
Video Toaster™ System 2.0 Introduction/Addendum

Congratulations, and *thank you* for purchasing Video Toaster System 2.0!

With System 2.0, NewTek unleashes the second wave of the Video Toaster Revolution. System 2.0 fills 14 disks, and expands your Video Toaster to nearly 30 megabytes of cutting-edge software packed with new features, new effects, and new excitement.

To ensure that you gain all the benefits that System 2.0 has to offer, make certain that you read the Installation Notes on the next page. They'll provide you with valuable updates to the installation procedure.

Also, you should know that Technical Support is available during expanded hours to answer your questions about System 2.0 and its installation.

System 2.0 - the Revolution continues.

Notes and Changes to System 2.0 Installation:

- **Important!** Read these System 2.0 Installation Notes before turning to the installation instructions (Appendix 1 in the Video Toaster Manual). There have been important changes.
- The installation procedure will require approximately 40 megabytes of space on your hard drive, and up to one hour for a complete and successful installation. The procedure is automated. Once you have inserted the entire disk set, the system must process the information for a period of time, during which you should not turn off your machine. The status line at the bottom of the installation screen will keep you updated as the procedure progresses. The length of time needed for processing may vary depending on the speed of your system.
- The System 2.0 installation procedure described in Appendix 1 (Installing System 2.0) has been updated. The following notes are important:
 - (1) The install procedure will install the 3D objects from System 2.0 among your existing objects within the Toaster's Objects directory. Only those files whose names are identical to the new filenames may be overwritten. If you are in doubt, you may wish to rename your own objects for safety's sake.
 - (2) The original effects will be included in a new Project with adjusted speed settings. If you wish to keep the old effects at their old speeds, save them under a Project number higher than 005 before installing.
 - (3) A new KiKi.VT image will be installed. If you wish to keep the old image, rename it with a Framestore number higher than 003 before installing.
- The AutoHue and AutoMatte procedures described in Tutorial 1 (Installation and Startup) have been updated. AutoHue will appear first, and AutoMatte will automatically follow. You will not see the Automatte menu appear after you perform AutoHue.

Note about ARexx:

The Video Toaster is compatible with the ARexx programming language. However, due to the complex and technical nature of programming, users of ARexx *cannot* be supported by NewTek Technical Support. Its inclusion is intended primarily for developers, programmers, and advanced users who are familiar and comfortable with programming concepts. Complete documentation for Video Toaster ARexx commands is included in Appendix 22. Commands are subject to change without prior notice.

About the Addendum

Features have been added to the Video Toaster since the manual went to press. These addendum pages contain updated information. Last-minute updates, changes, and features will be found inside the back pages of this Addendum. They may even contain updates to this document.

This booklet has been printed on colored paper for easy recognition and reference. We recommend inserting it after either the Introduction or the Index in your Video Toaster Manual, whichever location will make it easiest for you to find information quickly and easily.

You may wish to make note on the appropriate Video Toaster Manual pages where an entry has been updated by the addendum. In this way, when you turn to those items in the manual, your comment (such as, "Addendum") will notify you that there is further information to be found in the addendum.

Technical Support Phone Number - Important Note

The FAX telephone number for Technical Support (outside US and Canada) contains an incorrect area code. Outside the US and Canada, you should dial 913-231-0151. (The phone number in the manual erroneously shows an 800 area code.)

Technical Support Update!

NewTek Technical Support is continually expanding the hours during which you can call for assistance. At the time this manual was prepared, Technical Support's hours were 9am-6pm Central Standard Time. Shortly, Technical Support will be increasing those hours, with the possibility of additional hours on Saturday.

Guidelines for Calling Tech Support

With the new release of the Video Toaster System 2.0 software, there are a number of possible equipment configurations that can exist, especially between Toaster software and Operating System software. It is vitally important that you be able to inform the support specialist of your particular configuration, as this information will help the specialist determine the proper solution that much more quickly.

Please make note of your configuration below by marking the appropriate selections, and keep this sheet handy when you call Technical Support. You may want to tuck it inside the front cover of the manual. It will help both you and the support specialist to have the answers immediately at hand. If you are uncertain of the specific additions to your system, consult your dealer for assistance. You may also wish to review the Appendix titled "Computer 101" for a brief overview of the items listed below, and their function.

Software**Computer Operating System Release (circle one)**

1.3 Workbench

2.0 Workbench

Hardware

Video Toaster Serial Number _____

Hard Drive (Brand, Storage Size) _____

Hard Drive Controller (Brand) _____

Standard RAM (16 bit)(Brand, Amount) _____

Accelerator Card (Brand, Model) _____

Accelerator Card RAM (32-bit)(Amount) _____

TV Monitor(s) _____

VCRs _____

RGB Monitor(s) _____

Single Frame Controller _____

Switcher Reference - Addendum

Switcher Screen Jitter

Sometimes when you turn on or connect a video source to Input 1, the Switcher screen unexpectedly begins to jitter. It means that the Toaster has locked on to the incoming video signal on a different video field from that which it expected. (If you are familiar with how video signals are scanned in odd and even fields, this will probably not surprise you.)

