—a system with the latest technology. With custom chips to handle screen graphics, high speed memory manipulation and multitasking, it was designed along the lines of the workstation class systems of the time. It included a keyboard and mouse, optional additions on the "M" system, with built-in color graphics. This was not some simple game machine. The Amiga had blossomed into the revolution-

ary computer of tomorrow. But there were problems. The original funding had dried up. The investors wanted a return on their money and even a loan from Atari was not enough to bring the Amiga to market.

### Enter Commodore

Having had great success with the C64, Commodore was searching for new blood. They held the patents on the 6502 CPU used in the Apple II, and the Atari game machines of that era and the C64. They knew they would have to use a more advanced processor for their next generation of computers. The Mac, the next generation computer from Apple, used a Motorola 68000 CPU. The Amiga, with its 68000 CPU and a graphical user interface, was a perfect fit. So in 1985, just a few months after the birthing of Apple's Macintosh, the first Amiga, the A1000 was released. Commodore could never have created this advanced technology alone.

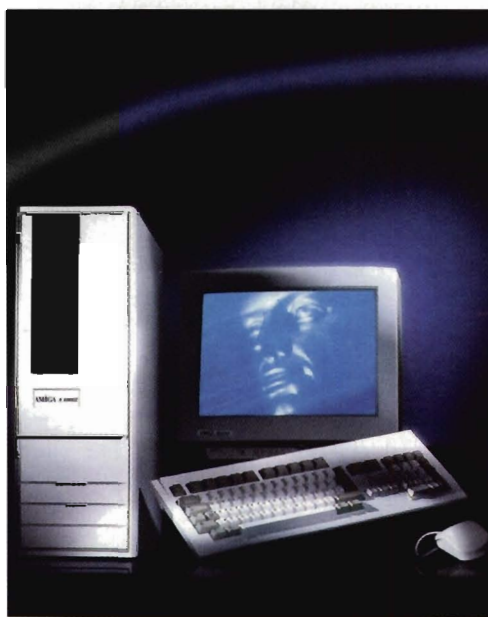
The original Amiga team should be given full credit for what the Amiga is today. Their designs created a computer with capabilities and expandability that made the Amiga a solid workhorse for many video professionals for over 10 years.

### NewTek to the Rescue

Within months, NewTek's first product, the DigiView, was the gotta have peripheral for the Amiga. It was a video digitizer that plugged into the Amiga's parallel port. In 1986 this was revolutionary. But most of you were probably introduced to the Amiga as a home for your Video Toaster. You want a Toaster? OK, then you need to buy

this Amiga 2000 box to make it work. It's kind of ironic that many Amiga's were sold as an accessory to the Video Toaster. Usually the computer is sold first, and the optional "peripheral" cards are added later. But the Amiga is not your ordinary computer. It has many faces and lives as you will soon realize.

Because of the Toaster's popularity, many Amiga's were sold to people that never saw what it could do on its own. Many Toaster systems were configured to automatically boot the Toaster software, so the user never got



With the pending purchase of Amiga Technologies by USA-based VLS Corp, the future holds interesting promise.



a look at the underlying multitasking operating system and advanced user interface design. Commodore, thinking that people were buying the Amiga on its technical merits proceeded to design and build a more advanced Amigas. After a few stumbles with the A500 and the A3000, they came up with a new generation of custom chips that brought new advanced graphics capabilities and



While the 4000 offers many expansion outlets it lacks a Floppy disk port for external disk drives.

processing power to the Amiga.

Again, NewTek updated the Video Toaster to utilize these new features and more Amiga's were sold, but because of the advances that had been made on the Intel-based PC systems, the popularity of Windows, and the evolution that had taken place on the Macintosh, the advanced features of the A4000 and A1200 were hardly noticed by the general computing public. The advances incorporated into the A4000 would only be enjoyed by a few fortunate newcomers to the world of the Amiga and the Video Toaster. You see, many Toaster owners had invested thousands of dollars in the original A2000 systems and could not afford to just junk what they had and upgrade for a few features they had lived without previously. Yes, the A4000 was a great improvement, but

their current A2000 systems were getting the job done and the upgrade costs were just too high.

There were also problems with the A4000 as a Toaster system. It was just too small. It had a low profile footprint with minimum of expandability and a low wattage power supply. They incorporated only four Amiga slots, and the video slot and IBM slots were positioned in almost the same space as the Amiga slots. Installing a Toaster would cover two of the available slots, and you were immediately left looking for another place to house your TBCs. In the A2000, the video slot for the Toaster was in a different area from the computer's expansion slots. You also had five Amiga expansion slots with four additional IBM PC slots. Additional expansion boards for audio digitizing, single frame animation and high resolution system graphics could be easily added. There was even enough room to add a couple of Time-base correctors and a Vector-Scope. Even with the design advances incorporated into the A4000, the all-in-one Video Workstation was still the A2000.

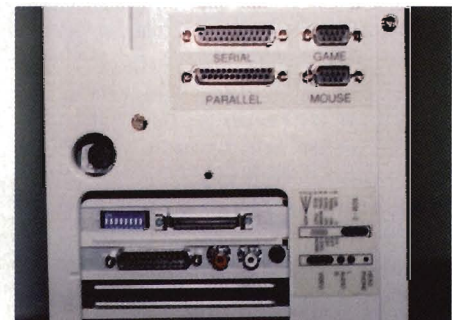
### Next!

Next, after two years, a company named Escom AG took the reins and started building new Amiga's. Escom AG is the second largest manufacturer of IBM PC clones in Europe, and although Escom is the parent company, the real mother of the AMIGA 4000 Tower is a subsidiary called Amiga Technologies GmbH in Germany (see VTU January 1996). And, on April 11th (as if it will never end) Escom announced that Chicago based ViScorp would acquire Amiga Technologies including the intellectual properties of CBM except the Commodore name.

If it weren't for the Amiga's advanced architecture in hardware, and an operating system that could multitask with less than 1 MB RAM, Commodore would have died in the 1980's. In today's computing marketplace, neither Commodore nor Escom could succeed with only Amiga sales to the European game community and a niche video market fueled mainly by the Video Toaster in the US. Only time will tell.

### Enough with History

The first new product to come off the production line is the A4000 Tower. I have to tell you that this computer offers more than any Amiga has ever offered to date. It comes with enough software to satisfy most people's computing needs for months. Included in the package is Wordworth, a word processor with extended desktop publishing capabilities; Organizer, a personal information manager/electronic day planner; Datastore, a database program; TurboCalc, a spreadsheet similar to Lotus 123 and two paint programs; Photogenics, a 24 bit paint program; and Personal Paint, a Deluxe Paint AGA work-alike. Also included are two games; Whizz and Mania. Although all of the productivity software worked great from the start, both of the games would not function on this machine. I suspect they need to run on a PAL mode machine. Oh well, so much for the Amiga 4000 Tower as a game machine.



SCCI/IDE and peripherals are easily added to the rear of the machine as seen here.

### On With the Good Stuff

The A4000T has everything we wanted to be added to the original A4000 and then some. At first glance, it has to be one of the largest computers ever offered to the user. With its tower design, it stands over 21 inches tall and is 20 inches deep. The total internal volume is almost three cubic feet. This unit is almost three times bigger than the original A4000's design and allows for expansion well beyond what was available with the older A2000.

The front panel is not much to look at. To start, there is a door at the top that covers all access to the drives and control panel. Unfortunately, this door is not easily remov-



able and hampers easy access to the floppy drive and control panel buttons. The control panel is spartan at best, with a key lock to disable the keyboard and mouse, a main power button, a reset button and a speaker mute button. The most useful button of the group is ironically the power button. Since a system reset can be achieved from the keyboard and the speaker mute button is labeled "Turbo," it is unlikely most users would open the front panel to do more than turn the system on, or to insert a floppy.

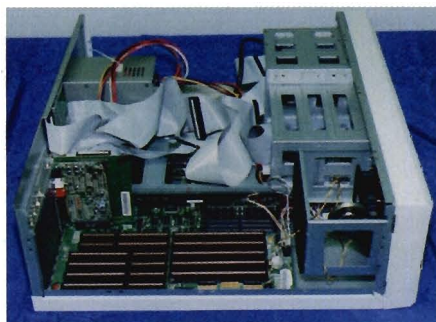
This brings me to one of the few disappointments with this unit. The installed floppy drive is a low density 880k Sony MPF520-1 drive. One of the big advantages in the original A4000 was the advent of the high density 1.7 meg floppy. Not only is it missing, but there is no external floppy port. What are they thinking? The Amiga was designed to be the easiest computer on the planet to add a floppy drive to. You could add up to four drives, and the operating system would automatically recognize them.

Multiple drives may not be critical to some, but if you buy a Video Toaster 4000 without the Flyer, you will run into some high density install disks. The CrossDos capabilities built-in to AmigaDos 3.x allowing direct access to IBM 1.44 floppies are rendered useless, and if you own a Mac emulator, you will not be able to read HD Mac disks either. Having a 1.7 Meg HD drive on the Amiga is perfect for transferring large 24 bit graphic files. You can currently buy an external HD drive from Dell that works externally, so what gives Amiga Tech?

### Plenty of Room to Expand

The designers were definitely trying to create a system that could be expanded to meet the needs of the Toaster/Flyer owner and graphics professional. For data storage they incorporated an integrated IDE host adaptor and a built-in SCSI-2 controller directly on the motherboard. With the possibility of six SCSI drives and two IDE drives, I have never seen a system with more drive expansion options available without external adaptors. There is also an external SCSI-2 port on the back panel. With 2 MBs of memory

built-in, and four standard 72 pin simm sockets, total memory expansion of 18 MBs can be added. This memory is directly accessed by the operating system CPU. Like the original A4000, a 25 Mhz. 68040 CPU resides on a daughter card that plugs in on top of the motherboard. Unfortunately, it is no faster than the original A4000 clocking in around 18.9 Mips. (million instructions per second). It is rumored that Amiga Tech is working with Phase 5



The Amiga 4000 Tower interior offers maximum expansion.

***"There is also speculation that the Power Amiga will come to life as a replacement processor card."***

to provide a plug-in replacement '060 accelerator rated at around 80 Mips. There is also speculation that the Power Amiga will come to life as a replacement processor daughter card. This could allow existing A4000 owners an upgrade path that would breathe new life into their aging hardware.

### More Slots or Less?

If you start counting the expansion slots in the A4000T, you will quickly run out of fingers. With a

total of 11, there is a group of five 32 bit Zorro III autoconfig expansion slots, two video expansion slots and four PC/AT compatible slots. Because the two video slots are in line with two of the Zorro slots, and three of the PC/AT slots line up with the other three Zorro slots, there is still some limitation when adding optional cards. But the location of the video slots were well thought out. On the original A4000, the installation of a Toaster card would unnecessarily block two of the four Amiga slots. Even though an installed toaster still blocks an Amiga slot, the A4000T has 4 more left.

Other design improvements include an airflow system with an intake fan on the front pulling air over the expansion boards, across the CPU daughter card and out through the power supply fan that has its speed thermally regulated. On the older Amiga's, the I/O ports were directly attached to the motherboard. This caused one major manufacturing problem: each model needed a custom case. Because it uses a generic tower case, Amiga Tech needed to re-engineer their port configuration. To maintain compatibility, they kept the non-standard 23-pin video connector and mounted it on a circuit board that connects between the motherboard and the back panel. It is accessible at a rear panel card slot. This slot also holds the audio outputs along with a new addition, a headphone jack. The serial and parallel ports are extended from the motherboard with ribbon cables and are mounted on the back of the chassis. This represents a more standard, mainstream design that Amiga Tech will probably follow in future Amiga's.

### And the Winner Is?

Now if there ever was an Amiga enthusiast, then it has to be me. I have owned more Amiga's than I care to admit, and I am very familiar with their weak and strong points. So is the Amiga 4000 Tower a winner? Well if you already have an A4000, be happy. Although this would have been the computer of choice several of years ago, the A4000T doesn't provide enough of an advantage over what we already have. Having said



that, there are several things that Amiga Tech under ViScorp could do to bring the Amiga back into the mainstream.

First on the list would be to upgrade the processor. With lightning fast 166 Mhz Pentium systems priced around \$2000, you can't expect someone to buy a system incorporating older processing technology. Remember, the Amiga is a graphics powerhouse, and with the future leading us to virtual 3D graphics nirvana, we need all the power we can get. Windows NT and the next generation Mac OS will have multi-processor capabilities. Why not start now and create an Amiga that can house 4 Power PC chips or maybe a couple of Alphas. This would really make the competition's eyes open wide, just as they did when they saw the first Amiga in 1985.

Second on the list would be to allow the use of memory modules larger than 4 MBs. Incorporating the use of 16 and 32 MB SIMM modules would give the added

memory capacity needed to render complex scenes in LightWave 3D and other graphics programs.

It seems strange that with all of this expansion ability, they only installed a 250 watt power supply. With the ability to house six hard drives, you would certainly need more than 250 watts. Another annoyance is the overlapping expansion slots. The Amiga is the only system I have seen that blocks unused expansion slots when other expansion slots are used. Is it really that costly to design a system where all of the expansion slots are accessible?

And then there is the floppy. Get it together and move forward! With thousands of A4000s in the market with high density drives, no one wants to go back to low density. I have trouble believing that there is no solution to this problem somewhere on the planet.

### To Buy or Not To Buy

By now you should have a good impression of this, the latest reincar-

nation from Amiga Technologies. And if you are totally confused, well, you're not alone. You see, if you don't own the original, then the A4000T has the best there is to offer in an Amiga that is currently being manufactured. Like the original, the A4000T is a fast, expandable system that can be used as a stable base for the many applications available on the Amiga, and it makes a great home for NewTek's Video Flyer. The custom AGA chipset provides the snappy response expected from a state of the art computer and when available, a simple upgrade of the CPU daughter card could inject the speed and power needed to make this the fastest graphics PC on the market.

VTU

*Rick Bertaut is President of Quality Video Productions in Santa Clara, Calif. You can reach him on-line at [rickb@cup.portal.com](mailto:rickb@cup.portal.com).*

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# Graphic Wallpaper

## Gradients and Backgrounds for Great Designs

by Brad Hayes

**I**f you earn a living with your Video Toaster, you probably spend a great deal of time creating text templates. I know I do. Whether you generate the text in ToasterCG or in LightWave 3D, there are several things you need to consider: copy, layout, font, color and background. Each of these are of equal importance, but judging from some of the work I see, some Video Toaster professionals seem to think about the items on this list as ranging

that there isn't even a background there. Well, of course there is, it just happens to be a pure white field, but notice the way that it draws your attention directly to the message. Using just a single color as a back plate can often be all you need to do.

### Pick the Right Color

I should probably mention a little something about selecting colors. There are a few rules you may want to follow, but if you want to break them, don't let me stop you. If you are putting text over a single color back plate, don't automatically think that the opposite color would make it stand out the best. You can get some really awful combinations this way. Don't believe me? Try cyan and red. Yuck! (Figure 2.)

I have learned through much trial and error to select good color combinations by picking colors that are about 60 to 90 degrees apart on a classic color wheel (Figure 3). This works especially well when you're selecting color for a gradient. If you select two colors for a gradient that are exactly opposite each other, you

BRAD HAYES



8 1 8 - 8 4 6 - 7 6 5 9

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from most important to not important at all. Most people do alright when it comes to creating the text itself, but they forget to think about what appears behind the text. Your background can be as important to your design as what the text actually says. And the principles that apply to backgrounds, sometimes referred to as "wallpaper," can also be used with many other graphic elements.

A background is like a great special effect or a great edit—if it does its job, you'll never even know it was there. That is one of the reasons many graphic and video professionals forget the importance of the background. A great background can be a colored back plate, a gradient, a still, an animation or even full-motion video. It's not so much what the background is, as how it enhances the foreground and contributes to your message. The one rule I have is: a background must never distract the eye or take impact away from the message. Sometimes, all you need is a neutral space. Figure 1 shows my company logo as it appears at the end of my demo tape. Many people would say

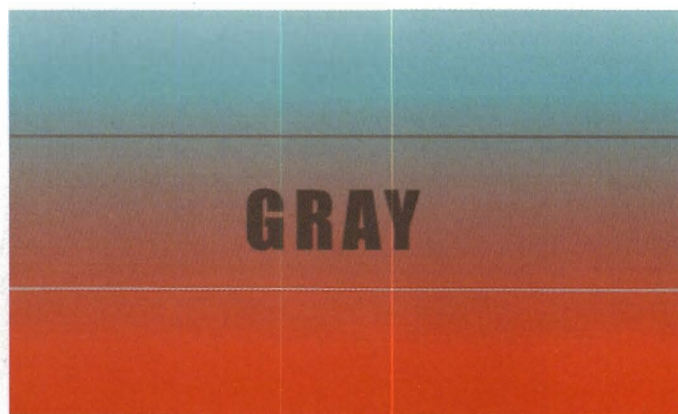


Figure 2

will get a gray colorless area where they blend together. Using the same hue with different or opposing luminance values works well for gradients (dark blue and a lighter blue work great together). This is why the default gradient in ToasterCG has this precise setup. One last word about color. In NTSC video there are two things that will always be true: Blues and purples will always look great, and reds are always a pain to work with. Keep that in mind when designing your wallpaper.





Figure 3: A color wheel help you find the right match.

There are two types of gradients you can create; linear and radial, and the Toaster gives you a couple of great tools for creating them. They are ToasterCG and ToasterPaint, but the more flexible tool is TPaint. ToasterCG can only make a horizontal liner gradient, but TPaint can make both types of gradations and position them just about any way you want.

### Making Graphic Wallpaper

Another type of background that we haven't touched on yet is graphic wallpaper. Wallpaper can be stills or moving graphics and a very effective type of wallpaper is the

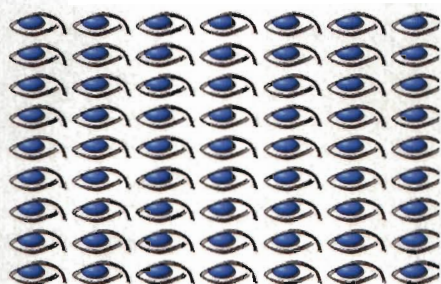


Figure 4: Use the size you think looks right.

repeating or tiled logo. It's fairly simple to create and works as an effective background.

Load up TPaint if you haven't already and jump (J) to the Swap

screen. Load the logo that you want to use (or type in some text), then pick it up as a brush. The dimensions of the area you pick up will play an important part in the final look of the back plate. You'll want to leave a small amount of room around the edge of the logo, but not too much. (You'll see what I mean in just a moment.) The next step is to select TxMap as your painting mode. Go to the Transparency and Warp Controls panel and select the number of tiles. For the image you see here (Figure 4), I used seven horizontal and eight vertical tiles. Why? you may ask. It looked



Figure 5: Mute the colors and there it is.

good! Now you'll see the reason to pay attention to the amount of border around the brush when you pick it up. If you don't like it, go back and try it again. You will get

a feel for it rather quickly.

Yeah, I hear you. You're saying, "Brad, this is a seriously distracting background. There is no way I would put text over this." I'll let you in on the secret to using graphics as wallpaper: you have to make the image muted and more subtle. To do this, select Normal or Range as your painting mode, then pick a color or a range of color. For this effect, I use white most of the time, as it gives a nice clean look. Go back to the Transparency and Warp Controls panel. Set your transparency to somewhere between 20% and 50%, and do a Whole (W) screen fill. Muted, the image also works great if you use an image that you have grabbed from your show (Figure 5).

### Set Sail With Moving Backgrounds

Not only can you use a still image for your background, but moving imagery adds real impact too. Here's a trick I have been using for about a year. You're going to need a few things outside of a basic Toaster system: a Flyer, or some other way to capture full motion video, ADPro (with FRED), a video camera, a plain white sheet and a fan. Set up the sheet so that it is anchored at the top two corners and one of the bottom ones. Place the fan so it blows into the sheet and causes violent flapping, but not so much that you see the edges of the sheet in your viewfinder. Make sure the fan is turned on high to cause the most rippling. You'll only need a few seconds of this, but make sure you shoot enough. Try a few different speeds and angles with the fan for a different look.

Once you have the footage shot, digitized and broken down into IFF frames, you can start to prepare the processing. I usually grab three seconds of footage (90 frames) and delete all but every third frame. (In other words, I keep frame numbers 1, 4, 7, 10 and 13.) Create a new directory just for these images and one for the FRED output. Then load FRED

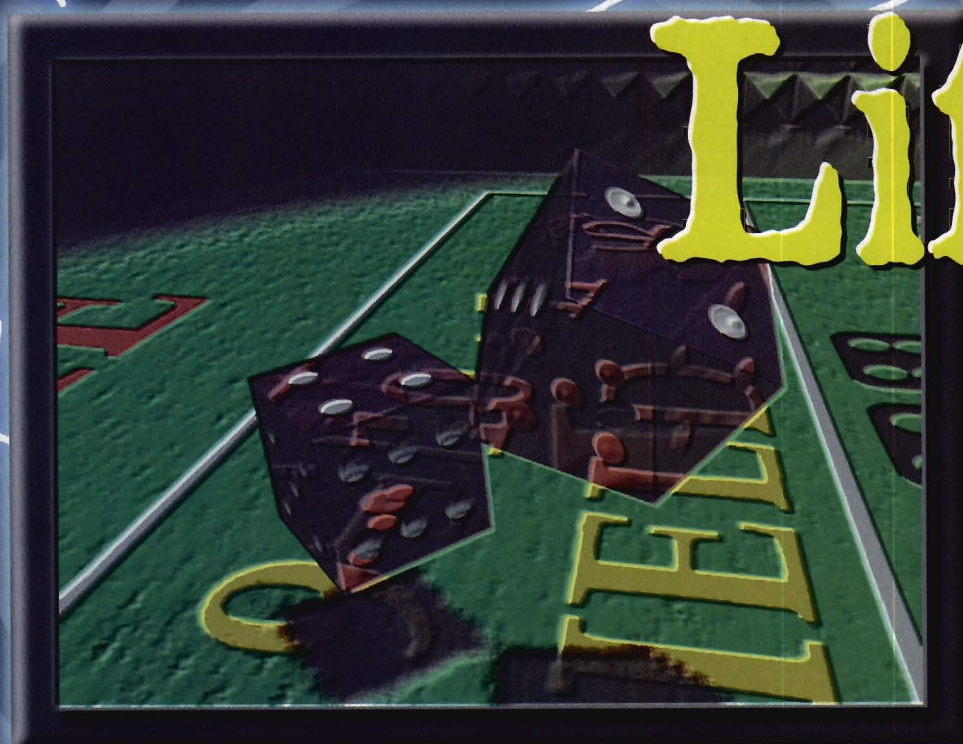
**GRAPHIC WALLPAPER** continued on page 49



# HOLOGRAMS

## A New Way to Bring Your Work to Life

BY ALAN RHODY



**Picture this:** you've just created a spectacular animated 3D image on your computer. You used the Video Toaster to combine some great live action shots with a client's logo, or you used LightWave 3D to simulate a journey through an artificial world that you modeled. Then, you used the Video Toaster Flyer to edit it all together. It's some of your best work and now you want to display it. If only you could frame it and hang it on the wall above your desk. Or better yet, what if you could make an animated poster out of it for your client to use in a new advertising campaign? Or somehow "print" this footage on a magazine cover, so that as the reader tilts the cover the entire scene comes to life? The ability to perform these seemingly magical feats would certainly be useful to any visual artist using digital tools, and probably could be very commercially desirable as well.

All these things are starting to be a reality as the world of digital design integrates the latest holographic technologies into its arsenal. It is now becoming possible to use readily accessible digital

tools such as the Video Toaster, Flyer and LightWave to create camera ready artwork that can then be sent off to a holographic production studio. The holographer will use these graphics files to generate a "master" hologram recorded on a high resolution photographic film. This hologram is, in essence, a new kind of hard copy that, unlike any other printout, is capable of displaying fully-dimensional animated images. The master hologram can then be mass replicated in a manner suitable for commercial applications including advertising, packaging, security labels, or wall decor. This merger between electronic and optical based imaging systems will certainly result in new and profitable opportunities for all those involved, especially the artists and designers that are able to best utilize both mediums to achieve their client's goals.

### Holograms Vs. Photographs

Before we discuss the digital origination of holographic artwork it would be useful to review the basics of holography and talk a little about how and why holograms have impacted traditional display



technologies. In brief, holography is a way of recording an image on a piece of film and regenerating it, and is somewhat similar to studio photography. Both processes utilize lenses and related optical equipment, light sensitive films, and carefully arranged subject matter. However, unlike any photograph, holographic images can display dimension, depth, projection and even motion! This is due to the unique way in which visual information (reflected light) is recorded onto holographic film and how the finished hologram interacts with light to "play back" that information to a viewer.

Most notably, holographers are able to record a three-dimensional scene on a two-dimensional medium (film) and still retain the scene's spatial characteristics. A viewer can look around the sides of a holographic object, just as in real life. This is called "true parallax". No stereoscopic devices (such as 3D glasses or virtual reality helmets) are needed by a viewer to perceive image depth or see realistic perspective in a hologram. In addition, holographers can create images with elements that project inches or more off the surface of the hologram and/or recede behind it!

### Holographic Stereograms

Other holographic techniques exist that allow artists to achieve an even more fascinating visual effects—moving 3D images. These techniques, practiced by a select group of holographers and cinematographers over the past twenty years, are used to make holograms called holographic stereograms. To understand how holographic stereograms work, it is important to note a useful and unique property of the medium—that many different images can be recorded on a single piece of holographic film. As one of these "multi-exposure" hologram moves past a viewer (or the viewer tilts the hologram), each successive image is revealed.

If these successive images are arranged properly, the viewer might see an entire animated segment (a mini-movie comprised of related frames), or around all sides of a three dimensional scene where an apparently solid object is sculpted from a series of two dimensional graphics, or both! These effects are created by taking advantage of a human's capacity for stereo vision. Two different views of an object are simultaneously displayed by one hologram picture, and the viewer's brain integrates these into a single three dimensional image.

Steve Larson, president of Laser Images, a hologram research and manufacturing facility, makes this distinction between holographic stereograms and conventional stereoscopic devices, "Similar in some

respects to the old Viewmaster concept (a binocular-like 3D slide viewer that displayed two near identical pictures taken from slightly different angles), a holographic stereogram differs in that the number of stereographic pairs is in the hundreds, instead of the single pair that was provided with the Viewmaster. What that means to the holographer/artist is, that now motion and time can be captured and displayed holographically".

Holographic stereograms were traditionally created by placing a subject in the center of a rotating stage and filming the scene as it turned 360 degrees. Each frame of movie footage was then projected and re-recorded, one by one, on a thin vertical slice of holographic film, using a special device called a holographic optical printer. When the holographic film was developed, it held hundreds of views of the subject, one view per slice—each from a slightly different perspective. When the hologram was illuminated and displayed properly, it appeared that the subject was inside the hologram and the viewer could see entirely around the subject. A few seconds of motion (such as a wink or a kiss) might also be captured on film as the stage rotated.

### Using Video and Computer Graphics

As technologies progressed, video footage and computer generated imagery were gradually integrated into these stereogram recording sessions for the same reasons they are used in other visual arts—speed, versatility, and to decrease production expenses. High resolution video cameras allowed holographers to leave the production studio and capture images that otherwise could not be recorded very easily, especially landscapes and large objects. Digital devices could either originate imagery or add a wide range of special visual effects to existing artwork. As in the traditional cinema-based process, each frame of video footage or digitized graphics is recorded sequentially on a selected portion of a single piece of holographic film using a specially engineered step-and-repeat transfer device. Most recently, modeling and layout programs such as LightWave have been used to create realistic looking images using no physical objects as subject matter. Hundreds of different perspectives of a "cyber-scene" can be rendered, combined and output as a fully dimensional hologram.

Larson relates his own experience, "My initial work with holographic stereograms was done using 35 mm film creating monochromatic images. This worked quite well, but when I progressed to creating color stereograms, the process became quite cumbersome as each frame had to be color-sep-

arated, registered and sequenced. I quickly looked toward computer controlled production methods that would let the software do the monotonous jobs. In addition, I needed to find a film-capture/modeling package that would provide a source of modeling, animation, and rendering in high resolutions, while keeping my budget in mind. My search quickly led to NewTek, another Kansas company such as ourselves. I got an Amiga and a Video Toaster and started playing, and I haven't turned back since. Today, we use the Video Toaster on the Amiga and LightWave 4.0 on the PCs. They are networked together so that we can transfer files back and forth between the platforms".

More specifically, the computer is used for several purposes: to digitize graphics from a variety of sources (photographs, video, cinema, drawings, etc.); to manipulate and edit these images (paint surfaces, add lighting effects, render many different perspectives, add or subtract frames, etc.); to generate a series of sequential graphic cells; and to output the appropriate computer files. Once the graphics work has been done, the files are organized, labeled and shipped to the holography studio. At this point the designer's work is finished. (A worldwide listing of production studios capable of working with NewTek product users is contained in The Holography Marketplace, which can be ordered from Ross Books, Berkeley, CA. for \$19.95 (800) 367-0930.)

### Modelmaking and Rendering

George Sivy, a world renowned model-maker who specializes in holographic design, elaborates on the aforementioned process, "I am currently working on originating a series of Star Trek images for use as collectable giftware. I use an accelerated Amiga 3000 Tower computer running the VideoToaster to import and mix existing imagery. I use LightWave to model, light, surface and manipulate single objects or even entire scenes. In layout mode, I animate the object, and animate a virtual camera in accordance to the holographer's requirements. (I typically either rotate the object in relation to a stationary camera or pan the scene in a smooth horizontal path.) I use a Raptor rendering engine provided by DeskStation Technologies to generate 180 frames. This translates to 6 seconds of real time animation which may be incorporated into the final hologram. Next, the rendered frames are edited further using the Video Flyer and copied onto S-VHS tape for proofing. Once approved, the files are downloaded onto an appropriate storage medium and shipped to the holographer."



## Holographic Production

Clients who want to generate their own imagery are advised to consult closely with the holographer before originating any artwork. Most holography studios are capable of accepting a variety of file formats which you can ship to them electronically or by diskettes, DAT, SyQuest disks, or optical disks. Since there are currently only a few computer graphics artists familiar with the procedures required to create animated stereograms, the holographer's in-house artists will probably need to review your files, clean them up and resequence them.

In brief, this digitized artwork is then output to an LCD, frame by frame. Each individual picture displayed on the LCD is recorded sequentially from the display screen onto a single holographic plate by using a specially engineered transfer device and assorted optical components. The holographer ends up with an array of matched images on the master hologram that combine to achieve animated and/or dimensional effects. Once the holographer records this image (which usually takes a day or so, depending on the complexity of the job), the resulting master hologram can be proofed again by the designer and/or client. If it is acceptable, it is typically sent to a replication facility.

## Holographic Replication

Since most commercial users need to combine holographic imagery with conventional printing techniques, holograms were not widely used until a way was developed to reproduce images in a cost effective manner that could be easily integrated with existing manufacturing methods. To this end, a technique called embossed holography was developed where a hologram could be economically mass produced by mechanical, rather than optical methods. The master hologram is copied onto a metal plated stamping die which is then used to repeatedly press (emboss) the holographic pattern into rolls of thin sheets of plastic or foil. Using this method, great quantities of holograms can be run off at a very high rate of speed, bringing the unit price of the hologram to cents per square inch, or less.

After replication, the holograms are finished in accordance to the client's wishes. Most embossed holograms are backed with an adhesive for hot stamping to paper stock or delivered on rolls for "peel and stick" applications. They work best when attached to a rigid material that has a flat and smooth surface, such as magazine covers, bank cards and cardboard packaging. Hundreds of millions of holograms have

been produced using this method for use by companies worldwide, especially those in the print and packaging industries.

Francis Tuffy, director of Astor Universal, a UK based hologram manufacturer, concludes, "The use of computer graphics in the field of holography has speeded up the preparation of artwork, streamlined the proofing process and given creative control over the imagery back to

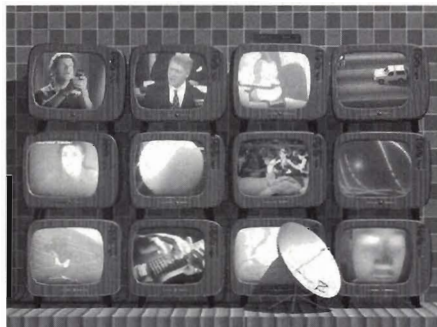


Figure 1: The view of someone directly in front of the hologram.

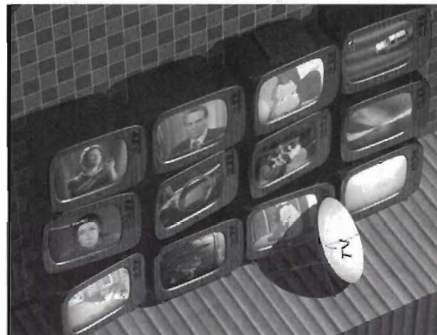


Figure 2: One of 300 digitally originated images that create an animated holographic stereogram.

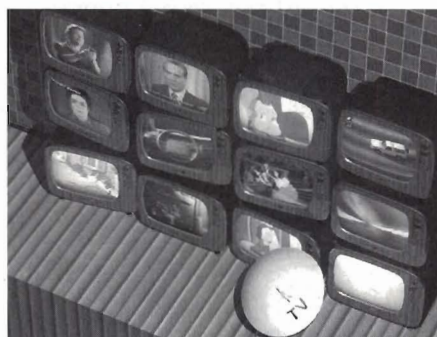


Figure 3: Fifteen frames of actual video footage was inserted into each television.

the commissioning designers and artists. Newly developing digital graphics-holographic hybrid technologies are offering visual displays and effects that until now have been impossible for either to deliver singularly. The ultimate hybrid will be near real time video acquisition, digital manipulation, and holographic recordings of full color, animated scenes with true-to-life surfaces, textures and shades."

## Three Digitally Rendered Perspectives

These three digitally originated images are part of the artwork sequence that was used to generate a fully dimensional, animated holographic stereogram. The computer graphics work was performed by San Francisco's General Design and Imagination Plantation. After a single TV console was modeled, it was replicated and stacked. Then the scene was arranged and lit. In addition, 15 frames of actual video footage was inserted into each TV. The image took two days to render. Although NewTek products were not used to create this particular image, it is a good example of an image that combines computer graphics and video footage.

After rendering, appropriate files were created and output. The image was recorded as a holographic stereogram using a special digital-to-optical "Cybersculpture" (transfer device engineered by Holo-Sciences).

The finished hologram was replicated on a special film developed by DuPont. Each hologram was backed with adhesive and attached to the cover of The Holography Marketplace 5 Edition.

The viewer sees a 3D image with depth. In addition, as the hologram is tilted, the viewer is able to "watch TV".

When the viewer is positioned directly in front of the hologram it appears like Figure 1. Note that actual video recordings have been digitized and inserted into the holographic image.

Figure 2 is one of 300 perspectives that the computer rendered. Note that the TVs show different scenes from the image above it. This is due to the fact that a single hologram can store and display many different images.

Figure 3 shows another perspective that the computer rendered. In the final image the satellite dish projects out slightly in front of the hologram.

For information regarding production, please call: Steve Larson at Laser Images (913)492-7010 or George Sivy at Richmond Development Group (801)258-0709.

VTU

Alan Rhody, is an editor for Ross Books, a Berkeley based publishing company that specializes in holograms and the holographic industry. Questions and comments are invited. He can be reached by phone (510) 841-2474, fax (510) 841-2695 or e-mail rhody@rossbooks.com.