To eliminate the jitter, simply click either the Take button (Return) or the Auto button (Spacebar). If you are concerned about switching sources unintentionally when you clear the jitter, select the same source on both Preview and Program and use Take. No transition will be apparent.

Page 4

The Switcher Screen (Bank Selection buttons)

The Switcher Screen is pictured on page 5. In the center of the screen, on the right, are six buttons labelled A-F. These are the Bank Selection buttons. They represent the six special effects grids, or banks, of the Toaster.

To select a bank using the mouse, click the left mouse button on one of these buttons. To select a bank using the keyboard, hold down the shift key and press the corresponding letter of the desired bank.

Page 5

Exiting Switcher

The keyboard combination that returns you to the Workbench, Ctrl-Ctrl-LAlt-LAlt, is a direct route to the operating system of the computer. It is intended to be used as a developer/programmer's tool rather than a standard Toaster feature, and may not function as reliably as expected. Therefore, you should use it only when necessary, and only when the Switcher is in a "normal" state (when it is not in mid-transition, luminance keying, or working with CG text pages, for example). Even then, we recommend that you do not use this facility when in a recording situation. It is best used, if at all, in the off-line environment.

The Switcher Busses

The text states that you need to click twice on an effect icon to trigger the effect. In fact, once an icon has been selected, any subsequent click will trigger the effect. Double-clicking is only necessary to select a new effect and then trigger it in one step.

Page 7

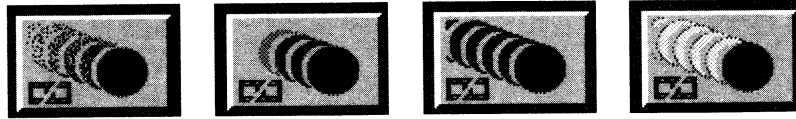
The Freeze Button

At certain times the Freeze button may seem to be stuck so that it will not "unfreeze." This condition results after you enter ToasterCG and return to the Switcher. To restore the Switcher, click once on any effect icon.

There is always an effect selected in one of the effects banks. When you enter ToasterCG, the current effect "deselects" itself, so that it is inactive. When you return to the Switcher, this condition is still in effect: i.e., no effect is active. The Freeze button will not unfreeze until you have selected an effect from one of the Switcher banks. Any icon will do. Once you have performed this action, both the Freeze button and the Toaster will again function as you expect.

Grabbing and Saving Eight Fields

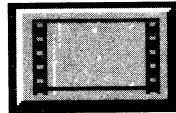
The following image shows the Eight-Field Effects described in the text, for easy identification. These effects can be found on Bank F of the System 2.0 Project.



Special Effects Icons

Old Film

There is a new "Special" Effect icon called Old Film. The effect of Old Film is to make the Program source look like an old strip of scratched film. It is designed to repeat itself until interrupted (by clicking the right mouse button). This is not a transition between the Program and Preview Bus video sources. When you interrupt the effect, the Program output remains on the same video source, only the effect is stopped.



Old Film

Countdown

There is a new "Special" Effect icon on effects bank F, called Countdown. This effect is similar to film leader in that it overlays a countdown (from 5 to 2, with two seconds of blank) on the Program source before cutting to the Preview source. This is traditionally used to precede film and video productions so that a duplication facility (or broadcast director) knows exactly when the program material begins. (For further information on how to use Countdown, see **Preparing a Video Tape for Duplication/Distribution**, later in this addendum.)



Countdown

Effects that use Matte Colors

Certain Switcher effects (listed below) are preset with their own matte color, regardless of the currently selected BKG color. If you wish you can change this color, select the effect, then choose a new BKG color before triggering it. Here are the steps. They work with both live video and digital still frames.

- 1 Select the effect.
- 2 Go to Toaster Preferences.

This is the button icon that shows an image of a floppy disk with a question mark on it.

- 3 Select a background color.

Select any color *other than the current color*. If you choose a color that is already selected (depressed), your choice will not be recognized. This is necessary, otherwise the Toaster does not know you have changed anything. To re-use a color that is depressed, select another color, then reselect the color you wish.

- 4 Click OK to return to the Switcher.

At this point, the method you choose to trigger the effect will determine whether the effect uses its default color or your selected background color.

- 5 Click Auto (or the icon, or Spacebar) to trigger the effect with your selected background color.

Remember that the moment you select a new effect, that effect's default color value will be used. The BKG color you select just after selecting a matte color effect will be used for the selected effect only.

Table: Effects that use Matte Colors

Below is a table of the normal default colors for these Toaster effects.

KiKiFX

KiKi Wave *black* KiKi Legs *black* KikCartWheel *black* KiKi Twirl *black* KiKi Peep *black*

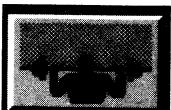


ActionFX

QB Pass *black* Pitcher *black* Basket Pass *black* Tennis Serve *black* Golf Swing *black*



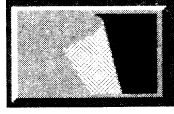
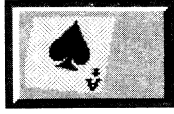
WeightLifter *black* Mr. Clean *black*



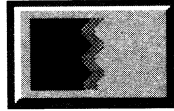
Below is a continuation of the table of normal default colors for Toaster effects.