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and ADPro and select New on the FRED Project menu. This will create an Empty sequence. Next, select Edit, Insert and Directory, loading all the images into your sequence. Save the sequence and don't forget to add the ".seq" to the end of the file name. Once you have saved this file, you may deselect the sequence by clicking on any other part of the screen. Under the AnimOps menu, you will find Time\_Stretch. Select this and it will open a requester that asks you a few questions.

First, insert the name of the sequence that you just saved. Then, add a name if you want to save a sequence for the output next to the base name for the output IFF files. And then, most importantly, enter the number of original frames and the number of output frames. If you are using only every third frame, like I said above, then you will only have 30 frames in your starting sequence. I usually use a destination of 450 frames (15 seconds). Enter that amount under Stretch to

Frames. Hit accept and you're on your way.

That will take a while to process, so let me take this time to tell you what FRED is doing. Basically it's rendering a dissolve between each of the original frames. The reason we only used every third frame was to achieve a strobe effect. You will end up with a smooth, yet jerky slow-mo that works really well behind text. I have used this effect on the sheet and on pool water, and the results are just beautiful.

The background of your designs can be just as important to their impact as the graphics that go over them, so put a little effort into them. You can achieve a slick and professional look that can lead to a more satisfied client, not to mention one that is willing to pay just a bit extra.

VTU

*Brad Hayes is a freelance animator and graphics designer in Hollywood. His work can be seen daily on Network One or at his web site at <http://www.pacificnet.net/~bjhayes>*

## COLOR AND TOASTER CG TIP

Many people ask me, when you make a color gradient within text in the ToasterCG, why do you never really seem to get the color spread you select for your range? The reason is, a font set has all sorts of character-defining parameters built into the font. Things like ascenders and descenders are parts of some characters, like an "h" or "b" or stick way down like "q" or "p." Then, there are others that you may not even see. The gradient is calculated from the lowest point to the highest point in the font set. Because there are no characters in the alphabet that have both an ascender and descender, you won't see the whole gradient that you set up on any one character.

*Brad Hayes is a freelance animator and graphic designer.*



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# Video Collage

## Ready to Work Images

by Doug Johnson

**V**ideo Collage is a collection of 62 royalty-free images on CD-ROM that appear in several formats including, .IFF, Framestore, Targa, TIFF, and JPEG. All the images are formatted at 752x480 for use with video and the Amiga. The Video Collage disc is ISO 9660 compliant "the lowest common denominator" for CD-ROMs). I loaded Video Collage into a Macintosh and it read perfectly. However, double-clicking on the files followed by an .IFF did not launch Photoshop. I launched Photoshop myself, loading one of the .IFFs from there, and it loaded fine. Next, I tried the disc in a Windows 95 machine—a double-click opened the image—and in a Windows 3.1 (Windows 92?) machine, the disc worked perfectly. It even worked in my Amiga!

### The Collection

Inside, I found a file called Disk.info and five folders, each filled with images in the supplied formats. I was also glad to see that there truly were 65 images in each of the folders. I've had the misfortune of purchasing CDs claiming to hold a hundred images, but then I found they were just 10 images in 10 different formats.

The first three images in each folder are thumbnails, formatted at 640x480. The images themselves are broken into several subcategories: ambient, cloth, cloud, color, composite, flower, fractal, marble, money, stone, texture and wood.

The ambient images are my favorites, containing nice color spreads with a bit of texture. They're probably the most useful as backgrounds for presentations and business graphics while being easy to modify and suit your specific needs. Cloud has five images, varying in cloud intensity and location. Color contains several images that have a brushed or painted look. These are nice, but the bold paint strokes on the images limit their usefulness. Composite has several images that have a base background that contains either bevels or highlights, or other images added to them.

The flower section is similar to the style of the composites as most of the images have some sort of filter applied to them, like an oil paint or blur. There are two images in the fractal category, but one of them has a strange fractal set inside the other ruining them both.

The marble category has four images with two nice ones, but the other two are strange. By the way, the money category has three images made up of various dollars and coins while stone has five images. A couple of them seemed a bit washed out, but I played with them in Photoshop and was able to sharpen them up quickly. Texture is my second favorite category with eight full

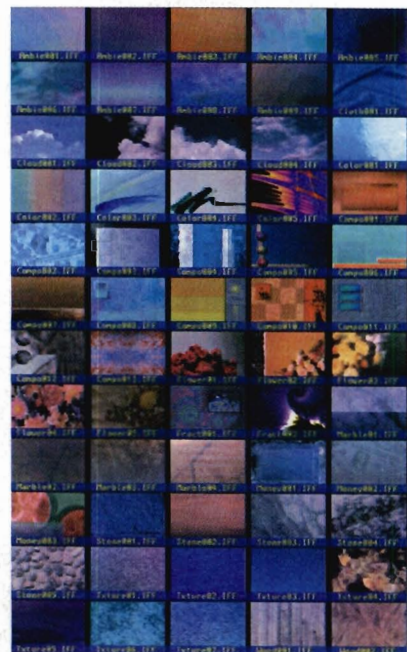
screen images and untreated textures. And there's lots of variety ranging from soft and subtle to bold and striking. They're the kind of images you can modify, colorize and composite, never getting the same look twice. Wood has two images where one looks like worn decking, the other is atree bark pattern.

Most of my work is graphics and animation in an industrial or broadcast setting (although I am doing more and more editing thanks to the Flyer) so when I judge backgrounds, I typically want something that is generic enough that I can use and manipulate it. It's also important that a background not overshadow the foreground. I try to achieve a balance between subtle and striking.

What I usually do is to take a good generic background into Photoshop, Alpha Paint or ToasterPaint and make it fit the look of the presentation that I'm working on. I don't want to have to spend too much time forcing an image into a pretty background.

Some of the backgrounds in Video Collage really and can be used right off the disc. By adding a few bevels and highlights, the images can be used in many different settings. I'll be using the Video Collage CD-ROM in the future!

Video Collage wasn't intended for use with LightWave, so isn't very useful as image maps and such. If you don't have a set of backgrounds, or if you're still using the color spreads in ToasterCG for 90 percent of your work, you should consider getting a image set like Video Collage. It'll spice up your work and breathe new life into your old graphics!



Thumbnails on the CD-ROM from Matrix Productions come in five formats.

Doug Johnson is a partner at Broadcast Business Graphics in Redwood City, Calif. You can reach him at [www.bbgroup.com](http://www.bbgroup.com) or in care of VTU.



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# Replicating Life

## Replica Technology's Interior Design Collection

by Doug Johnson

**R**eplica Technology's Interior Design Collection for LightWave 3D contains over 500 3D objects and textures on CD-ROM. If you'd rather spend your time in layout instead of Modeler, if you like modifying existing models, or if you're like me and can't own enough models—then this a disc you may want to consider. These objects were designed for use in any area of animation from print to broadcast, and from training to virtual home walkthroughs.

Inside the collection are several categories:

- Interior Design I contains objects for the living room,



Try a virtual home walkthrough with a Replica home.

dining room, and bedroom. These are things like beds, chairs, cabinets and tables. There are over 50 objects, each with its own texture.

- Interior Design II is stuff for the bathroom and kitchen including appliances, tubs, toilets, cabinets and lighting, totaling over 50 objects.

- Interior Design III has objects for the office like desks, chairs, cabinets, tables, bookcases, work centers and dividers, with more than 50 objects to choose from.

- Homes contains four complete homes furnished with everything from exteriors and lawns, to windows, stairs roofs and garages. The models are called Lakeside, One Story, Ranch and Traditional Home. You can also load a shell of each home to decrease render times.

Interior Construction allows you to build your own homes using the pre-built architectural elements with over 150 elements in all. The other directories include images, previews and textures in JPEG and TGA formats.

### So Much More

But Interior Design Collection is more than just a collection of objects. The package also contains features to make life easier when using these objects. All of the elements are real world scaled, so you don't have to worry about opening a rocking chair that turns out to be 3.7 kms tall. I don't know how often I've had to waste time rescaling pre-built objects from other packages. All of the objects also have preset pivot points; meaning doors will swing on their hinges and windows will open and close properly. The objects use both procedural and mapped textures that are easy to edit. Each directory has a scenes subdirectory, allowing you to load entire homes if you wish.

I really like Interior Design Collection, but it's not all milk and honey. The version I received was labeled for Windows and even the side panel claims you need a IBM compatible PC with 386sx or better, blah, blah, blah. So I stuck it in my Windows machine, assuming there would be some sort of install program. Nope. The files are all right there. According to the install procedure you should copy the five directories (listed above) to wherever you store your LightWave objects. But beware; these 500 objects and supporting images take up a lot of hard drive space. Save a lot of space by leaving the browser files on the CD.

Next, I tried to load a scene with four complete homes in it. I quickly got back a "couldn't find" error, so I had to manually point LightWave to each of the objects and Images. This took forever, so about halfway through I just started canceling my way out of the scene, which also took forever. I decided to load them directly from the CD, but I had the same problem. The directory structure of the CD doesn't match the scene file, so again I had to manually point my way around.

The manual explained that I needed to use a text editor to change the scene file. (I hate touching the scene files because I always feel like I'm doing brain surgery.) Next, I opened the scene file in Win95s Notepad and spent an eon changing a path, moving to the next object and changing it.

After some time, I finally got the bright idea to open it in Microsoft Word. In Word, I was able to do a



Find/Replace on the file, once for the objects, and once for the images. Then I jumped to LightWave and loaded it up. It worked perfectly. (Maybe I should try surgery!)

With some scenes loaded, I wondered what made this disc a Windows disc. Near as I can tell, the



All Replica objects are real world scaled to save time and aggravation. Doors and drawers even work!

answer lies in the Browser viewer, called Quick View. If you own or have seen KPT Bryce 2.0, then you've probably come across this viewer. Replica Technology licensed Quick View from HSC. This is a very cool viewer where you just dump a bunch of images (I'm not sure what format they have to be) and the viewer will step through them. At first I found only one

directory with images in it, and it seemed the images supplied were more of an add for KPT Bryce than a demonstration of what's possible with these objects. Then I found that each sub-directory also contains a browser file full of TIFs and JPEGs showing scenes and individual objects. These images make it pretty easy to understand what's capable with Interior Design Collection.

Then I popped the CD out and dropped it into my A4000. All the objects loaded fine, so if you're using an Amiga and you want these objects, the only thing you'll lose is the image viewer. Everything else works perfectly. Of course you'll still have to modify any scene files you want to load.

The objects themselves render nicely and look good. Most of their textures are pretty flat and could use a bit of tweaking, but on the whole they're nice. I loaded the Lakeside home scene and started to render. The only disappointment was the amount of time the landscaping took, but it's easily removed or replaced.

The real beauty of Interior Design Collection isn't in the complete homes, it's in the wealth of everyday objects it provides. I don't want to waste time modeling the mundane objects, and now I don't have to. I can spend more time working on the important objects and motion paths. I love collecting objects for LightWave for two reasons: First I like seeing



After I worked through the loading problems, I finally got to loading and rendering objects. All the objects follow the 8.3 naming convention for DOS/Win 3.x, however, the manual states this will be changed with the release of a Win 95 version. The manual also includes an index of all objects broken into categories like ceilings, doors, fixtures and individual objects like BEAMED.CEI. The suffix glossary shows that \*.CEI is a ceiling object. Next to each object is a short description, like beamed ceiling. It's all pretty obvious and easy to figure out. Some objects contain letters denoting where they belong in a group, like L for left, T for top and DWR for drawer.

how people design their own models, and second, it helps me when I'm designing my own. Mainly, I like having a ton of objects to speed up my work. Interior Design Collection from Replica will certainly help shorten the turnaround time of many future projects.

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Doug Johnson is a partner at Broadcast Business Group in Redwood City, Calif. He can be reached on-line at [thx1138871@aol.com](mailto:thx1138871@aol.com).

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# PolyForm 1.0

## Advanced Object Conversion and Manipulation

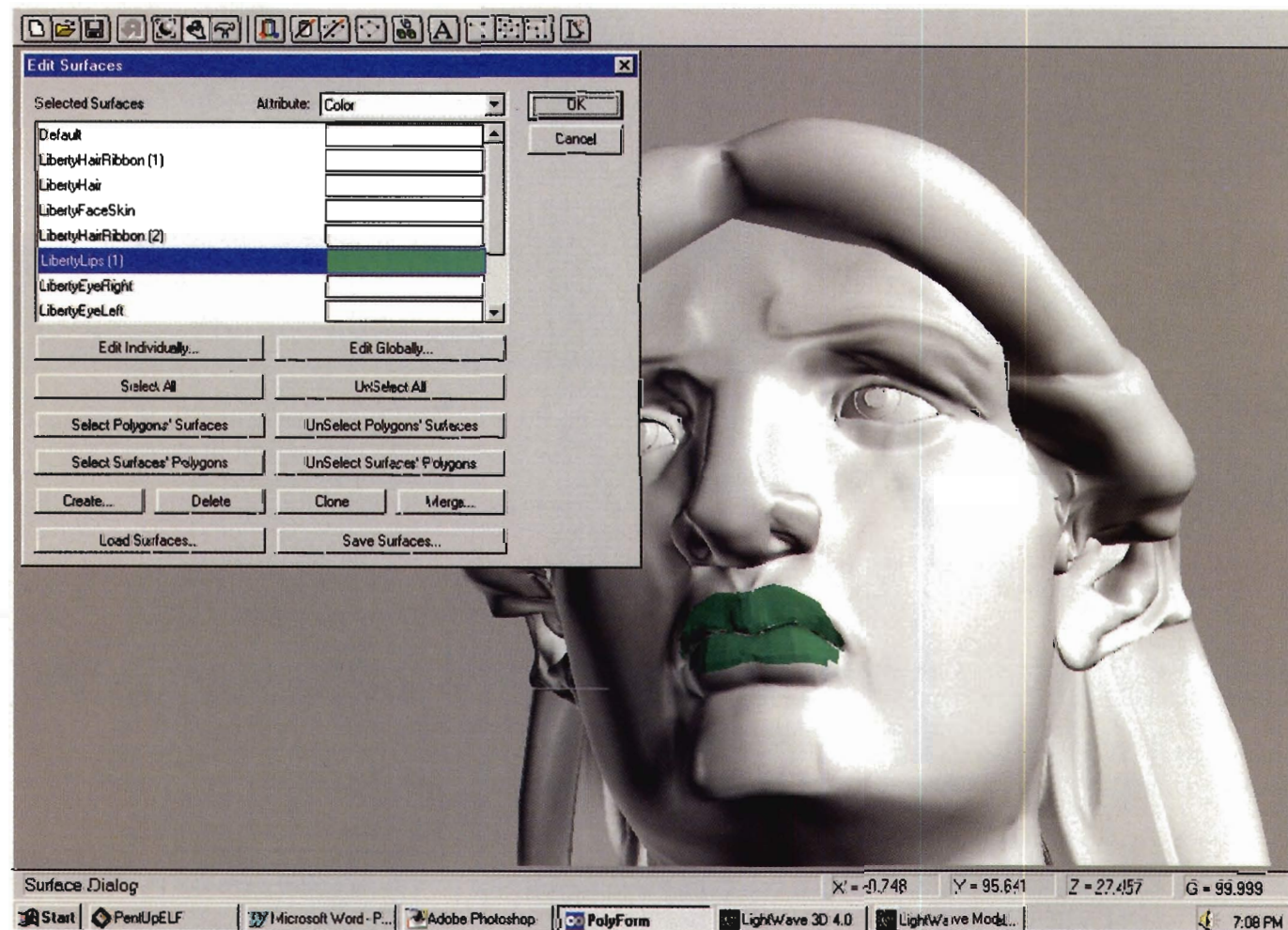
by Erik Flom

**P**olyForm 1.0 by Vivid Technologies is the first Windows version of a longtime staple on the Amiga platform: PixelPro. The original object conversion and logo creation tool has matured over the years into this third-generation product, chocked full of useful new features.

In addition to loading and saving over 20 different object formats, PolyForm can convert bitmaps and PostScript files directly into 3D objects. Other features include point editing, polygon reduction, extrusion, beveling and a host of tools to alter surface attributes. Virtually every surface parameter can be edited directly through a number of dialog boxes. PolyForm can also load scene files with full

support for object hierarchies. (I had trouble loading LightWave 4.0 scene files, but the developers claimed the problem had been fixed in subsequent releases.) Objects can also be loaded individually, arranged and then grouped, using several interactive pop-up windows.

The program interface is one large viewport that looks a lot like LightWave's Layout window, with a series of tool buttons along the top. The object can be viewed along any axis, or in a perspective view. The interface is similar in many ways to LightWave, so LightWave users should have little trouble navigating around the object. One nice feature is PolyForm's ability to render an object with solid, shaded polygons. For the sake of speed, it's possible to switch



An example of PolyForm's real-time 3D polygon painting feature. The 'Edit Surfaces' control panel is open in the upper corner.



between wireframe, flat-shaded, Gourad-shaded, or Phong-shaded polygons at the click of a button. The solid preview makes it easy to fly around the object and see any modeling problems that don't show up in the standard wireframe view. PolyForm even renders the polygons with their base surface color, though bitmaps and procedural attributes are not rendered. The interactive solid preview is also a really nice feature and opens up a number of possibilities to be discussed later.

### LogoWizard and Other Tricks

Chief among the new features is LogoWizard, the feature that lets you create a 3D logo object with just a few keystrokes. While there are still separate dialogs for extrusion and beveling, LogoWizard puts all the steps into one window (at the expense of control, because LogoWizard automatically calculates bevel and extrusion sizes based on size).

The greatest time-saving feature is PolyForm's ability to quickly convert bitmaps and PostScript files into 3D objects for use in LightWave format (or any of the other 19 3D object formats). Anyone familiar with the EPS (Encapsulated PostScript) import capabilities of PixelPro will welcome the addition of PolyForm to their repertoire. This feature alone makes the program worth the price for any animator who creates 3D versions of corporate logos.