Other Effects

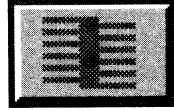
Falling Sheep *white* Tear Page *white* Flying Ace *white* PeelWhtBkg *white* ClapBoard *white*



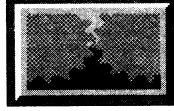
Sine Matte *snow*



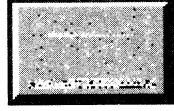
MatteSlats *snow*



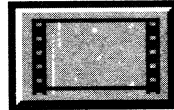
Gear Up *snow*



Bad Tape *snow*



Old Film *black*



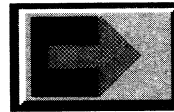
Iris *black*



Countdown *black*



Arrow *red*



Hints and Tips

Changing Sources

Many effects still leave the keyboard commands available in mid-transition. Therefore, when halfway through a transition, you can still change sources (generally on the overlay and program busses).

More "Special" Effects

You can achieve stunning and unusual special effects using the Toaster's digital framebuffers and certain effects. To see how this works, you need a video source on Input 1 (or any of the Toaster's four inputs). Then follow the steps below.

- 1 If the Freeze button is unselected, go to Step 2. If it is depressed, click on it once to clear it.
- 2 Select Input 1 (or your other source) on the Preview Bus.
- 3 Select Input 1 (or your other source) on the Program Bus.
- 4 Click on DV1 on the Program Bus. Both framebuffer buttons will indent.
- 5 Select an Organic Effect, such as Explode.
- 6 Hold down the right mouse button and drag the mouse until the transition effect is only partially completed. You'll see a faint representation of this on the interface screen. Let go of the mouse button when the effect is to your liking.

On the Program output, you'll see a combination of the original (analog) signal along with the Toaster (digital) signal, creating a broken glass kind of effect.

- 7 To complete the effect cleanly, press the Spacebar. Or drag the rest of the way down with the right mouse button depressed.

Try other Organic Effects, or any of the Toaster's digital effects, with these steps, for a great variety of special effects.

Production Tip: Preparing a Video Tape for Editing/Duplication/Distribution

The first minutes of any videotape production intended for duplication (and later distribution) are prepared in a standard format. This format allows for identification of the tape, adjustment of picture and color, and adjustment of audio levels. Individual studios may follow their own style for the opening of a video tape. If you are relatively new to video production, here is a suggested format for you to work with at the beginning of your productions.

- 1 Five seconds of blank tape. (We recommend that you record video black here, so that it does not appear to be a "blank" tape when you later check it.)
- 2 Sixty seconds of color bars (video color reference) and 0 VU audio tone (audio level reference).
- 3 Ten seconds of "slate," an identification graphic containing the title of the program, the length of the program, the director (or studio), the date of the editing session, and any other pertinent information. If the screen is full of information, you may wish to record a longer segment than ten seconds.

-
- 4 Ten seconds of black before the program material begins. Some facilities include a countdown, which always ends at the number 2, leaving two seconds of black before the beginning of the program material. If you use the Toaster Countdown effect, record five seconds of black, followed by the 5-second Countdown effect (from Switcher bank F).
 - 5 Program material, from opening segment to ending credits.
 - 6 Ten seconds of black at the end of the program.

ChromaF/X Reference - Addendum

Important Note:

If you change any of the four Effects Preset button settings at the top of the screen, there will be a noticeable delay when you return to the Switcher (via the "Switcher" button). The reason for this is that the Toaster must create and save the new filters that you have selected with those buttons. Depending on the number of changes you make, and the speed of your system, this delay may be from one to several minutes, as each filter is created and saved to the hard drive.

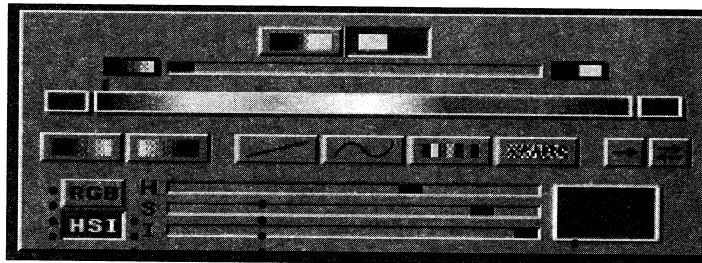
Page 6

Color Strip

The description of the Color Strip does not mention that its color display is only shown on the Toaster's Preview output. On the Interface monitor the display is black-and-white only.

Page 8

The description of the Color Strip Control Panel is incomplete. The following items should immediately succeed the Copy and Swap button descriptions (on page 8).



• RGB • HSI • Color Sliders • Current Color Box

RGB button

Click the RGB button to use Red, Green, and Blue color values with which to create color. Each value may range from 0-255. As you slide a color slider for one of these colors to the right, you are adding more of that color.

HSI button

Click the HSI button to use Hue, Saturation, and Intensity with which to create color. Hue steps through the colors of a color wheel in a 360° circle, returning to the same point at the end of the slider's range. Saturation controls the amount of color present. Saturation ranges from no color to full color. Intensity is the lightness of a color. Intensity ranges from none (black) to full (white).

Color Sliders

Use the three color sliders to adjust the color value displayed in the Current Color Box (to the right of the sliders). Each slider represents the full range of color values. Click on a slider and drag it to the left or right to set the amount, or click beside the slider, in its track, to move it in 16-level increments in that direction.

Current Color Box

The Current Color Box displays the color you are currently modifying, whose position is indicated by the Edit Marker just above the Color Strip. The Current Color Box's color display is only shown on the Toaster's Preview output.

Page 9

Color Table

The description of the Color Table does not mention that its color display is only shown on the Toaster's Preview output. On the Interface monitor the display is black-and-white only.

ToasterCG Reference - Addendum

Entering and Exiting ToasterCG.

When you enter ToasterCG and then return to the Switcher, the Freeze button may seem to be stuck so that it will not “unfreeze.” The reason is that the moment you enter ToasterCG, the current transition effect icon “deselects” itself, so that it is inactive. When you return to the Switcher, this condition is still in effect: i.e., no effect is active. At this time, the Freeze button will not unfreeze until you have selected an effect from one of the Switcher banks. Any icon will do. Once you have performed this action, both the Freeze button and the Toaster will again function as you expect.

Fonts

There are essentially two kinds of Toasterfonts used by the ToasterCG: standard ToasterFonts (to which you can assign color values), and Color ToasterFonts (which come with their own preset colors). You can tell if a font is standard or color by its name: if the word Chroma is in the name, as in ChromaGold, then it is a Color ToasterFont.

Standard ToasterFonts may be utilized on all ToasterCG page types. Color ToasterFonts may not be used on Scroll or Crawl Pages.

Page 7

Interrupting Scroll Pages

Interrupt a scrolling page at any time by clicking the right mouse button. If you have set the page to play through with a pause at the end, fade out the paused text with a click of the right mouse button as well.

Page 8

Interrupting Crawl Pages

Interrupt a crawling page at any time by clicking the right mouse button.

Page 15

Shift-F5 Shadow Distance

The imagery for this button shows four shadow distance settings, while the text describes five. There are actually five shadow distance settings.

ToasterPaint (General Notes)

Screen Flash

If you attempt an operation in ToasterPaint, and the screen flashes once in response, the Toaster does not have enough memory available to carry out the operation at the moment. Check to see if other applications are active, and unload them from memory before trying again. You may need to try out the operation on smaller areas of the screen at a time, or add more RAM to your system.

The ToasterPaint Screen Size

The ToasterPaint display is a close-up display, meaning that you view a close-up of the full-screen image while working on it. Although you only see one-quarter of the image at a time, the fully rendered image is the full image, filling the full-sized television screen. Since it is generally easier to work closer to the image, this is ToasterPaint's default setting.

LightWave Reference - Addendum

Page 8

Save Scene

Note that now the grid square size is also saved when you save a scene.

Page 13

Object Dissolve

Note that objects that are fully dissolved (100%) will be invisible in the Layout screen. The bounding box for such objects is drawn with dashed lines.

Page 19

Load Sequence

The Load Sequence button now accepts sequences consisting of Framestores as well as those made up of RGB Images. Framestores must be named and numbered consistently and sequentially.

Page 30

First Frame Delay

The First Frame Delay parameter is actually an additional delay that is added to the regular delay for the first frame. It is not the entire delay for the first frame.

Layout (general info)

When you first enter Layout (after loading one or more objects) the objects you have loaded will appear as wireframe boxes that encompass the size of the object in all three dimensions. After a moment of calculation, LightWave will draw the objects in the scene in full polygon detail. The more objects in Layout, or the more complex objects in Layout, the longer this redraw may require.

Also note that fully dissolved (100%) objects now appear invisible in Layout, as they would when rendering. Their bounding boxes are drawn with dashed lines.

View Mode

Layout views (except Camera View) can be zoomed with the < and > keys (just as in Modeler).

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Render (F10) (additional note)

- To abort rendering, press the Esc key.
- To return to Lightwave, after rendering, press the Esc key

Default Directories

Default directories for objects, scenes, etc. can be changed by editing a file known as `lw-config`, found in the 3D drawer within the Toaster directory. The full pathname of the file, assuming your hard drive is known as `DH0:`, would be as follows: `DH0:Toaster/3D/lw-config`. Certain parameters of this file are automatically updated by LightWave when you click on the Switcher button. This is similar to saving ChromaF/X settings: the act of returning to the Switcher saves them. Other settings must be altered by using a text editor. Note that this feature is commonly known as a "power user's feature." You should be familiar with the computer and text editors before attempting to edit such a file, as Technical Support cannot determine the proper filenames for your particular system.

Here is a description of each line in the `lw-config` file and its significance.