Many companies already have their logo available in electronic format, much time and trouble can be saved by converting their EPS file directly into a 3D object. Because PolyForm converts the color information, the problem of matching company colors is taken care of. Even if the client can only dig up a grungy letterhead, PolyForm and a scanned image can go a long way towards creating a serviceable logo object. Given a hi-resolution BMP image in black and white or color, PolyForm will attempt to create a 3D object that closely resembles the original scanned image, complete with color information.

The bitmap auto-tracing abilities have been greatly improved with this release. A new interactive smoothing requester lets you see the finished object as you change smoothing

attributes. By tweaking a set of three variables it's easy to optimize the number of points in the finished logo, reducing touch-up required. For hard to trace curves, there's an optional spline fitting algorithm, too.

One example I can show you is a rather complex freehand logo I scanned from a book of 20's clip art. It only took about half an hour to go

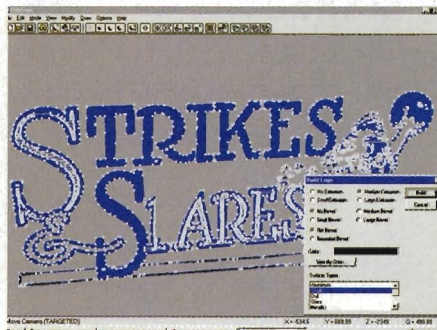


Figure 2: Here's the logo as it appeared after auto-tracing. Note the LogoWizard dialog box.



Figure 3: This logo took about half an hour to scan, auto trace and render. Note the insert detail.

from the original 3.5' black and white artwork (scanned at 300DPI) to a rendered object. One nice improvement with PolyForm is that it allows you to select the background color to ignore when it converts the object—there's even a button to bring up a preview of the image being traced.

The interactive smoothing on this very complex object took four or five minutes per iteration on my 133MHz Pentium, but that was still tolerably fast. Another, simpler, logo redrew within seconds. The results of the new smoothing algorithms are definitely worth the short time spent tweaking variables, though even the default settings produce adequate results. I was unable to find any of the jaggy edges that have long been

characteristic of bitmap to object conversion programs.

One feature that shows great promise in PolyForm is the real-time 3D polygon paint panel. Unfortunately, it currently only allows you to paint polygons with surface names—it's not a full-blown texture map painting program (like the 3D Studio plug-in that costs several hundred dollars!). To really be useful, this feature needs to be fleshed out to allow real-time painting of texture maps in the view window. An example of the paint feature and dialog window is shown in Figure 1, where I've given lady Liberty's lips a new surface name by merely stroking the mouse across those parts of the image. (It's kinda cool, but being able to really paint on the object would make this an amazing product!)

The port to the Windows PC platform is a graceful one. Longtime users of PixelPro will recognize the layout and structure of the older Amiga program, while new Windows users will find an interface that conforms to the accepted Windows user interface. My tests were run on Windows 95, and it seemed to work just fine. In many ways, the program benefits from conforming to Windows standards—in particular, the object and surface lists are handled much better, using the normal shift-click and control-click selection options.

In all, PolyForm 1.0 is a very well-developed product, offering an impressive array of features for the price. Vivid Technologies plans to directly save out to the VRML format, the new internet standard for virtual reality environments allowing 3D artists to put their own creations on the World Wide Web. For those readers with internet access, up to date product information is available at their Web site (<http://www.hotsoft.com>).

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*Erik Flom is the president of ELFWORKS 3D Construction Co., a full-service 3D animation facility in the San Francisco Bay Area.*

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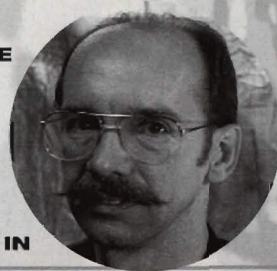
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**DON PENCE:**  
Don is the president of Litigation Tactical Group based in Jacksonville, FL. He has lectured to trial attorney groups across the nation and has been teaching the use of LightWave to animators interested in the forensic market. Don has been using the Toaster, LightWave and the Flyer since their inception and previously used Videoscape and the Amiga for creating animations in the production industry. His background in physics and math, as well as years of scenery design and construction, brings all of these talents together for a very broad base of experience with NewTek's Video Toaster.



**STAN SHUMSLICK:**  
Stan is the Flyer\_Sig Director of the Los Angeles Video Toaster User's Group and co-owner of 2 Tall Video Productions in Glendale, CA. His clients span the gamut of the broadcast and corporate worlds. Currently, he is involved with the Digital Video Disk technical staff for Warner Bros. Advanced Media Operations ("WAMO"), and he is producing yet another pilot for a TV series.



**RICK BERTA:**  
As the President/General Manager at Q. V. Productions, Rick oversees special projects for corporate communications clients in the Silicon Valley. Specializing in industrial training, presentation, and marketing video, he is an expert using Newtek's Flyer/Lightwave system to provide fast production turn-around time.

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**HAROLD RUSSELL:**not pictured  
Owner of Atomic Software and president of Media Services Management in Salt Lake City, Harold is the programmer of Radar (Time-Line for the Flyer) and Flite Gear and is the author of the Atomic Toaster Catalog. Harold has taught hundreds of users in the seminar series "Aliens Ate My Toaster" and produces several training videos instructing users on how to use Studio 16 and MIDI systems with the Toaster. An experienced editor, animator and musician, Harold will bring years of production skills and Toaster/Flyer savvy to the AMG Media seminars. Harold teaches "Pieces to Production."

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**DAN ABLAN:**  
Dan is President of AGA Digital Studios, a 3D graphics and animation company in downtown Chicago, and author of the monthly "Dr. Toaster" column in Video Toaster User and "internet@lwpro.online" column in LIGHTWAVEPRO. Dan is an experienced LightWave 3D trainer and has taught hundreds of users at various AMG Media seminar events. Upcoming resources from Dan include: the 500-page "LightWave Power Guide" for New Riders Publishing, and two training videos, "LightWave 2D!" and "Learning LightWave through Logos" as part of the In.Focus series from ProWave. Dan teaches "Unlimited Animation."



**TOM PATRICK MCAULIFFE:**  
Tom is the Editor-in-Chief of Video Toaster User magazine and owner of Reel Communications, an audio/video production and PR firm in the San Francisco Bay Area. A former award winning US Navy photojournalist and videographer, Tom has produced national TV commercials and corporate multimedia presentations and teaches digital video production and photography for adult education. Tom's unique blend of skills, experience and humor will help you get more from your Toaster investment and walk away feeling inspired to tackle new challenges. Tom teaches "Pieces to Production."

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monday

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# Old Ironsides Part 2

## Just in Time for the Fourth of July!

by Kyle A. Thatch

If you were around last time (May 1996, VTU), we built the barrel for our cannon project. This time we're going to complete the tutorial by building the cannon's cart. But before we begin, a note about the way I approach tutorial writing. I have come to the conclusion that some tutorials assume that the reader is of considerable LightWave 3D experience. On the other hand, I assume and understand that most readers are of little or no experience with LightWave. Hopefully, at the end of this two part tutorial you will have built the same objects that appear in the pictures, and if I'm a good teacher, you will also have learned how to use the Modeler program effectively.

Before you begin, a few modifications should be made to Modeler. Hit (o) for Options. Make sure that the polygons are set to one-sided, quadrangles, curve division is course, and undo levels are at 15 (4.0 users). Next press (d) for Display and make sure the unit system is metric.

### Making Your Cannon Mobile

To make the cart, start by making a profile that you can extrude. Starting in layer 1, drag out the face view until it completely fills the entire screen. Now all you need to do is enter the following points using the points command, then make the points into a polygon to Extrude. Select the polygon menu, then points. Press (n) for Numeric and enter the following coordinates. Remember to press enter to close the numeric requester, then press enter again to make the point.

	X	Y
1.	-6.700 mm	0.380 mm
2.	7.45 mm	0.000 mm

3.	7.7914 mm	33.6258 um
4.	8.1197 mm	-133.2108 um
5.	8.4223 mm	-294.9282 um
6.	8.6874 mm	-512.5632 um
7.	8.9051 mm	-777.7521 um
8.	9.0668 mm	-1.0803 um
9.	9.1664 mm	-1.4086 mm
10.	9.200 mm	-1.750 mm
11.	9.200 mm	-6.400 mm
12.	2.295 cm	-6.400 mm
13.	2.3291 cm	-6.4336 mm
14.	2.362 cm	6.5332 mm
15.	2.3922 cm	6.6949 mm
16.	2.4187 cm	-6.9129 mm
17.	2.4405 cm	-7.1778 mm
18.	2.4567 cm	-7.4803 mm
19.	2.4666 cm	-7.8086 mm
20.	2.470 cm	-8.150 mm
21.	2.470 cm	-1.600 cm
22.	-6.700 mm	-1.600 cm





Now that you have created all of the points that make up the profile, hit (p) for Polygon to create a polygon to Extrude. Before you Extrude the polygon you've have just created, hit (t) for Move then (n) for Numeric. Enter -9.575 mm for Z and press OK. Go to the multiply menu and select extrude, (n) for Numeric, set axis to Z, segments to 1 and extent to 1.915 cm, then hit enter to extrude the profile. Drag out the tri-view to show

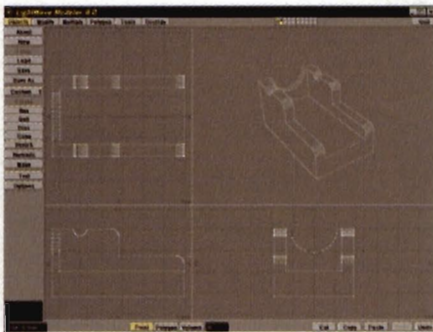


Figure 2

all three views equally again. Select the rounded areas of the cart (Figure 1) to select the polygons. Hold down the right mouse button and lasso around the areas to be selected. Press (q) for Surface and name these polygons, "Cart-Smooth". Now hit (") to Invert Selection and name (q) these polygons "Cart-Flat".

### Cutting The Details

Now that we have the basic shape of the cart, we can start to add some detail. Press (2) for Layer 2, go to the Objects Menu, pick Box, (n) for Numeric and enter the following:

Low	High	Segments
X= -5.0233 mm	X= 2.6004 cm	1
Y 3D -1.0032 cm	Y 3D 2.2296 mm	1
Z 3D -6.7000 mm	Z 3D 6.7000 mm	1

Hit OK, then enter to make the box. Press (q) and select "Cart-Flat" from the surfaces window, then press OK. Next, perform a Boolean operator to remove some of the inside of the cart. To do this, press (1) then hold down the Alt Key and press (2) to put layer 2 in the background. Hit (B) for Boolean, choose subtract and OK. Now

press (m) for Merge Points. Forty-two points should be eliminated. Now all that is left to do is to cut out the holes for the barrel. This is the same process as before, except the shapes are different.

Press (") to Invert the Layer Selection. Once in layer 2, hit (z) to Delete the box from the layer. From the Objects Menu, pick Disc then (n) enter the following:

Sides= 32  
Axis= Z  
Segments= 1  
Center X, Y, Z= 0.0  
Bottom= -1.06 cm  
Radii X, Y= 1.5964 mm  
Z= 0.0  
Top= 1.06 cm

Press OK to complete the entry. Don't forget to press enter to make the cylinder. Name (q) the polygons "Cart-Smooth" using the surface window. Once again hit (") to invert layer selection and select (B). Use Subtract to cut two holes

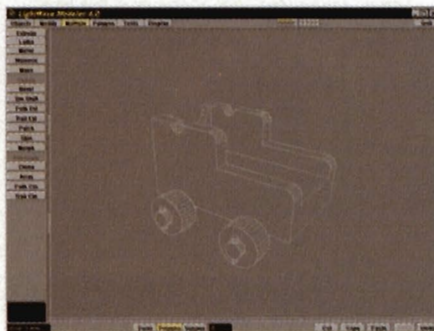


Figure 3

across the cart, then (m) to merge any extra points. Push (") again to invert layers and (z) to delete the cylinder. Again, select Disc from the Objects Menu and enter the following:

Sides= 32  
Axis= X  
Segments= 1  
Center X, Y, Z= 0.0  
Bottom= -1.2015 cm  
Radii X= 0.0  
Y, Z =5.6193 mm  
Top= 0.0

Press OK to complete the entry. Don't forget to press enter to make the cylinder. Name (q) the poly-

gons "Cart-Smooth" using the surface window. Once again, hit (") to invert layer selection and select (B). Use Subtract to cut the final

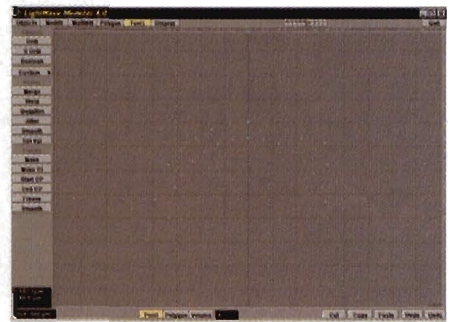


Figure 4

hole in the cart and (m) to merge points. If all is well, your cart should look like Figure 2. To save the cart, press (Shift S) for Save AS and name the object "Cart.lwo".

### Wheels To Move

I am going to assume that you are getting the hang of this. When you see ( ), that means a hotkey is being used. Now let's move quickly. Go to Layer 3 and make a disk using the following:

Sides= 32  
Axis= Z  
Segments= 1  
Center X, Z= 0.0  
Y= -1.7644 cm  
Bottom= -1.512 cm  
Radii X, Y= 1.613 mm  
Z= 0.0  
Top= 1.512 cm

Hit enter after you close the requester to make the cylinder. Select both ends of the cylinder and name (q) them "Axle-Flat". Invert your selection (") and name (q) the rest of the cylinder "Axle-Smooth". From the Multiply Menu, select Clone, then (n) Numeric. Set number of clones to 1 and X offset to 1.7 cm. Press OK to perform the Clone. Save these objects as "Axles.lwo". Now make the wheels go to layer 4 and enter the following:

Sides= 32  
Axis= Z  
Segments= 1  
Center X= 0.0  
Y= -1.7661 cm



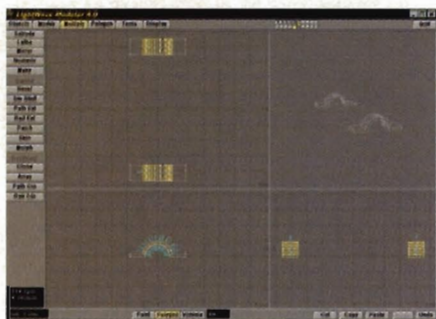


Figure 5

Z= -1.1809 cm  
Bottom= -1.3809 cm  
Radii= X,  
Y= 4.067 mm  
Z 0.0  
Top= -9.8091 mm

After making the cylinder, select and name the wheel "Wheel-Flat" and "Wheel-Smooth" for the appropriate areas of the wheel. Finally, go to layer 5 and enter the following:

Sides=D 32  
Axis= Z  
Segments= 1  
Center X= 0.0  
Y= -1.7651 cm  
Z= -1.2 cm  
Bottom= -1.5004 cm  
Radii= X,  
Y= 1.6292 mm  
Z= 0.0  
Top= -8.9957 mm

After making the cylinder, select and name the wheel "Wheel-Flat" and "Wheel-Smooth" for the appropriate areas of the wheel. Now you need to perform a Boolean operation again to cut out the hole in the middle of the wheel. Select layer 4, then (Alt 5) to put layer 5 in the background. Now hit (B) choose subtract, then OK. To complete the wheel press (m) to merge the points. Now you need to make three more wheels. Using the Clone Tool, enter 1 for number of clones and 1.7 cm for the X offset. Still in the Multiply Menu, select Mirror, then (n) for Numeric. Make sure the axis is set to Z and position is 0, then press OK. Save the wheels objects as "Wheels.lwo".

To complete the wheel assembly, all that is needed is four pegs to keep the wheels from falling off. Go to layer 5, delete any polygons left there, and make a disk with the following specifications:

Sides= 16  
Axis= Y  
Segments= 1  
Center X= 0.0  
Y= -1.7701 cm  
Z= -1.4501 cm  
Bottom= -2.0198 cm  
Radii= X, Z= 498 um  
Y= 0.0  
Top= -1.5204 cm

Hit enter to make the cylinder, then clone the cylinder 1.7 cm X just like we did earlier. Next (you guessed it), mirror it along the Z axis with a position of 0. Name the flat areas "Peg-Flat" and the smooth areas of the pegs "Pegs-Smooth", now save them as (Shift S) "Pegs.lwo". Hold down the shift key and select all the layers with your left mouse button, then hit (d) for Display and choose one of the solid options. You should have something that looks like Figure 3.

### Hold It Down

Hang in there, we're almost done! Go to layer 6 and make another disk using the following:

Sides= 24  
Axis= Y  
Segments= 1  
Center X= -2.8086 mm  
Y= 0.0  
Z= -8.2041 mm  
Bottom= 389.5647 um  
Radii= X, Z= 414.5 mm  
Y= 0.0  
Top= 515.4353 um

After you Make the cylinder, select the bottom of the cylinder by lassoing with the right mouse button, then hit (z) to delete it. Select the top of the cylinder and name it "Stud-Flat". Hit (") to invert your selection and name these polygons "Stud-Smooth". Use the Mirror Tool twice; once along the X axis and once along the Z axis with the position set to 0 on each axis. When you're finished, you should have four studs. Save them as "Studs.lwo". Next we are going to make the brackets that hold the barrel to the cart. Go to the next layer, using the points command under the Polygon Menu enter the following, then hit (p) to make a polygon:

	X	Y
1.	-3.6602 mm	390.200 um
2.	-1.9616 mm	390.1807um
3.	-1.8478 mm	765.3669 um
4.	-1.6629 mm	1.1111 mm
5.	-1.4142 mm	1.4142 mm
6.	-1.1111 mm	1.6629 mm
7.	-765.3669 um	1.8478 mm



Figure 6: Your cart is ready to wheel in the fireworks for the Fourth of July!



8. -390.1807 um	1.9616 mm
9. 0.0000 mm	2.0000 mm
10. 3.7588 um	1.6700 mm
11. -320.8729 um	1.6380 mm
12. -633.0274 um	1.5433 mm
13. -920.7117 um	1.3896 mm
14. -1.17292 mm	1.1826 mm
15. -1.3798 mm	930.4689 um
16. -1.5336 mm	642.7852 um
17. -1.6283 mm	330.6303 um
18. -1.6602 mm	5.9998 um
19. -3.6602 mm	5.9998 um

After you make the polygon, you may have noticed that only half of a bracket is there. No big deal. Go to the Multiply Menu and select Mirror. Press (n) for Numeric, make sure the axis is X and position is 0, then hit OK. Next press (k) to Kill the polygon leaving only the points. You will notice that the middle points on the O.D. (Outer Diameter) and I.D. (Inner Diameter) of the bracket has 2 points (Figure 4) Select the O.D. points first, go to the Tools Menu and hit Weld to fuse the two into one point. Then select the points on the I.D. and repeat the

welding process. Now reselect the points in a clockwise manner and hit (p) to make them into a polygon once more. All that is left to do is go to the Multiply Menu, select Extrude and enter Z for the axis. Leave segment at 1, enter 2 mm for extent and press OK. Finally, Mirror the bracket along the Z axis and select the smooth polygons (Figure 5) and name (q) them "Brackets-Smooth". Using the (") key, invert your selection and name (q) these polygons "Bracket-Flat". Finish the brackets by saving them as (Shift S) "Brackets.lwo". To see if you have made everything correctly, refer to Figure 6.

### Wrapping Up

To assemble the cannon, enter Layout and load the parts. Once you have entered all the parts you will need to Parent some of the parts to each other. Parent the brackets, studs, barrel and axles to the cart, then make a keyframe. Parent the wheels and pegs to the axles, then make a keyframe. Make sure that

under the Surfaces Menu you set all of the surfaces named "-Smooth" with smoothing on. Leave smoothing off on the "Flat" surfaces. Play around with different surfacing techniques such as wood texture and varying degrees of specularity to create the effect your looking for.

Hopefully you survived all the numeric entries and have learned a few tricks about Modeler. We used a lot of techniques from symmetry, to absolute positioning, to measurements. As always, if you have comments or suggestions for future tutorials, let me know. Until next time, remember to model something at least once a week, and whatever you do, measure it—you'll be glad you did.

VTD

Kyle A. Thatch is President of Synthetic Design Images Inc. (SDI) Louisville based 3-D Animation, Graphics and Web Presentation house in Kentucky. He can be reached for questions or comments at: <http://www.win.net/~sdiinc/>

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FOR INFORMATION CIRCLE 186



# Taming ARexx

## Image FX Cures ARexx-a-Phobia

by Brad Hayes

**E**very time I hear someone talking about ARexx, invariably I hear the words, "Easy to Use". I wonder, have these people ever taken the time to look at an ARexx script? I know very little about programming, but I can sometimes open up a script and change a variable here or there, but to sit down and write a custom function—forget it! That was until I stumbled across ImageFX2.0's Learn macro, and the new AutoFX hook. Together, these two features give anyone the power to create their own batch processing scripts, and do it painlessly.

### First You Need A Hook

In ImageFX 2.0, there is a new hook program called AutoFX, that works together with the main program. The basic idea of AutoFX is that you can select a batch of images, then select a series of ARexx scripts to perform them. There are about 135 pre-written scripts for AutoFX and another 48 for ImageFX, and they should be interchangeable for the most part.

Once you start ImageFX, click the Hook button (or right Amiga-H). Select AutoFX from the requester, and you're on your way. AutoFX runs on the Workbench and has three main sections. The first and largest is the File Selection area. A feature of note here is the sequence selector. Just put the cursor on a file in a series and press Sequence, and all the files with that root name will become selected. Once you have all the files selected, click the Add File(s) button in the Image Files area. All the selected files will move to the source window. The last section of AutoFX is the Operations area. The first scripts you need when doing any AutoFX operation will always be "load.ifx" so AutoFX loads this script for you. Without it, ImageFX will not load any file.

The purpose of this function is to create a list of operations you want to perform on every image in the source window. Create this list by adding different ARexx scripts, then click the Add command button to see the list of scripts available to you. Select some scripts, but don't forget to add a Save script at the end. Once you have created your list, you can save it as a project for repeat usage. When you're ready, click Begin. IMFX will come to the front and begin the operation with a requester asking for the specifics.

### When in Doubt—Learn

So you're saying to yourself, "OK, that's great. Anyone can read a bunch of pre-written scripts, but what if I need to do something very specific?" The answer is—Learn! The Learn feature has been in ImageFX since at least version 1.5., and that was the first version of the program I tried.

The Learn function is one of those easy to miss features because it is so simple to use. Shift-1 opens the save requester. Name your new macro and remember to add the .ifx extension at the end, then click OK. Learn will ask you if you want to record the current draw settings. Select Yes if you're already in the mode tool of whatever you're doing, and from that moment on, your actions become part of your macro. Shift-2 will stop the learning process. Congratulations, you have just written a complete ARexx script. You can now call it back from inside ImageFX, or do batch processing with it in AutoFX.

I recently created an animated bug for one of my clients (you know, one of those annoying transparent logos down in the lower right hand corner of your TV). I put the bug where I thought it should go. As soon as they saw it, they wanted it on the left hand side of the screen. Yeah, it only took about 40 minutes to render, but I wanted them out of my hair so I turned to ImageFX. I loaded one frame of the animation, started the learn macro (Shift-1), picked up the bug as a brush, cleared the screen, pasted it down where I wanted it and stopped the learn Macro (Shift-2). Then I loaded all the frames from the animation with all the frames from the Alpha Channel sequence and let AutoFX do the work. I also converted all the frames to Targa and resized them while I was at it. It took about half the time it would have to re-render.

One last tip! I was ARexx-a-phobic when I first started, but now I go through every script I create to find out exactly what happens when I hit each button. Learn is a great learning tool, as well as a very important feature. These functions really are so easy to use, anyone can harness the power of ARexx and make ImageFX do just about anything you can think of.

*Brad Hayes is a freelance animator and graphics designer. See his work on Network One or at his Web site at <http://www.pacificnet.net/~bjhayes>.*



# Those Wacky Macros

## ARexx, Schmay-Rexx

by Chris Fenwick

**I**f you're anything like me, the first time you heard the terms Macro or ARexx, you didn't have a clue what they meant. "Hey," you say, "I'm an graphic artist, not a computer programmer, right?" That's true, but every once in a while you may come across the need to expand your horizons.

First, a bit of clarification. Macro is a term commonly used in the computer industry for an automated series of keystrokes (things the user would normally do) that can be initiated with one command, usually a specially defined character (i.e. Command, Option, Shift, S). There are many macro-generating programs in the computer world. Because I do a lot of work on the Macintosh ultimately used in the Video Toaster, I have used QuickKeys, a common utility, to write a macro that saves the IFF image format in Photoshop. Before the macro, I would always choose Save As, then have to troll around in the pop-up menu for the Amiga IFF selector. Now by selecting Option-S instead of Command-S, the macro does all these steps for me.

### Beyond Macros

Macros are one thing, but ARexx goes a step beyond. ARexx is specific to the Amiga platform, and as a matter of fact the A stands for Amiga. ARexx commands are usually written in scripts, and if you know what you're doing you can write your own scripts. The cool thing about ARexx is that many programs have "hooks," or support, for ARexx implementation. Now remember, I'm not a programmer by any stretch of the imagination, but some of the evidence I've seen tells me that there are features in programs not supported by the standard graphical user interfaces we like to use that are supported by ARexx. In other words, if you don't use ARexx, sometimes you're out of luck.

So how do you use ARexx scripts? Well, herein lies the confusion that plagues users and separates us from the programmers. The use of scripts is dependent on two things: the user interface (UI), and the method of use. The UI is how you start the script. An ARexx script can be triggered from an Amiga shell—if you're a code-head who likes to type. I think you can even start them from DOpus, although I'll be the first to admit that I haven't got a clue as to how. LightWave 3D is really good about the UI issue. When you start a script in LightWave, it gives you the usual windows and dialog boxes to make us feel right at home. There are even some ARexx commands that come with the Flyer, but we'll get to those later.

The method of use is a weird issue. Basically it means the

programmer wrote a series of commands that assumed where you were and where you want go. Unfortunately, there usually aren't instructions that come with ARexx scripts that say, "Oh, by the way, for this thing to work right you should have this buffer filled and the swap screen should have the image that you want shrunk down and beveled. When you have that setup right, then you can start the script." The reason ARexx scripts are so poorly documented is that they are written by brilliant renegade programmers with a vision that doesn't necessarily include training idiots like me to use their clever little scripts.

### Nifty Scripts

There are some great scripts out there, and two that I recently started using are in the Flyer AREXX directory. The first is called IFF2Clip.ARexx. Pretty self-explanatory right? Well, sort of. IFF2Clip.ARexx actually takes a whole directory of IFF images and makes Flyer Stills out of them. (I could write a whole article about that alone.) The trick with this one is to prepare a directory with only the images you need to make into Flyer Stills, and then it will ask you where you want those stills saved.

Another great ARexx script I just learned about is called ButtAudio.ARexx. For fun, I like to do a little bit of music mixing and recently began using the Flyer as a two track mastering system. I mix mullet-track recordings right down to the Flyer and then play them back in whatever order the artist decides is best. The trick is, audio clips don't just play one after another like video clips. You need one video clip at the start and then each audio clip must be delayed for the duration of all the previous clips. If this sounds confusing, try doing all the math in your head to decide how long to delay the fifth clip if the first song is 3:56, the second is 5:16, the third is 4:28 and the forth is 4:14. I think you get the picture. With the ButtAudio.ARexx script, once all the clips are in the right order, double click the icon and it will ask you if indeed you want to butt all the audio clips in the project together. It does all the math for you and puts in all the appropriate delay times. This is a great example of ARexx going above and beyond what a simple macro can do for you.

There are many talented people writing ARexx scripts to make life easier for us, but the dilemma is, we artist-types hardly speak their language. Read the directions and give ARexx a chance. You may amaze even yourself.

**VTU**

*Chris Fenwick owns Broadcast Business Graphics in Redwood City, CA. Reach him at <http://www.bbgroup.com>.*



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annual Dealers meeting earlier that evening with dealers from around the USA and overseas. From all reports things look encouraging. "At least nobody threw anything," said one dealer with a smile.

There was no major announcement of a new product, service or marketing effort at this event, but the party signified for many that NewTek is still around and planning major new solutions for the computer video and 3D animation user. The major surprise, aside from the newly shipping LightWave 5.0, was that the trio is aggressively developing a strategic relationship to "target digital content creators...that purchase tools in the \$3000 to \$30,000 price range. Other important announcements include:

- NewTek releasing LightWave 3D for the PowerPC MAC platform, supporting Apple's Quickdraw 3D for real-time viewing of changes to 3D objects.
- Support for the SUN Micro-



From right to left: Parsons and Jenison of NewTek, Satjivhahil of Apple and Wolf of SUN.

systems *Java* development language for video and animation delivery on the Internet and World Wide Web.

According to Tim Jenison, Chairman and Founder of NewTek, "This collaboration would unite the companies that currently lead the desktop video, desktop graphics and Internet server markets. The resulting technology opportunities will enable us to create a new era of high quality, low-cost, easy to use products for digital media creation. Audiences from event videographers to New York boardrooms to Hollywood studios will benefit." Technology sharing is also apparently a key ingredient of the developing relationship.

The hosts also gave away software and a computer courtesy of Apple. Among those attending were

1995 Wavey host and comedy star Penn Jillette and showbiz legend Dick Van Dyke (currently starring as Dr. Mark Sloan from *Diagnosis Murder* on NBC). John Gross, former Amblin animator, LIGHTWAVE-PRO editor and now general manager of Digital Muse, showed up with a great SeaQuest blooper reel to the tune of the Beatles Yellow Submarine. Somebody also had LightWave 5.0 running on a laptop and allowed others to play while

NewTek employees and friends like Brad Carvey held drawings for cool NewTek fashion gear. The balance of the evening continued with free food and drink, schmoozing and user networking as attendees and club staff danced on the bars till the wee hours. All in all, it was our kind of party!

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#### EDITORIAL EVALUATION

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One of the things that make most Amiga/Toaster users cool is their willingness to share. *Video Toaster User* is always looking for tutorials and story ideas. Readers have often told me that one of the most problematic aspects of submission is acquiring the images to go along with the article. If you have an Amiga/Toaster/Flyer system and the current (or relatively current) software, you can grab interface shots to submit with your tutorial articles (hint, hint) as needed. You'll need two additional programs: Brilliance or a similar paint program (DPAint may also work for this), and a PD program called GrabIFF (this is better but ADPro also works). It is available on the Fish disks, through Geoffrey William's PD Disk Series and most Amiga BBS's.

GrabIFF can successfully grab any Toaster or Amiga screen! ADPro can grab *most* of them. However, in all cases, the palette will be black (all colors of the interface will be set to 0, 0). Just load these images into your favorite paint program and choose the Load Palette icon, then select "any" of the icons that the Amiga/Toaster/Flyer uses (these are the files with the .i extension). These contain the right palette data. Voila! The image will appear with all colors as they should be. Save it as an IFF24, JPEG or TIFF and you are on your way to fame and fortune in publication with VTU—Or at least you'll have good karma for helping your fellow Toasterites!

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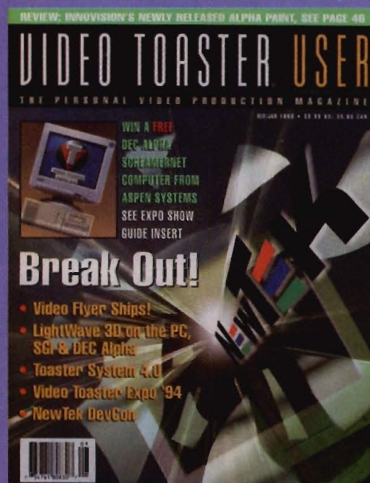
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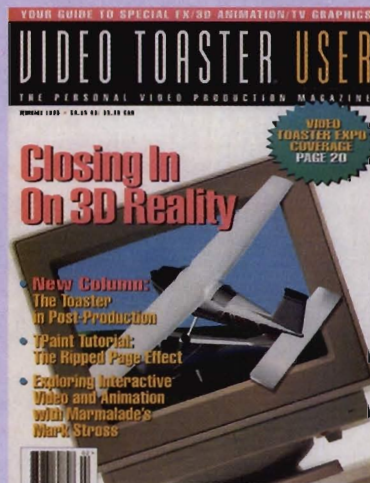
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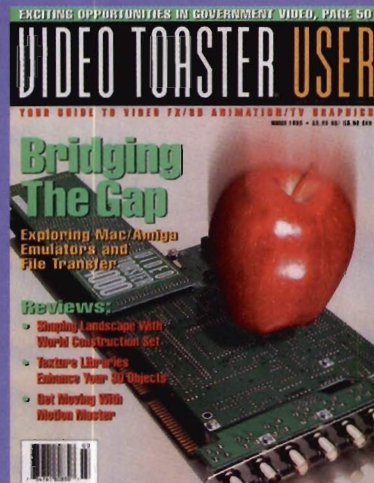
**December/January 1995**

Seizing Opportunity: Profile of a Leased Access Success Story; How to Avoid Modeling Problems; Making Titles Fly; Alpha Paint, ImageFX 2.0, Pegger 2.0 and Texture reviews



**February 1995**

The Silent Witness: A Crash Course in Accident Reconstruction; Stross Management (Marmalade profile); Video Toaster Expo '94 Coverage; TPaint Ripped-Page Effect; Paper Clip modeling; MultiLayer, Sparks reviews



**March 1995**

The Ultimate Toaster Peripheral: Why Buying a PC Makes Sense; Area 51 profile; Exciting Opportunities in Government Video; Exploring Amiga/Mac Emulation; More Attractive Bevels; Lathing a Light Bulb



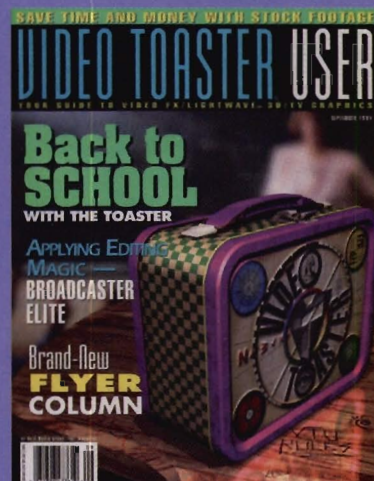
**July 1995**

The Mighty Effects of Hercules; Speed: A Look at LightWave 3D Rendering Options; LightWave Extras; TPaint and CG Shoot-'em-up; QuickText, Visual FX and Amiga Desktop Video CD reviews



**August 1995**

Mass Storage; CD-ROM Textures and Objects; Break Into Cable TV Production; Digital Airbrushing, Flyer Audio Editing and TPaint/CG Chiseled Marble Effect tutorials; Flite Gear, MediaPhile quickviews