<code>LWCO</code>	Identifies the file. Do not delete or change this line.
<code>0</code>	Identifies the file version. Do not delete or change this line.
<code>SceneDirectory Scenes</code>	Assigned path for the default Scenes directory.
<code>ObjectsDirectory Objects</code>	Assigned path for the default Objects directory.
<code>SurfacesDirectory Surfaces</code>	Assigned path for the default Surfaces directory.
<code>ImagesDirectory Images</code>	Assigned path for the default Images directory.
<code>MotionsDirectory Motions</code>	Assigned path for the default Motions directory.
<code>EnvelopesDirectory Envelopes</code>	Assigned path for the default Envelopes directory.
<code>FramestoresDirectory Images</code>	Assigned path for the default Images directory.
<code>Expert Mode 0</code>	0=off, 1=on. When on, Expert Mode causes LightWave to avoid displaying the reminders that certain ray tracing options may increase rendering time, and that Print Resolution is not intended for video use.
<code>DefaultTension 0.000000</code>	This is written by LightWave automatically when you return to the Switcher.
<code>FrameEndBeep 1</code>	This is written by LightWave automatically when you return to the Switcher.
<code>RecordCommand (none)</code>	This is written by LightWave automatically when you return to the Switcher.
<code>RecordDelay 0.000000</code>	Sets Record Delay time.
<code>FirstFrameDelay 0.000000</code>	This value, added to the delay value from the Record Delay button, determines the delay prior to recording the first frame of an animation.

LightWave automatically directs file requests to the internally assigned directories listed above. To change them to directories of your preference, you can either specify full path names (with devices), or paths relative to the 3D directory. For example, assuming your hard drive is named `DH0:`, "Objects" is the same as "`DH0:Toaster/3D/Objects`," and if you wanted your images to be in "`DH0:Pics`," you could also write that as "`//Pics`" (the two slashes taking you up out of the 3D and Toaster directories to `DH0:`) or just "`:Pics`." Full path names are still clearest though.

LightWave Modeler

Lasso

Lasso is a function of the "Selection" buttons (Point, Polygon, and Volume) in conjunction with the right mouse button. Normally, after picking an item selection mode, you use the left mouse button to select these items on the Modeler screen. If you use the right mouse button, however, you activate a "lasso" that allows you to encircle items using any shape, thereby selecting them with greater precision and ease. Lasso functions differently depending on the item selection mode you choose:

- With Point or Polygon selection: Choose the Point or Polygon selection mode, move the mouse onto the workspace and, holding the right mouse button, drag a shape around the items you want to select. To select more points or polygons in addition to the current selected items, hold down the shift key and drag out another lasso. You need not re-encircle the original items; just drag out a new shape anywhere else. To deselect any points or polygons that were selected, simply drag out another lasso around the items you want to remove from "active" status.

Both Point and Polygon selection with Lasso work only in one axis, projecting directly into the screen along the axis whose edit window you choose to draw in.

- With Volume selection: Choose the Include Volume or Exclude Volume selection mode, move the mouse onto the workspace and, holding the right mouse button, drag a shape around the items you want to select.

Both Include Volume and Exclude Volume with Lasso work only in one axis, projecting directly into the screen along the axis whose edit window you choose to draw in.

Switcher and ARexx - Addendum to the Appendix

The following list is an addition to the appendix of ARexx commands for the Video Toaster Switcher.

Switcher(CHGR,<Grid Letter>)

This command is the same as clicking on one of the lettered Grid buttons. It will accept a letter from A-F and switch to that grid.

Switcher(DOEN)

This command is the same as pressing the enter key on the numeric keypad. When you are selecting CG pages, it will load the currently displayed CG page, if you are selecting effects, it will load that effect. If you are selecting framestores it will load or save them.

Switcher(GOCG)

Switcher(GOEX)

Switcher(GOLD)

Switcher(GOSA)

These commands are equivalent to the buttons on the quick access window which determine whether you are selecting CG pages, effects, framestores to load or save (respectively).

Switcher(KEYP)

Switcher(KEYN)

These commands are equivalent to hitting the "+" or "-" keys on the numeric keypad, which cycle through framestore names, CG pages, or effects.

Switcher(STAT,<Command>)

This command returns information about the status of the Switcher. The return value depends on which command is used. The possible commands are:

MAIN	Return status of the Program (main) row. The binary representation of the number returned will have a bit set for which input is selected on the Program row. Thus if input 1 is selected, the number returned will be 1 (binary 00000001). Similarly, input 3 would yield 8 (binary 00000100), DV2 would yield 64 (binary 00100000), as it is the sixth button on the row, and fills only the sixth bit (from the right) in the binary rep. of the returned value.
PREV	Return status of the Preview row in the same format as MAIN
OVLV	Return status of the Overlay row in the same format as MAIN
FREZ	Return status of the Freeze button: 0 for live video, ~0 for frozen video
TEXT	Return contents of text box in quick access panel
TBAR	Return T-Bar position (0-511)
KEYM	Return Key Mode ("BLACK", "WHITE", or "OFF")
CLIP	Return clip level (0-257, 0 and 257 are off)
SPED	Return current speed setting (-1=slow, 0=medium, 1=fast)
FCNT	Return frame count for current effect (0-9999)
KNUM	Return number in quick access panel

Switcher(FMSV, <Framestore number>, <Comment>,0) 1-field save

Switcher(FMSV,<Framestore number>, <Comment>,4) 2-field (frame motion removal) and save

Switcher(FMSV,<Framestore number>, <Comment>,5) 4 field save

These new options for saving framestores allow you to save 1 field, save 2 fields (with motion removal), or save 4 fields respectively. The FMSV command still works as it did under version 1.0 of the Switcher (it saves a 4-field save).