**September 1995**

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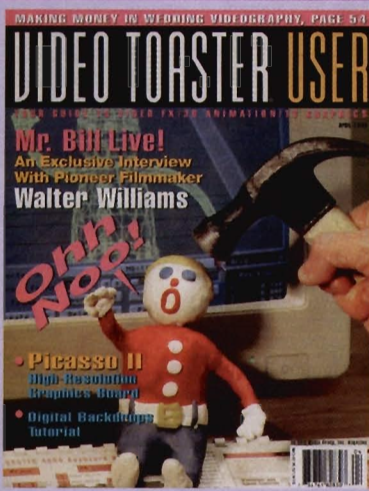
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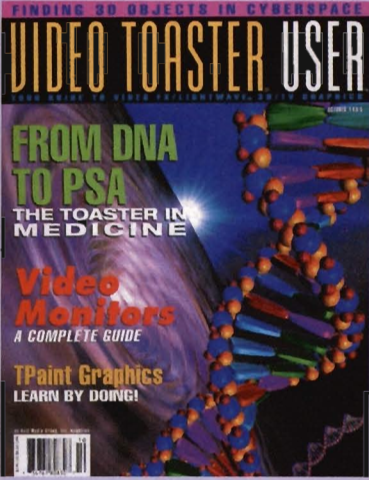
# BACK IN TIME

## USER BACK ISSUES



**April 1995**

Mr. Bill Live! An Exclusive Interview With Pioneer Filmmaker Walter Williams; Wedding Video and the Toaster; 3D Brushes, Boolean Toolbox, and Digital Backdrops and Flats tutorials; Mackie 1202, Picasso II reviews



**October 1995**

From DNA to PSA—The Toaster in Medicine; Raiders of the Lost Archives (Internet/WWW objects); Monitor Mania; Awesome Underlines: TPaint Graphic Separators; Wavey Treasure Chest tutorial



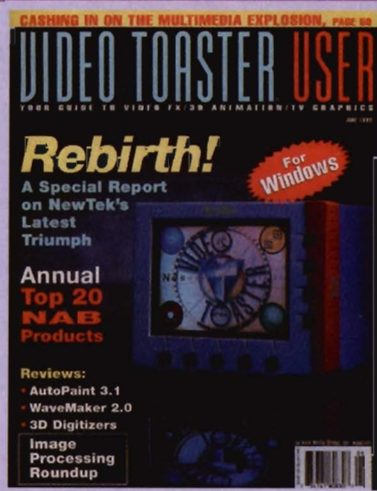
**May 1995**

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**November 1995**

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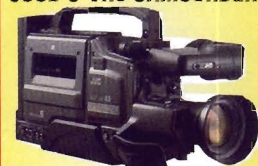
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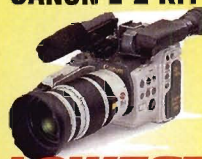


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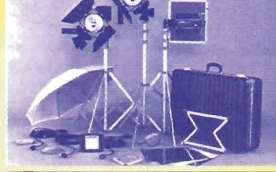
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3640 88040 @ 25mhz for the 4000/3000	319/399
2630 w/2MB or 4MB (A2000 Accelerator)	149/199
2620 w/2MB or 4MB (A2000 Accelerator)	34.95
601c 512K ramboard w/clock	89.95
801c 1mb ramboard w/clock	

### CPU & FPU UPGRADES & REPLACEMENTS

88040-40 w/MMU&FPU	299.00
88040-33 w/MMU&FPU	199.00
88040-25 w/MMU&FPU	99.00
88040-EC25	75.00
88030-RC-50 w/MMU	119.00
88030-RC-40 w/MMU	79.00
88030-EC40 (NO MMU)	99.00
88030-RC-33 w/MMU	99.00
88030-RC-25 w/MMU	75.00
88030-EC-25 (NO MMU)	50.00
68882-RC-PGA-50 FPU	75.00
68882-RC-PGA-40 FPU	59.00
68882-RC-PGA-33 FPU	49.00
68882-RC-PGA-25 FPU	35.00
68881-RC-PGA-25 FPU	25.00
68882-FN-PLCC 40 FPU	129.00
68882-FN-PLCC 33 FPU	49.00
68881-FN-PLCC 25 FPU	35.00
68881-FN-PLCC 16 FPU	25.00
80387-25SX (386BB) FPU	69.95
Crystal Oscillators	10.00
68040 Heat Sink	175.00
Intel 486 DX2 - 66	145.00
Intel 486 DX2 - 50	135.00
Intel 486 DX 33	99.00
Intel 486 SX 33	

### MEMORY CHIPS

1 x 8	120 - 60ns SIMMS	29+
1 x 9	120 - 60ns SIMMS	35+
4 x 8	120 - 60ns SIMMS	109+
4 x 9	120 - 60ns SIMMS	119+
1 x 4	120 - 60ns Static ZIP	19+
1 x 4	120 - 60ns Page ZIP	19+
1 x 4	120 - 60ns Zip DIP	29+
1 x 1	120 - 60ns DIP	4+
256 x 4	120 - 60ns DIP	4+
256 x 4	120 - 60ns ZIP	4+
256 x 32	100 - 60ns (1MB Simm)	29+
256 x 36	100 - 60ns (1MB Simm)	35+
512 x 32	100 - 60ns (2MB Simm)	79+
512 x 36	100 - 60ns (2MB Simm)	79+
1 x 32	100 - 60ns Simm (4MB)	75+
1 x 36	100 - 60ns Simm (4MB)	95+
2 x 32	100 - 60ns Simm (8MB)	149+
2 x 36	100 - 60ns Simm (8MB)	199+
4 x 32	100 - 60ns Simm (16MB)	249+
4 x 36	100 - 60ns Simm (16MB)	299+
8 x 32	100 - 60ns Simm (32MB)	499+
8 x 36	100 - 60ns Simm (32MB)	599+
16x32	100 - 60ns Simm (64MB)	1999+
PCMCIA Ram Card 2M		119
PCMCIA Ram Card 4M		229
GVP SIMM32 60NS 4MB		149
GVP SIMM32 60NS 16MB		599
GVP SIMM32 60NS 1MB		49

### AMIGA CUSTOM CHIPS & UPGRADES

3.1 Upgrade kit (roms, soft, mane)	125.00
3.1 Upgrade kit (roms, software)	99.00
3.1 Kickstart roms (specify unit)	59.00
3.0 Kickstart roms (specify unit)	199.00
2.1 OS Upgrade Kit (complete)	79.95
2.1 OS Upgrade Kit (soft, manuals)	49.95
2.05 Kickstart Rom	27.95
2.04 Kickstart Rom	24.95
1.3 Kickstart Rom	12.95
1MB Agnus (8372A)	29.95
2MB Agnus (8372B)	39.95
Super Denise (8373)	29.95
Paula (8364) Or Denise (8362)	16.95
CIA (8520)	12.95
Western Digital Revision 08A	29.00
Superbaster (rev11) (4091)	45.95
Ramsey (rev 07)	39.95
Fat Gary (A3000)	29.95
Super Dmac (rev 04)	39.95
Artoier (Aco06 & 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	\$69.95
Diagnostic software & hardware for problems	



PERCEPTION PVR-2500	1575
CAPTURE CARD AD-2500	875
RS422 Option	185
PAR (IBM) DR-2100	1545
PAR (Amiga) DR-2150	1545
w/Conner 540MB	+199
w/Quantum 1275A 1.2G	+249
w/Micropolis 2217A 1.7G	+899
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Personal Vector Scope	735

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- Up to TEN megabytes per second with a Seagate Barracuda 2.1 gigabyte hard drive
- Expandable to 64MB RAM using 72 pin industry standard simms
- Work in Amiga 4000/4000T/3000

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Low profile, power & heat simms for maximum performance - 04 MB 60NS 75.00

Upgrade rebates for A4000-040 owners with original CPU card 08 MB 60NS 149.00

simms & A3000 owners with zip style dram! 16 MB 60NS 249.00

32 MB 60NS 499.00

### WARP ENGINE UPGRADE KIT

#### 40MHZ UPGRADE KIT 299.00

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

#### 33MHZ UPGRADE KIT 249.00

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

### SYQUEST (Amiga / MAC / IBM)

5.25" HH 44MB DRIVE (SQ555) SCSI	99
5.25" HH 88MB (SQ5110C) (R&W44) SCSI	269
3.5" LP EZ-135MB IDE or SCSI w/Cartridge	225
3.5" HH 200MB (SQ5200) (R&W 44888) SCSI	349
3.5" LP 270MB SCSI (SQ3270S) 13MS SCSI	329
5.25" 44MB Cartridges	41
5.25" 88MB Cartridges	51
3.5" 270MB Cartridges	59
5.25" 200MB Cartridges	79
External Versions w/Cabling Add	59

### SCSI CD-ROM DRIVES & DRIVERS

MODEL	ACCESS	RATE	PRICE
NEC 84	320MS	150k/s	89
Sony CDU 55	380MS	300k/s	99/159
NEC 3Xi	195MS	450k/s	149/199
Sanyo 254SH 4x	120MS	600k/s	159/229
Toshiba 4.4x	120MS	660k/s	199/259
Teac 6x	110MS	900k/s	249/299
Plextor 6x	145MS	900k/s	299/359
Toshiba 3701 6.7x	110MS	990k/s	339/399
ASIM CDFS 3.5+ w/Fish CD (AMIGA)			59

### CSA DERRINGER+ ACCELERATOR

68030@25Mhz CPU w/MMU

68881@25Mhz FPU & /1MB Ram

Only 299.00

w/4MB 349.00 w/8MB 449.00

### Micropolis 1936 SCSI I & II

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4 MB/Sec Async 5 Year 799.00

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Works great with all controller cards!

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340 ELS SCSI I & II or IDE	11MS	2 Yrs
420 ELS SCSI I & II or IDE	11MS	2 Yrs
850 LPS SCSI I & II or IDE	14MS	3 Yrs
1280 LPS SCSI I & II or IDE	12MS	3 Yrs
2.1G Atlas 7200RPM 1MB	8MS	5 Yrs
4.3G Atlas 7200RPM 2MB	8MS	5 Yrs
4.3G Grand Prix 512k buffer	8MS	5 Yrs

#### Seagate

ST3290A 260 MB IDE LP	16MS	3 Yrs
ST3491A 420 MB IDE LP	16MS	3 Yrs
** 51080A 1080 MB IDE LP	10MS	3 Yrs
** 51270A 1270 MB IDE LP	10MS	3 Yrs
** 52140A 2140 MB IDE LP	10MS	3 Yrs
ST31231N 1050MB SCSI LP	9MS	5 Yrs
ST32550N 2.1G Barracuda	8MS	5 Yrs
*ST15150N 4G Barracuda	8MS	5 Yrs
*ST410800N 9G Elite	11MS	5 Yrs

\* VIDEO FLYER CERTIFIED HARD DRIVES

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#### Conner

CFA 1275A IDE (w/PAR)	12MS	3 Yrs
CFA 850A IDE	12MS	3 Yrs
CFP 540A IDE	12MS	3 Yrs
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### A1200/600/SX1 2.5" IDE HARD DRIVE

ST9096A 80MB Maxtor	
ST9190AG 170MB Seagate	
ST9240AG 210MB Seagate	
ST9300AG 260MB Seagate	
ST9420A 455MB Seagate	
ST9655AG 520MB Seagate	
ST9816AG 810MB Seagate	

Install kits available \$25.00

### TAPE BACKUP DRIVES

Sony SDT5000	4/8GB	500k/sec	875
Exabyte 8700LT	5/10GB	1024k/sec	1095
Exabyte 8700	7/14GB	1024k/sec	1495
Quantum 2000	10/20GB	2500k/sec	3385
Quantum 4000	20/40GB	3000k/sec	5495
Sony 4MM 120M DDS2 Tape (8GB)			25
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Now you can record your own CDROM discs make backups of the ones you already own.

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Mastering ISO Recording Software	
Yamaha CDR102	4x read 2x write
Yamaha CDR100	4x read 4x write
Hewlett Packard 4020i	4x read 2x write
CDR Recordable 74 Minute Blank	

### AMIGA NETWORKING

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

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### External genlock for Amiga series computers

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### SUPERGEN SX STUDIO

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MainActor Professional	79
- Full featured animation program that works with all Amigas with support for Picasso II owners.	
Ariadne	279
- Zorro II Ethernet card offering 10base-2 (cheapernet) & 10base-T (twisted pair) Features; 2 parallel ports 32k buffer; boot eeprom option; SANA-2 Compatible drivers & Envoy network software; DOS 2.04 or higher required.	
Liana Network	89
- Connects any two Amigas together via the parallel port	
Pablo	179
- A video module for your Picasso II card permitting output to your TV or VCR - Quality comparable to high performance video broadcast encoders; includes RCA - S-VHS - SCART cables & 24 bit animation program	

PICASSO II w/ 2 MB RAM! 379

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2000 Bigfoot Power Supply	159
1200/600/500 Bigfoot	89
Slingshot A500 (1A2000Slot)	39
Slingshot Pro A500	69
X-Calibur A4000 Ram Unit	649
GP FAX CLASS 1 & 2	54
Gigamem v3.12	59
WIZ MOUSE 560 dpi	39

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read & write files from mac floppies and hard drives directly from your favorite Amiga program	
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The classic PC - Amiga utility has just been improved with faster floppy access, hd writes and creation of MS-DOS partitions.	

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AdiDE 810MB HD System	475
w/2.5" Drive (500/2000)	
Flicker Free Video II (PAL/NTSC)	249
ADRAM540 w/4MB (A500)	275
ADRAM 2080 - w/2mb exp to eight megs of ram	149

#### USRobotics Modems

External Sportster 14.4kbps v.32 bis data v.42, v.42bis, quicklink II s/w, fax \$115  
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**REMOVABLE MEDIA** Richo 50 MB removable HD \$99.00  
**SCSI DEVICE CLOSE OUT**



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Keyboard, mouse, power supply, 2mb ram, AGA graphic chipset, and built in IDE HD controller. 549.00

170MB HD INSTALLED 149.00  
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4MB 32 BIT RAMBOARD 199.00  
with battery backed clock & FPU  
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with battery backed clock & FPU

### MTEC FALCON 68040 @ 25MHZ

- for the Amiga 1200 series machines
- faster than an Amiga 4000T @ 25Mhz
- uses standard 72pin simms expandable to 128 MB of memory
- 33 MHZ & 40MHZ AVAILABLE! \$849.00 & 949.00!!
- Extra SCSI Port Option Available
- Built In SCSI I & II HD Controller Card

Limited time price of \$649.00

### DKB's WILDFIRE 060 w/FAST SCSI II & 64bit ramboard \$1499

Low profile, power, heat simms for maximum performance -

Upgrade rebates available for owners of other accelerator boards & ram through De Vine.	04 MB 75
	08 MB 149
	16 MB 249
	32 MB 499

- True 68060 50Mhz Design - NOT A MODIFIED 68040 BOARD !!!
- Lightning High Speed Local 68060 Memory
- Supports Interleaved Memory
- Supports Posted Writes to Motherboard
- 32 Bit FAST SCSI II Host bus DMA Interface
- Supports 10MB/second SCSI Transfers
- 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!!

#### AMIGA RAM BOARDS

Paravision MBX1200Z w/20Mhz&1MB	149
Paravision MBX1200Z w/20Mhz&2MB	175
Paravision MBX1200Z w/20Mhz&4MB	199
Paravision MBX1200Z w/20Mhz&8MB	299
Paravision 8-Up! w/0MB (2000)	99
Paravision 8-Up! w/2MB (2000)	149
Paravision 8-Up! w/4MB (2000)	229
Paravision 8-Up! w/6MB (2000)	309
Paravision 8-Up! w/8MB (2000)	389
DKB 2632 w/4MB (Requires2630)	299
DKB 1202 FPU & 1MB Ram (1200)	159
DKB 3128 w/4MB (3000/4000)	349
Exp. Sys. Dataflyer Int. w/2MB Exp to 8MB	199
Supra External w/2MB (500)	199
CBM 2052 w/2MB (2000)	99
CBM 2058 w/2MB Exp to 8MB (2000)	175
CBM 501c Clone w/512K (500)	25
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### Amiga 2000 Accelerators

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CSA 68040 @ 33mhz w/MMU, FPU SCSI II controller card w/0MB. Uses 72 pin 60ns industry standard simms and is expandable to 64 mb using 16mb simm modules. 995

GVP 68030 @ 40mhz w/FPU & SCSI Controller & 4MB ram at 60ns expandable to 16MB ram 675

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Megachip 199

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 chips with an extra one megabyte of ram. (Requires A500 to have A501 ram expander +49.95)

A1202 board (A1200 Only) 99.95

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 up math functions as much as 1000% or more.

A3128 Ram board (A3000/4000 Only) 249

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) 275 w/4mb

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

Kwikstart II (A1000) 54.95

A1000 owners can now add kickstart roms to their machines with this device! Supports two different revision roms & allows access to more system ram

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 28 mhz & 40 WITH MMU 159/249

Accelerator for the A1200 computer system that allows you to speed your machine up to 600% faster. Includes capability to add 128MB of fast ram using industry standard 72 pin simms & battery backed clock-calendar. Optional FPU can be added. Optional SCSI I & II Controller can be added +89.00

Monbra 40MHZ w/MMU & FPU 275.00

Accelerator for A1200 computer with 68030@40mhz Expandable to 128MB of fast ram using industry standard 72 pin simms. Increase in speed up to 800% & has battery backed clock-calendar. Includes FPU @ 40mhz. SCSI I&II controller can be added \$89.00





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Amiga 4000T Motherboard, tower case, 250 watt power supply, 2595  
2 video slots, 5 zorro III slots, floppy disk drive, mouse,  
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1.2GB HD & Bundled Software Pack of assorted software!

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Macrosystems Warp Engine 4028 w/CPU, SCSI I&II Controller	895
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**Megachip 2000/500 189.95**

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)

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**DKB's WILDFIRE 060  
w/FAST SCSI II & 64bit  
ramboard \$1499**

Upgrade rebates available for owners of other accelerator boards & ram through De Vine.

4 MB - 75 8MB - 149  
16MB - 299 32MB - 599

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

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**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.

**Monbra 40MHZ w/MMU & FPU 275.00**

Accelerator for A1200 computer with 68030 @ 40Mhz, 68882 @ 40Mhz 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

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Standard 345  
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**Dataflyer SCSI card 4000SX 90.00**

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

**Dataflyer SCSI card 4000SX-25 100.00**

SCSI controller card with DB25 external connector for external devices

**Dataflyer SCSI+ A4000 119.00**

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 90.00**

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

**Dataflyer SCSI controller (2000) 95.00**

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

**Dataflyer IDE controller (2000) 95.00**

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

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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**

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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.

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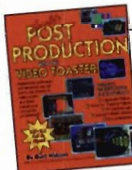
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## Panasonic

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, Telephone 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 Videocassette Camcorder

Heralding a new era in video, the AG-EZ1 is the world's first camcorder to incorporate 6mm DVC (Digital Video Cassette) technology. The biggest leap in video since S-VHS and Hi8 were introduced six years ago, DVC is a revolutionary video format that delivers such high quality—it literally rivals broadcast cameras. Utilizing DVC the AG-EZ1 records an extraordinary 500 lines of horizontal resolution—nearly 25 percent more than S-VHS, Hi8 or Laserdisc, and 50 percent better than a live television broadcast. And because it's digital, picture quality is not only sharper but unbelievably clean. Audio is also recorded digitally, resulting in quality equal to that of CDs. In addition to its digital capabilities, the AG-EZ1 also features a 3-CCD pickup system, 180,000 pixel color viewfinder, 10:1 power and 20:1 digital zoom, full automatic 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. The signal-to-noise ratio is 54dB, an improvement of 6-9 dB over conventional analog systems. This actually represents a S/N ratio 2-3 times better than existing camcorders.
- Audio is also recorded digitally using PCM (Pulse Code Modulation) 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 reserved for uses such as narration.
- Includes a huge 1.5" 180,000 pixel color viewfinder. The viewfinder also tilts 120 degrees vertically for shooting subjects from high or low angles, & 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.
- Built-in Digital Electronic Image Stabilizer (DEIS) compensates for jittery video and is particularly 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 light 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 lets you record a still-frame for about six seconds, while audio continues as normal. This feature is great for creating video photo albums or insurance tapes, 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

#### S-VHS 3-CCD Digital Signal Processing Camcorder



- Three high-density 380,000 pixel CCDs with half-pixel pitch 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 steady 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.

#### DP-800H "LS" Package

- DP-800H Supercam 3-CCD camera head with 1.5" electronic viewfinder and Anton Bauer Gold Mount battery
- Fujinon S14x7.5 BRM 14:1 servo zoom lens
- CC-S800 soft carrying case
- HV-Q7700 tripod mounting plate

#### DP-800H "XL" Package:

- DP-800H Supercam 3-CCD camera head with 1.5" electronic viewfinder and Anton Bauer Gold Mount battery
- Fujinon S14x7.5 BRM 14:1 servo zoom lens
- QC-H800 Thermodyne hard shell carrying case
- HV-Q7700 tripod mounting plate
- Two Anton Bauer Digital Trippack 14 batteries
- Anton Bauer 2-position quick charger

## JVC GR-DV1

### Digital Video Camera

The GR-DV1 is based on the new DV format—developed and supported by the major manufacturers of AV equipment—and uses the mini DV cassette, which is only slightly larger than a matchbox. JVC's technical achievements—such as the new guide mechanism and multi-layer PCBs—have made it possible to create the world's smallest and lightest camcorder. Offering first-class picture and sound quality, the GR-DV1 is packed with high-performance features that make it the ideal AV tool for the multimedia age.

#### COMPACT AND LIGHTWEIGHT DESIGN

- Weighs only 1.0 lb. (450g) and measures 1 1/4" x 5 1/4" x 3 1/4" (43 x 148 x 88mm).
- Fits easily into pocket or purse.
- Handy upright design allows easy operation.

#### HIGH PICTURE AND SOUND QUALITY

- 570,000-pixel 1/3" CCD for enhanced detail and clarity.
- Over 400 lines of horizontal resolution.
- Low lux operation: less than 1 lux in slow shutter mode.
- High-res digital image stabilizer eliminates camera shake without affecting picture quality or image size.
- PCM digital audio stereo recording modes (2-ch/48kHz/16-bit & 4-ch/32kHz/12-bit).

#### SPECIAL EFFECTS (Shooting)

- 100x super digital zoom (10x optical).
- 12 digital effects and 18 scene transitions.
- Snapshot mode for shooting "snapshots".
- Motor drive mode shoots snapshots in rapid succession.
- Wind out filter reduces noise for improved audio.
- Squeeze mode adapts to widescreen (16:9) TVs

#### SPECIAL EFFECTS (Playback)

- Connects directly to a TV monitor for playback.
- Mounts on the supplied docking station for special playback and editing.
- Docking station offers VCR controls, audio and video output jacks (including S-video). Can also be operated using remote controller.
- 5 digital effects (echo, black & white, sepia, strobe, and classic film) plus pinpoint 10x digital zoom during playback.

#### EDITING FUNCTIONS

- Insert editing and stereo audio dubbing.
- Snapshot search for creating video albums.
- New random assemble editing for programmed rearrangement of up to 8 scenes at a time via remote controller.
- 5 digital effects and 17 scene transitions (by scene) during editing.
- Built-in digital time code plus computer connection using J-LIP (Joint level interface protocol) allows for future expandability.

#### USER-FRIENDLY OPERATION

- Merge point reduces the number of controls and switches.
- Unique slide-in/out electronic color viewfinder which also acts as power switch.
- Full auto mode and adjustable manual modes.
- 5-sec. rec (DwllFix) keeps scenes lively.



## JVC PROFESSIONAL

### GY-X3

#### 3-CCD S-VHS Camcorder



By employing professional camera technology in new economical ways, the new GY-X3 delivers all the performance you expect from a 3-CCD camera: higher resolution, better sensitivity, lower noise and more natural color resolution—without a hefty price tag. It features a full-size head drum, 550 lines of horizontal resolution, 80 dB signal-to-noise ratio, sensitivity of f8 at 2000 lux and minimum illumination of 4 lux. It also has XLR balanced audio inputs, time code generator (CTL), 1.5" viewfinder, powerful 14:1 servo zoom lens and much more.

#### Features:

- Non-detachable 14:1 professional servo zoom lens has a motorized iris that smoothly adjusts to varying lighting conditions. The zoom and iris can be manually operated for additional control.
- In low-light conditions, you can choose from a variety of gain settings up to +24 dB with minimal increase in noise. In addition a Maximum Gain Mode allows you shooting in near darkness. Achieves an incredible 100% video level in light as low as 4 lux
- Automatic Level Control lets you pan from a brightly lit to a dimly lit area in one take, without adjusting gain settings.
- The GY-X3 automatically detects and applies the correct amount of gain so you can concentrate on getting the shot
- Full Time Auto White function analyzes the light sources' color temperature and continuously corrects changes.
- Follow a bride from outdoor sunlight through a fluorescent lit hallway into a reception room and never have to adjust the white balance. Also indispensable when shooting outdoor sunset weddings.

- Extended Electronic Iris provides a continuously variable shutter without using ND filters. Allows smooth continuous point and shoot work from dark hallways to bright outdoor settings.
- 1.5" high resolution viewfinder displays tape remaining, date and time and battery condition. Key parameters like audio levels can also be superimposed over the picture if desired.
- Two-channel Hi-Fi audio recording (with separate XLR balanced inputs) plus a linear audio track
- Variable Scan Mode for flicker-free shooting of computer CRTs
- Designed to be as comfortable as it is affordable. Weighing only 12.8 lbs. including lens and viewfinder, the camera is perfectly balanced for exceptional comfort. All controls, including audio level adjustments are at your fingertips.
- Built-in Control Track (CTL) time code generator writes absolute frame address data onto the control track of the tape. When the tape is played back in the JVC Edit-Desk system (see below), the time code data is accessed, thus ensuring accurate logging and editing. In addition, the GY-X3 logs each view recorded scene in the "user bit" portion of the time code. This Scene Finder function lets you quickly locate the next or previous scene with the Edit-Desk system. Scene numbers are also displayed in the LCD display of the camera.

### GY-X2B

#### 3-CCD S-VHS Camcorder

- Newly designed three 1/3" CCD image sensors deliver 750 lines of horizontal resolution and superb signal-to-noise ratio of 82dB
- New micro-lens technology provides exceptional sensitivity of f8.0 at 2000 lux and L.LUX 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 EEL 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



- 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 an on-board battery attached.
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**BR-D50**  
Digital Player

**BR-D80**  
Digital Editing Recorder

**BR-D85**  
Editing Recorder with Digital I/O and Pre-Read Editing

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

The first affordable, broadcast quality digital video recording and editing system, the Digital-S series reproduces 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 a very mild 3.3:1 compression ratio 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. So whether you purchase the entire system or one component at a time, its flexibility allows you to utilize your existing equipment, while upgrading at your own pace. Digital-S starts with the versatile BR-D40 Dockable Recorder. Built with the same attention to detail, quality and features as the rest of the Digital-S components, it's designed to produce the highest quality raw footage. To ensure perfect, frame-accurate in-camera edits, JVC equipped it with automatic editing which utilizes a built-in time code reader/generator. Editing the tapes from multi-camera or iso-cam shooting is also facilitated with the BR-D40's time code input and output slave-lock function.

You can edit your tapes with a choice of two powerful editing recorders. The top-of-the-line BR-D85 with pre-read and digital I/O or the more economical BR-D80 without pre-read capability and optional digital I/O. Completing the line is the BR-D50 Player and the flexible BR-D51 Player with S-VHS playback. Both players accept the optional SA-D50U digital I/O interface card.

### Broadcast Quality Digital Video

- Utilizes 4:2:2 digital component processing to add a richness and warmth unobtainable with any lesser system. In addition, only 4:2:2 digital component signals will stand up to the rigors of sophisticated chroma-keying, multi-generational editing, special effects, blue-screen compositing, matting, ATW up/down conversion, and multiple transconversion between compression systems.
- To reproduce the finest colored details and subtlest contrasts while significantly minimizing artifacts Digital-S employs an 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 or 540 TV lines. Also provides an incredibly high S/N ratio of 55dB.
- Audio quality is just as impressive as the video. Audio is recorded by 2-channel, 16-bit PCM signals with a sampling frequency of 48kHz. The audio is superior to compact disc and also allows frame accurate editing. Either of the PCM audio channels can be edited independently.
- Standard analog inputs/outputs provide outstanding performance for the majority of applications. When virtually perfect dubs are required they use the industry standard SMPTE 259M for digital video and AES/EBU for digital audio. The one true digital video standard in use today, SMPTE 259M permits long cable runs and is used for direct professional connection to digital switchers, disk-based recorders & digital tape recorders.

### Robust 1/2-inch Format

- To help achieve its super-high image quality, Digital-S uses a robust, 1/2-inch metal particle cassette tape. Although the same dimensions as VHS, the cassette housing features a newly developed dust-proof structure which increases the life of your tape 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 error correction circuitry so powerful, that not only does it replace data in the unlikely event of a tape dropout but it continues to play back a picture even with a clogged head. An error indicator located on the front panel informs you of tape condition.

### 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 & is available within a range of 1/2X.
- The longitudinal tracks include two auxiliary audio (cue) tracks & a control track for tracking purposes. The cue tracks allow for 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.
- An auxiliary video (sub-code) area stores two user selectable uncompressed lines of video, which are suitable for recording closed caption or other information located in the vertical blanking interval.

### Superior Construction

- All machines are built with a super-durable, die-cast aluminum chassis that maintains true alignment. The drum is made of material with a high silicone content for improved wear resistance.
- To ensure S-VHS compatibility, the drum structure features an upper stationary drum, a middle rotary drum, and a lower stationary drum. To eliminate the need for a thicker air film at the drum inlet and to provide stable head-to-head contact, the thickness of the rotary drum is very narrow. This configuration results in the truest track linearity. The inner drum's tapered shape also reduces tape damage, powder drag, wear and tear.
- In addition to the linear control track, there is an auto-tracking servo system which utilizes tracking signals imbedded into the rotary track to ensure precise tracking and alignment. The auto-tracking system also uses tape guides with sapphire flanges, (as opposed to steel or ceramic) to maintain perfect tape path alignment far longer. A sapphire tape cleaner provides an edge that keeps tapes amazingly clean.

### PRE-READ EDITING

(BR-D85 Only)

At one time, digital video pre-read was an exclusive feature of high-end digital systems. But with Digital-S, the BR-D85 Editing Recorder makes it available for the very first time at a very affordable price. The true value of pre-read is that it eliminates the need for an extra VTR. Operable with either digital or analog signals, pre-read lets you perform layering and AB roll editing with only two VTRs, instead of the traditional setup requiring three units. Plus, it also makes multi-format editing practical. Pre-read not only empowers you with a high-performance editing feature, but it also saves you the cost of an additional VTR.

### Operational Conveniences

- Comprehensive analog inputs/outputs (composite, S-video and component), video and audio monitor output, RS-422 interface and VITC/LTC time code.
- Built-in head cleaner automatically wipes the heads when a tape is loaded or ejected.
- Function buttons are large, illuminated and color coded, so locating the right button is never a problem, even in the dark.
- Joystick and system timing controls are conveniently located on the front panel. Shuttle wheel allows footage to be searched in color at up to 32X normal speed.
- Proc-Amp controls are available remotely through the video control connector.
- An EE mode ensures the highest quality tape capture.
- To safeguard tapes in case of a malfunction, they have a self diagnostic warning system. To further ensure proper operation, an RS-232C diagnostic service 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 compact size.

**NEW! Same as  
Panasonic AJ-D700**  
**LDK-700N**  
**3-CCD DVCPRO Camcorder**

A 1/2-inch 3-CCD camcorder, the LDK-700N utilizes advanced DVCPRO technology to offer picture and sound quality that far surpasses any of today's analog cameras—broadcast or otherwise. Incorporating the DVCPRO format (registered as D7 by SMPTE) the LDK-700N marks the beginning of a new era in affordable digital production and digital news gathering. Its advanced design brings production quality and camera ergonomics to new levels. It offers FIT CCDs, Digital Signal Processing, superb low light capability, SMPTE time code generator, Synchro Scan and a host of other features in an incredibly lightweight body. It precisely maintains picture quality with component digital processing, even during transmission and conversion. A picture of crisp detail and accurate color is recorded on a 63 minute cassette (1/4 the overall size and 1/6 the weight of a current ENG cassette, but double the recording time) that is small enough to fit in your pocket.

- Three 1/2-inch 410,000 pixel FIT (Frame Interline Technology) CCDs with advanced on-chip technology provide low noise and high performance in low light shooting. The camera section delivers 750 horizontal line resolution, 62dB signal-to-noise ratio and high sensitivity of F3 at 2000 lux.
- Easy to set-up and maintain DSP (Digital Signal Processing) optimizes picture quality and ensures that characteristics remain stable regardless of temperature changes, aging or vibrations. Sophisticated camera settings like horizontal and vertical detail, master gamma, black stretch & detail coloring can be effectively & easily adjusted—even on location.
- Also features digital circuits to assure excellent picture quality. Includes circuits for chroma detail, dark detail, 2-dimensional low-pass filter, skin tone detail, masking, auto knee & others.

- Digital component recording delivers outstanding picture quality across a 5.75 MHz (luminance) bandwidth, while S/N ratio is unbelievable 55 dB. Digital recording is enhanced by error correction, making it highly resistant to drop outs.
- Built-in SMPTE time code generator allows selection of FREE RUN/REC RUN and DF/NDF as well as user bits.

- Has a large 1.5" viewfinder with 600 lines of resolution to provide instant confirmation of focus, exposure & safe shooting area.
- Newly developed 3-D viewfinder adjustment mechanism allows fast adjustment for comfortable operation by many different operators.

- Compact size assures excellent mobility. With lens, viewfinder, tape and battery the camcorder weighs under 13 pounds.
- Consumes less than 23 watts of power and a single Anton Bauer Trim Pack battery can power it for over an hour.

- Other Features:
- Is also equipped with an Anton Bauer gold mount battery plate. When used with Anton Bauer digital battery, the remaining power is displayed in real time in the viewfinder. When used with Anton Bauer Ultra Light, the lighting on/off and recording start/stop can be linked together.

## DCR-750N DVCPRO Studio Editing VCR

The DCR-750N can playback DVCPRO and Mini-DV tapes (with adapter), enabling production of programs up to 123 minutes. It's compatible with industry-standard interfaces and supports full system expandability from serial digital video to serial RS-422 control. It provides searching speeds of 60X normal speed, machine-to-machine assemble/insert capability and incorporates DVCPRO technology for incredible picture and sound quality.

- Digital still and digital slow-motion playback at up to 1/2X normal speed with excellent picture quality.
- Shuttle search in forward and reverse at up to 60 times normal speed, as well as fast forward & rewind at 100X normal speed.
- A complete editing recorder, it has preview, review and trim functions. Using the RS-422 interface, single event editing and audio split is possible with either two DCR-750N's or one DCR-750N and another VCR.
- Compatible with existing systems like S-VHS, MII and Betacam. Has analog component/composite video and analog audio inputs/outputs so recordings made with current analog systems can be converted to the DVCPRO format.

**PHILIPS**



- Camera Section Features:
- In addition, the camera's set-up file can be saved as scene files or on IC cards. Creating and saving a variety of files makes it quick and easy to adapt the camera to different shooting conditions. The scene file feature also allows easy set-up of two or more LDK-700Ns with the same parameters. Digital setups provide perfect camera matching with unprecedented ease.
- To capture clear images even under dim lighting conditions, a 30dB gain-up allows high-quality shooting all the way down to 2 lux. There is a programmable 3-position gain switch allowing selection from 11 gain settings for complete control.
- Synchro Scan function (30.4 to 250 Hz) allows recording of computer monitors without flicker.

- VCR Section Features:
- Digital audio system delivers outstanding sound quality.
- Equipped with 48-kHz sampling 16-bit recording, 2-channel PCM digital system, the LDK-700N provides a S/N ratio of 85 dB.
- Inputs include video and genlock (BNC), XLR-balanced synchronous Mbl/Line audio inputs.