Switcher(WTGD,<duration>)

This command works differently with the OrganicFX than it did with older (1.0) effects. Rather than setting the duration for the effect in frames, it sets the field rate of the effect, where 1 gives 60 fields/sec, 2 is 30 fields/sec, 3 is 20 fields/sec, 4 is 14 fields/sec, etc. Since some of these effects require accelerated processors to run at full speed, an option for specifying alternate speeds for plain 68000 machines has been provided. The upper byte of the 16-bit duration value will be zero if the effect does not require special treatment on slower processors, otherwise this upper byte will contain the alternate duration. The lower byte will always contain the duration for use on the accelerated machines or on effects with zero in the upper byte. On effects that loop, (i.e. the Old Movie effect), duration parameter can represent the total number of frames for which the effect will loop. This happens when the most significant bit of the duration is set, in which case the remaining 15 bits are used for the duration value. This arrangement is necessary, since the effect would loop forever when run from ARexx, which cannot generate the (left or right) mouse button click needed to stop the looping. The maximum duration which can be set this way is 32768, which works out to about 9 mins. If the medium or slow speed are used, this effect will run at lower frame rates (20 fields/sec or 15 fields/sec), and the loop will last longer since it covers the same number of frames at a lower rate. If you run this effect from ARexx without modifying the frame count, it will loop forever, or until it hears a mouse click.

ToasterPaint and ARexx - Addendum to the Appendix

There are new action codes within ToasterPaint's ARexx command list. They let you extract 1, 2, or 4 fields from either of the two framebuffer. (The first two listed here are not new commands, per se. They are updates to the commands listed in the Appendix.)

Gdv1 grab one field from DV1
Gdv2 grab one field from DV2

Each of the two above action codes, when called repeatedly, cycles through all four fields in the framebuffer. In other words, the first call of "Gdv1" loads field 1 from DV1, the second call loads field 2 of DV1, and so forth, until you have gone through all four fields, leaving the first field next-in-line again.

Gfr1 grab two fields from DV1 (the first two fields, with motion removal)
Gfr2 grab two fields from DV2 (the first two fields, with motion removal)

Gff1 grab four fields from DV1
Gff2 grab four fields from DV2

Note that these action codes will not affect the field loading sequence of Gdv1 and Gdv2. For example, you will not be able to get to field 3 of DV1 by calling Gfr1 (grab two fields from DV1) followed by Gdv1 (grab one field from DV1).

The Genlock Utility and ARexx - Addendum to the Appendix

The Genlock Utility features an ARexx interface to allow external Amiga programs to control the video output of the Toaster. Programming knowledge and experience is highly recommended if you plan to use ARexx. The Genlock Utility's ARexx implementation uses both the command host AND the function host interface paradigm.

In a command host interface, commands are sent to the program as character strings (after the program's ARexx port has been selected to receive commands with the 'ADDRESS' directive). The name of the genlock's port is "GENLOCK_REXX_PORT." Any commands meant for the genlock utility should be preceded by the line "address GENLOCK_REXX_PORT."

The function host interface requires that the genlock utility's port be added to a list of function libraries with the 'ADDLIB()' function. Once the function host has been added, ARexx will recognize function calls made to the genlock program. Again, the name to use is "GENLOCK_REXX_PORT." The proper syntax for adding the function host is "ADDLIB(GENLOCK_REXX_PORT,0)."

The following is a list of supported Genlock commands, their function host equivalents, and a brief description of their uses. These are similar to the Switcher ARexx commands. There are also several example ARexx programs in the ARexx_Examples directory, as well as an example which will let you use the Genlock Utility with the multimedia software known as AmigaVision.

M001	M001()	Set Main (Program) Output to source 1
M002	M002()	Set Program Output to source 2
M003	M003()	Set Program Output to source 3
M004	M004()	Set Program Output to source 4
MDV1	MDV1()	Set Program Output to Framebuffer DV1
MDV2	MDV2()	Set Program Output to Framebuffer DV2
MGEN	MGEN()	Set Program Output to overlay Amiga RGB graphics
MRGB	MRGB()	Set Program Output to display Amiga RGB graphics
P001	P001()	Set Preview Output to source 1
P002	P002()	Set Preview Output to source 2
P003	P003()	Set Preview Output to source 3
P004	P004()	Set Preview Output to source 4
PDV1	PDV1()	Set Preview Output to Framebuffer DV1
PDV2	PDV2()	Set Preview Output to Framebuffer DV2
PGEN	PGEN()	Set Preview Output to overlay Amiga RGB graphics
PRGB	PRGB()	Set Preview Output to display Amiga RGB graphics
TAKE	TAKE()	Do a cut from Program to Preview out (Take)
AUTO	AUTO()	Do an automatic transition
SLOW	SLOW()	Set AUTO transition speed to Slow
MEDM	MEDM()	Set AUTO transition speed to Medium
FAST	FAST()	Set AUTO transition speed to Fast
TBAR n	TBAR(n)	Move T-bar by n (relative, i.e. TBAR -50 moves up by 50). The full range of the T-bar is 0-255.
RBUP	RBUP()	Release right mouse button (refresh preview) after transition. Use this after a TBAR command to complete the transition and reset the Switcher Busses. Otherwise, the Switcher cannot acknowledge the completion of the transition, even if the T-bar has moved through its full range.
QUIT	QUIT()	Exit genlock utility

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Video Toaster System 2.0 - Late-breaking News

Workbench Operating System - Special Information

The Workbench 2.0 Operating System Software offers a variety of screen display options that can cause display difficulties when operating (or immediately after operating) the Video Toaster. We recommend against using the following with the Video Toaster:

- **Mouse Accelerators/Screen Blankers** - These are commonly known as “Commodities” under Workbench 2.0. They can cause drawing problems in ToasterPaint, and display problems elsewhere. Even older Workbench 1.3 screen blankers and mouse accelerators can affect the Toaster adversely.
- **Overscan Display** - Any program (including the Workbench software) that can change the main computer display to an overscan mode (for example, in a paint program) can cause difficulty with the Toaster’s sync. This can result in the Toaster’s output becoming distorted. The reason for this is that the overscan mode of such programs uses display information at the top and left edges of the screen that is also used by the Video Toaster. There are two possible solutions:
 - (1) Avoid using overscan displays where possible. Acceptable display modes include 320x200, 640x200, 320x400, 640x400. Display modes that go beyond these dimensions may cause problems. Such problems are unlikely to harm anything in the Toaster or your hard drive, but they can cause unwanted display glitches.
 - (2) Activate the Video Toaster Genlock Utility prior to running another program in an overscan mode. The Genlock Utility causes most programs to shift their display downward by several pixels. This has the effect of maintaining the integrity of the uppermost display lines on screen, thus maintaining more stable sync.

Further Overscan Note: If you exit the Toaster using the Ctrl-Ctrl-LAlt-LAlt key combination, the Exit button in Preferences, or the ARexx command TOWB, you should be able to use overscan program settings without a great deal of interference (especially if you use the Genlock Utility). However, if you exit using the operating system command Amiga-N from certain Toaster screens, you are more likely to experience difficulty, since this command bypasses the more standard Toaster operations. It is not recommended.

Switcher Reference

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Further Information about Digital Effects

The chart on the top of Page 17 (titled Digital Effect “Off” Effects) shows the possibilities when transitioning offscreen using digital effects. The chart below details the possibilities when transitioning onscreen using digital effects.

Digital Effect “On” Effects

Analog over analog	OK.
Analog over live digital video	Jump cut results.
Analog over frozen digital video	Altered effect results in wipe.
Live digital video over analog	OK.
Frozen digital video over analog	OK.
Frozen digital over frozen digital	OK (from one bank to another)

Additional Effects that use Matte Colors

Following is a list of new matte effects and their default matte colors (there may be additional effects shipping in System 2.0): Squares Bord (*white*), DiamondsBord (*white*), Diag Points (*snow*), Diamonds (*snow*), Matte Curtain (*black*), CBars Flip (*color bar pattern*).

“Special” Effect Icons - Take

There is an additional special effect icon on Bank F, known as Take. The take effect duplicates the function of the Take button on the Switcher. Its purpose is to allow edit controllers (that are connected to the Toaster via the GPI connection) to trigger a take, since the trigger must activate whichever effect is selected on the effects bank. Take is therefore an effect on an effects bank.

New Effects - Warps

A new class of transition effects, the *warp*, has been added to several effects banks. You may find, if your system is not accelerated, that they move more slowly than you prefer. These effects are very memory and speed intensive, and they have been designed to move as smoothly as possible. If you wish them to move more quickly or more smoothly, an accelerator card is recommended.

Color Cycling ChromaF/X Effects and Switcher (Page 19)

ChromaF/X that are set to color cycle will stop cycling if you attempt to adjust them from the Switcher T-bar. Color cycling is "set" within ChromaF/X, and cannot be changed via Switcher controls. If you lose cycling due to this, you can either return the T-bar to the top of its range, or reselect the effect.

Preferences (Switcher)**Page 24****Save Project**

The Save Project button now saves Background and Border Color settings as part of the saved Project.

ChromaF/X Reference**Page 13**

The Effects List has had new effects added. This will cause the numbering in the list to be inaccurate. We recommend you use a pen or pencil, add the new effects filters where specified below *in the existing numerical sequence*, then renumber the sequence anew.

Insert **Gamma** immediately after effect 09 (Brightness), **MidRangeFilt** immediately after effect 33 (MidRangeTint), and **Fog** immediately after effect 52 (SoftRainbow). After renumbering the list, you should have 55 effects.

Color Cycling ChromaF/X Effects and Switcher

ChromaF/X that are set to color cycle will stop cycling if you attempt to adjust them from the Switcher T-bar. Color cycling is "set" within ChromaF/X, and cannot be changed via Switcher controls. If you lose cycling due to this, you can either return the T-bar to the top of its range, or reselect the effect.