- High Resolution Viewfinder:
- Detachable eyepiece and adjustable diopter insures precise focus for nearly all prescription wearing operators.
- Simply touch a button and camera displays a list of all switch settings in the viewfinder momentarily. You can also constantly monitor only the functions you want.

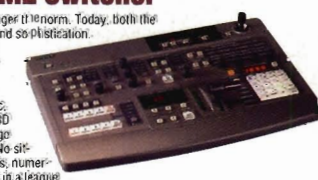
- Other Features:
- Is also equipped with an Anton Bauer gold mount battery plate. When used with Anton Bauer digital battery, the remaining power is displayed in real time in the viewfinder. When used with Anton Bauer Ultra Light, the lighting on/off and recording start/stop can be linked together.



- When virtually perfect dubs are required, the deck has 4:2:2 serial digital component (SMPTE 259M) capability with optional board.
- In addition to analog audio inputs/outputs, it features AES/EBU digital audio inputs/outputs (XLR).
- Equipped with industry-standard RS-422 editing interface as well as RS-232C interface for computer connection.
- Front-panel control provides immediate access to all operations needed in recording. There are also A/V level meters for continuous monitoring of recording and playback and in digital recording there is a channel condition indication.

## SONY DFS-300 DME Switcher

The world of video has changed, simple wipes and transitions are no longer sufficient. Today, both the video producer and the client expect a blend of dazzling special effects and so plastication. Many desktop systems can deliver these elaborate visuals, but sacrifice ease of use and dependability. The DFS-300 has both desktop versatility and hardware reliability. It features basic transitions such as wipes and mixes, as well as complex DMEs, or digital multi-effects. The DFS-300 allows you to insert sophisticated patterns like picture-in-picture, mosaic, mirror, slide and matrix wipe designs. And 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 its digital multi-effects, numerous keying options, 3D transitions and user-friendliness, the DFS-300 is a league



### POWERFUL MULTIPLE EFFECTS

- Up to 500 Effects**
- There are 330 factory preset 2D effects and wipes stored in the DFS-300 for immediate use. These include wipe, compression, rotation, slide, split, mirror, stream, etc. as standard.
- With the optional BKDF-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**
- The DFS-300 provides powerful, yet easy to operate effects programming using the positioner and other controls to build your own effects. Cut, mix, wipe, slide, rotation and many other 2D effects and optional 3D linear and digital effects such as page turn, roll and sphere 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 in creative program production, effects modification is provided for some of the preset effects such as mosaic, posterization, solarization, wave, multi-picture, strobe, frosted glass, chroma 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 with the faster lever. The automatic transitions can be varied from 0 to 999 frames in duration for both foreground and background bus transitions and the Downstream Key transitions.

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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/Recorder, 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-NS50 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.

## 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 cut-out-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 20kHz 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 DCC 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 DCC (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 VCR-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.

## 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) lets 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/shuttle 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 its 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 its class to provide near frame accurate editing. When used with edit controllers from Videonics, FAST and FutureVideo, the AG-1980 achieves an accuracy of  $\pm 2$  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 as 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 20kHz 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 efficient 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 ferretite 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 1.9 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  $\pm 3$  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.
- User friendly design features record, play, and stop switches that are well illuminated during operation.



### 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-DS50 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



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## lowel

### 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 bandrods, 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 bandrods, 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/output 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 sine wave audio tone output, locked to video
- Outputs can be easily 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 stripping tapes with color bars and black.
- Front panel selection of full-field or SMPTE color bar patterns or colorblack (blackburst) video output.
- Includes crystal-controlled, 1KHz, 0dB audio tone output.
- Outputs: video, sync, ref frame, 1KHz, 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 Insert
- TG-50 - Generator/Insert
- TRQ-50 - Generator/Insert/Search Speed Reader
- TRQ-50PC - Has all of the above plus RS-232 control.
- VG-50 - VTC Generator, LTC-VTC Translator
- VL-50 - VTC-To-LTC Translator
- VLT-50PC - VTC-To-LTC Translator / RS-232 Control
- RLT-50 - H18 (EVO-9800/9850) TBC to LTC Translator
- TSQ-50 - NTSC Test Signal Generator
- SC-50 - Serial Control Title "Industrial" CB, Time-Date Stamp, Time Code Captioning
- SAG-50 - Sata Area, Convergence Pattern and Oscilloscope Line Trigger and Generator

## NEW! 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 polygon/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

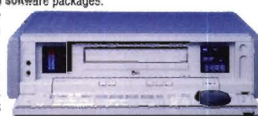
Built-in single-Frame Animation Controller eliminates the need for separate or computer plug-in animation controllers. Industry-standard protocols, make it compatible with most popular graphic and animation software packages.

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 existing 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, Fractal 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 Animation 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.

#### 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 (8000) 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 • AfterLensing ACS-51 two-piece speaker system • Princeton Ultra 17 high resolution 17" multisync monitor • Focus 2001A keyboard • Microsoft MS mouse MS-DOS 6.22 & Windows 3.11 operating system software • Adobe Premiere 4.0a for Windows video editing software

**\*7295.00**

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

## HOTRONIC AP41 STAND ALONE TBC/FRAME SYNCHRONIZER

- Compatible with S-VHS, Hi-8 and U-Matic SP equipment
- Frame synchronization with full frame memory synchronizes outside satellite, microwave and feeds with studio signals
- 4 times sub-carrier sampling, 8-bit resolution
- Adjustable horizontal and vertical blanking
- Proc-amp controls are presettable. Each control has a maximum useful dynamic range. Front panel buttons select different operational modes.
- Optional pixel by pixel DCC (Drop-out compensator)

#### AP41-SF

- Same as above plus S-Video output, freeze frame/field, Y/C adjustment and 16-speed strobe

#### AP41-SP

- Same as above plus wide-band comb filter (full bandwidth in all modes)

## PROFESSIONAL VIDEO TAPE



#### H4715 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	
P630HMP.....	4.99	E630HME.....	8.39
P660HMP.....	6.49	E660HME.....	10.49
P6120HMP.....	8.49	E6120HME.....	13.99

## maxell

### BQ Certified 8mm High-Grade

P6-60 HG BQ.....	5.09	P6-120 HG BQ.....	6.69
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### BQ Certified Hi-8 Metal Cassettes

P6-60 HM BQ.....	6.09	P6-120 HM BQ.....	7.99
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### P/PLUS Expatial VHS

T-30 Plus.....	1.69	T-60 Plus.....	1.99
T-90 Plus.....	2.09	T-120 Plus.....	2.19

### HGX-PLUS Expatial VHS (Box)

HGXT-60 Plus.....	2.69	HGXT-120 Plus.....	2.99
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### BQ Broadcast Quality Expatial VHS (Box)

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

### BQ 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

## 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! Hi8 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)

MOST-60.....	7.99	MOST-120.....	8.39
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### 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.....	8.89	KCA-60 BRS.....	11.99

**B&H SPECIAL! KCA-60 BRS.....11.99**

### 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.....	15.89

### 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).....	16.39	BCT-10M (small).....	17.39
BCT-20M (small).....	19.29	BCT-30M (small).....	19.99
BCT-60ML.....	27.99	BCT-90ML.....	45.79



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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.
- Two 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-144 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/P4 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 include:

- 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 (200K) 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 up 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**

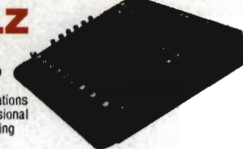
- ME62**  
Omnidirectional capsule. Very broad and smooth frequency response, without proximity effect. Its low handling noise and integrated pop screen make it ideal for interviews and live recording. Frequency response: 20-20KHz ± 2.5 dB ..... **139.95**  
ME62 with K6 Powering Module ..... **349.95**

## 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 (chs. 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.
- The 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 low-wearing contact material for longer fader life & user resistance to dust, smoke etc.
- Control room/phone matrix adds incredible tape monitoring, mixdown and live sound versatility.
- Mute switch routes channel output to extra ALT 3-4 stereo bus. Use it for feeding multitrack recorder channels, creating a sub-group via control room/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.

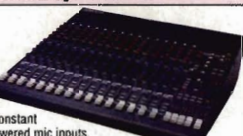


The new MS-1202, 1402 and 1604 all include VLZ (Very Low Impedance) circuitry at critical signal path points. Developed for Mackie's acclaimed 8-Bus console series, VLZ effectively reduces thermal noise and minimizes crosstalk by raising current and decreasing resistance.

### 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 mic 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, mixing 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 and signal 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 clearest 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 belt-pack, 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 clearest 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 conditions. 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
- Constructed of durable ABS housing
- 3-position power switch with standby for muting audio

### 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 nickel 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 nickel power pack (removable).
- Power chassis with dual 3-pin XLR inputs 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 allow 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-W 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 nickel 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 runtime. 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-Lite Pro virtually eliminates color shift and dramatically conserves precious battery power by using only the power required for the selected light level.

- Accommodates bulbs from 20W to 100W DC.
- Prismatic dispersion grid provides smooth even light output and reduced glare without changing light intensity.
- Sturdy all-metal 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.

ALL ITEMS ARE COMPLETE WITH ALL ACCESSORIES AS SUPPLIED BY MANUFACTURER







# ImageFX ver2.0 The Complete Image Processing Solution!



Amiga/AGA modes, EGS Spectrum, Retina, Picasso, Piccolo, Firecracker24, DCTV, ...

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Color Balancing, Correction, And Separation; Relief Maps & Motion Blurs; Solarize & Chrome; Blur, Sharpen & Unsharp Masks; Filters...

Create Lightning Bolts, Raytrace Image Onto Spheres, Ripples & Waves, Swirl Images (Even Into Other Images), Lens Flares, Paper & Canvas Textures, Turn Images Into Paintings, Water/Glass Distortions, Morphing, Warps, Stars & Supernovas, Crystallize, Rotate In 2 Or 3 Dimensions...

Amiga, Mac (MacPaint, PICT, TIFF), DOS (Gif, PCX, PIC, JPeg, Targa...), SGI (SGI RGB, Softimage, Wavefront), Animations (ANIM, ANIM7, ANIM8, MPEG, FLI...), Others (X11, Abekas, PAR, Sun...)

## ImageFX

### \$225

### Ver 2.0

## CONTROL TOWER \$195

Go To New Heights With The Flyer

With the popularity of NewTek's Toaster Flyer, there are now squadrons of users out there firing up their Toaster Towers and flying off to exciting new places every day. Control Tower is dedicated to enabling the Flyer to take you farther and in less time by providing a simple, convenient, time-saving interface with lots of options. The name implies, with Control Tower you can completely control the flight path with Flyer Option such as:

- Compositing Clips (Including Blue Screen Effects)
- Picture In Picture
- Record CG Overlays directly to Clips
- Fix Broken Projects
- Join Multiple Clips Into One
- Batch Process Frames To Clips Or Stills
- Batch File Conversions
- Batch Render through LightWave
- Create Custom Transitions through ImageFX
- Copy Lightwave Scenes and all related files to another drive
- MA or ZIP Lightwave Scenes and all related files and rewrites them to use the new paths
- Build Clips From Individual Frames (Even From Different Directories)
- Batch Image Process Clips & Frames through ImageFX & Toaster Paint
- Build projects and automatically put transitions in between clips
- Run ANY program directly from the Flyer screen
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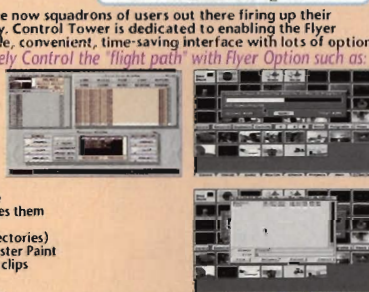
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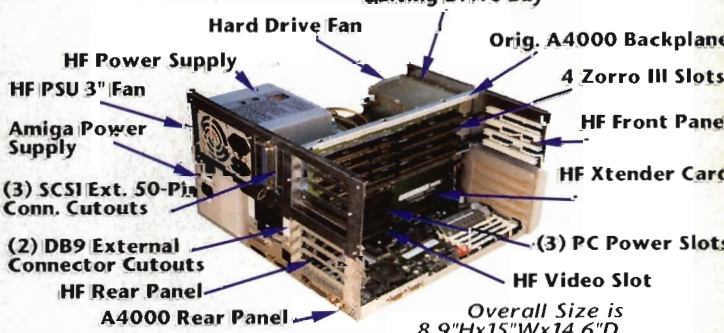
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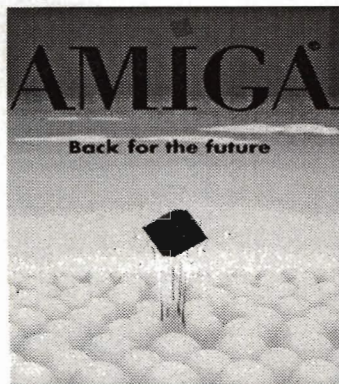
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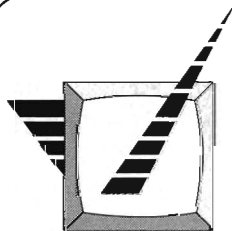
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# LAST WORD

## A Day in the Strange Life

Behind the Scenes at Foundation Imaging

by Mojo



**I**n an effort to give all of you a chance to sample what life would be like as a LightWave animator at Foundation Imaging, here is a blow-by-blow account of a Supervising Animator's Monday during a particularly busy week:

**9:00 am** - Alarm goes off. Must get up...tired from working all weekend, but must get clear of bed before...before...ZzzzzzzZzzzzz...

**9:30** - Brain starts heating up. Figures out that I had to be at work half an hour ago and forces me out of bed. I hate my brain.

**9:40** - Hit the highway. Top down, techno blasting (new Underworld album) and a cold breeze. The rest of me wakes up. Time to think of late excuses!

**10:03** - Squeal into one of the (rapidly diminishing) empty parking spaces. Maybe if I wasn't the last one to show up every day, I might get a better spot. I feel like I'm forgetting something but I don't know what.

**10:04** - Enter building. Say hello to everyone, get licked by Digby (he's a dog). Ron's not in so I am saved from using the 'plane landed on the highway' story again. I think he's beginning to have doubts...

**10:05** - On the way to my office, David stops me to look at his shot. I look. It's good.

**10:15** - A few feet closer to my office when Larry grabs me—his shot is coming along nicely!

**10:30** - I get up, ready to go to work, but now Pigeon Boy (that's Bob) needs me. I look at his screen and mumble a little. He seems to understand my guttural noises (that is the power of Pigeon Boy) so I start to head off—when I hear the sound of distant laughter. I turn around and find Patrick and Shant (pronounced Shaunt) closely studying the new National Lampoon "True Facts" book. I see actual photographs of crazy places including the "Fart Motel." "That's your place, right Mojo?" asks Shant. Ha ha. Very funny, Shant. I vow upon the grave of Elvis to exact revenge upon him.

**10:50** - Finally, I get to go to my office. Or so I thought, until the New Guy (pronounced John Bavaresco) grovels at my feet, begging for an assignment. I consult with Sherry and manage to scrape up a composite shot for him to tackle. He bows and silently returns to his hovel.

**11:00** - Still bright and early, I manage to sit down at my desk. John Teska (another Supervising Animator) seems to have burrowed in and formed a work area next to mine. He voices concern over my unusually early arrival in the office. Very funny, John. I vow upon the grave of Elvis to exact revenge upon him.

**11:15** - Sit down to PAR the shot of two cruisers ramming. It's the toughest shot in a very difficult show (it airs in two weeks and we're not finished yet!) so I

worked the weekend on it. For some reason, a bunch of frames are missing from the overnight render, but it's enough for me to see what changes need to be made.

**1:30 pm** - I turn in the scene for another test render. It should be finished in an hour or so. Everyone else already left for lunch, so I run errands and eat Ron's leftover Gumbo. Delicious!

**2:30** (Well, maybe 3) - I get back from lunch. 40 frames left until the test finishes. I check and see if the animators need help (OK, so I played with the dog).

**3:30** - I sit down to PAR the final test.

**3:35** - Gee, frame 35 is taking an awfully long time.

**4:00** - I mean a really long time.

**4:01** - We are informed that half the network has gone down (naturally, the half with my test frames).

**4:30** - The network's back up! OK, well, so much for the new scene. Back to the PAR.

**4:45** - Golly, this time frame 47 is the culprit! Is there something wrong with my PAR? It couldn't be that.

**5:00** - The network is down again. I grab some leftover birthday cake and go back to the new scene.

**5:30** - The network is back up! This time for good, we are told. Cool.

**5:45** - I finish my PAR and see that a few hours of work are still necessary. Oh well, I'll have to stay a little late. The sooner I get started, the sooner I finish!

**5:46** - I learn that "this time for good" is network engineer slang for 15 minutes.

**5:47** - Frustrated as hell, I grab my Nerf gun and creep up on Shant's area. Try as I may, I can't get a clear shot at him. Wait—Patrick is in plain sight. PER-CHUNK! Got him! Uh-oh, it's only a flesh wound. Just as I get ready to duck and cover, he employs an unexpected strategy and bare-hands a suction-cup dart right for David's forehead. One wet slap and a surprised look later, the entire art department (except for the ever-neutral Kevin "Switzerland" Kipper) is at war.

**6:00** - Enough playing. Time to get some serious work done on that shot. But, of course, I must first tend to David, Larry, Pigeon Boy, New Guy and Digby.

**6:30** - Quitting time! The network goes back up. What a perfect opportunity to buckle down and get to work.

**9:00** - Everyone is gone, the office stereo is at full blast (Orbital) and I finally finish the shot. I unchain the New Guy, set the alarm and head for home, eager to take what's left of the evening and relax.

**9:01 pm** - I remember what I had forgotten earlier—my Last Word column for VTU was due today! I have absolutely no idea what to write about. Work has been so busy I haven't had a chance to even consider it!

**1:45 am** - Last Word is finished.



# ImageFX



**FOR INFORMATION CIRCLE 144**



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