ToasterPaint**Page 24****Grab DV1/Grab DV2**

The two-field grab option is not available within ToasterPaint.

This Addendum: ToasterPaint and ARexx (Page 16)

The two-field grab commands (GFR1 and GFR2) are not available and will not function properly if called.

ToasterCG Reference**Page 15**

Shift-F5 (Shadow Distance) is now available on Scroll and Crawl Pages (except on lines containing Color Toasterfonts).

Page 16

Alt-F5 (Shadow Direction) is now available on Scroll and Crawl Pages (except on lines containing Color Toasterfonts).

LightWave Reference

Page 13

Metamorph and Morph Surfaces Buttons - Correction

The Metamorph function of LightWave does not include the ability to morph surfaces or surface colors at this time. Metamorph allows you to alter object shape only. The Morph Surfaces button noted in the manual is not available.

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Frame Offset - Correction

This determines the first frame to use from a sequence of images. It is based on two values: the number set in First Frame, and the number entered here. These two values, added together, indicate the first image within the sequence that will be used.

For example, if you have a ten-frame image sequence being image mapped into a ten-frame animation:

- Set First Frame to 1 and Frame Offset to 0, and image 1 will appear in the first rendered frame.
- Set First Frame to 1 and Frame Offset to 5, and image 6 will appear in the first rendered frame.

Loop Sequence - Correction

Click this button to activate looping (repeating). This will cause an image sequence to repeat itself upon reaching the image number entered in Loop Length (below).

Loop Length - Correction

Loop Length is the "repeat point" for the image sequence. For example, a 30-frame sequence with a Loop Length value of 10 will repeat images 1-10 continuously throughout the animation.

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About Texture Mapping - Update

The texture types listed below, when accessed from the surface buttons listed below, do not use color for mapping. Instead, these forms of texture mapping utilize the varying brightness values of the texture type itself to map surface changes onto the object. Each control panel for these texture maps will have a Texture Value button, ranging from 0-100%, rather than the Texture Color button found on other texture map control panels (and pictured in the manual).

<i>These Texture Types</i>	<i>Accessed from these Surface Buttons</i>
Checkerboard	Diffuse
Grid	Specularity
Dots	Reflection Map
Marble	Transparency
Wood	
Underwater	
Fractal Noise	

As an example, load the scene named TextureExamples. Click the Surfaces button, and locate the surface CloudCube. Note the following settings: the cube's color is set to gray, with luminous on (so it appears self-lit), and Diffuse at 100%. These settings make the object fully visible. Transparency is set to 0%. The italicized number in Transparency indicates that there is a Transparency map active. Click Transparency, then click on the Texture button. The texture type is Fractal Noise. Its Texture Value is set to 100%. Since this texture type was selected through the Transparency button, then the Fractal Noise texture will be mapped in such a way that the pattern it creates will be transparent. (A lower setting for Texture Value would make less of the Fractal Noise pattern transparent. For example, 0% would render a completely solid white cube (there would be no transparency).

The Surface button that you use to access a texture type will determine the effect of the texture on the surface of the object. Using Checkerboard from Transparency will map the checkered pattern in a transparent manner, while using Checkerboard from Reflection will map the checkered pattern in a reflective manner. The amount of transparency, reflection, specularity, or diffuseness is set using Texture Value within the control panel of the texture map you select.

Appendix 5: Computer 101

Page 27

The location list where files are stored within the Toaster contains an inaccurate listing for CG Buffer Pages. The correct location is known as DH0:Framestore/Pages. Also, the location for fonts used by ToasterCG is known as DH0:Toaster/Toasterfonts. (These examples assume your hard drive is known as DH0:.)

Appendix 22: Switcher and ARexx

UATO

There is a new Switcher ARexx command, called **UATO**, which performs an un-auto. This command accepts no parameters, and is the equivalent of pressing Shift-Spacebar (which reverses partially-completed transitions). This command only functions when the T-bar is partially pulled down, when an effect is in mid-transition.

Appendix 24: Recommended Reading

Television Production Handbook, 5th Edition

by Herbert Zettl

ISBN 0-534-14826-3

Wadsworth Publishing Company

As the Video Toaster Manual went to press, this video production textbook was fully revised and reprinted (note the new ISBN number). It is among the most current and comprehensive volumes on television production available. Highly recommended.

Bread Box Magazine

Bread Box Magazine is now published by AVID Publications. For information on subscribing, contact AVID at the address listed in Appendix 24.

Miscellaneous

Toastfont

The Toastfont character generation conversion utility can be found within the Toaster drawer. It is no longer shipped within a drawer called Utilities.

Additional Project

There is an additional Project (intended primarily for ARexx or kiosk use) that is shipped with the Video Toaster. It is called Positionables, and can be found within the Projects directory. It contains four grids (effects banks) of each Positioner effect. If you wish to utilize this Project, use the operating system commands (or a directory utility) to rename the Project filename from Positionables to ###.PJ.Positionables (where ### is a three digit number). When the Toaster next accesses the Projects directory, it will list it as available.