ADO

FOR A WHOLE NEW WORLD OF CREATIVE POWER

AMPEX

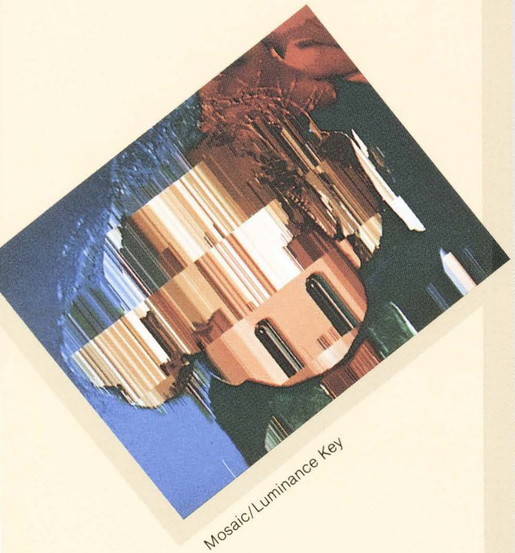
MAJOR ADO SYSTEM FEATURES AND OPTIONS:

FOR THE CREATIVITY IN EVERYONE.

Luminance Reversal

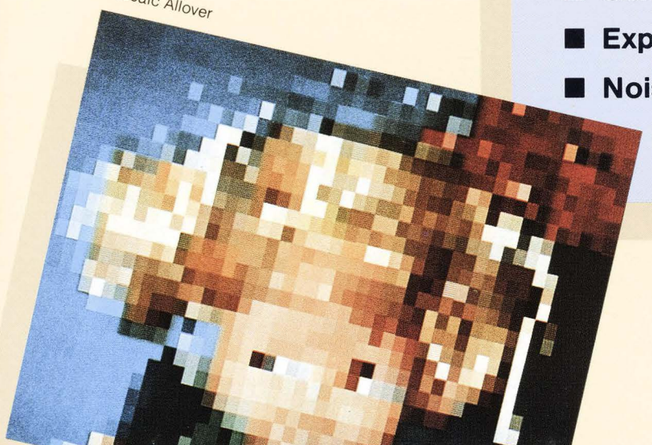
Major System Features

- Superb picture quality
- Ultra-smooth motion
- 13.5 MHz sampling rate
- Full four channel capability (user configurable)
- Real-time processing
- Outstanding reliability
- Precise picture placement (using CRT/numeric display)
- Easy effects programming
- Full effects editing
- Floppy disk (for effects archival storage)
- Dual video inputs
- Freeze frame
- Broad range of effects on frozen picture
- Background matte generator
- Key generator
- Continuously variable compression
- Expansion beyond 200 times
- Noise reduction



Mosaic/Luminance Key

Mosaic Allover

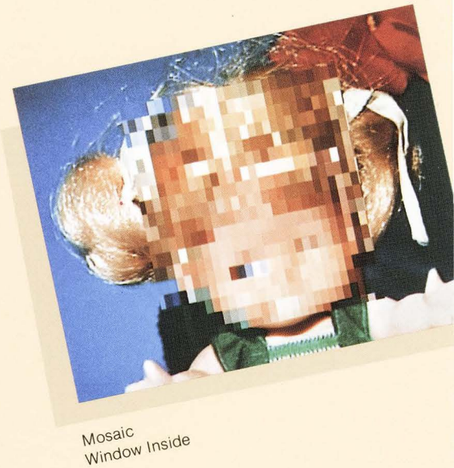


Mosaic Window Outside

Added Features & Options

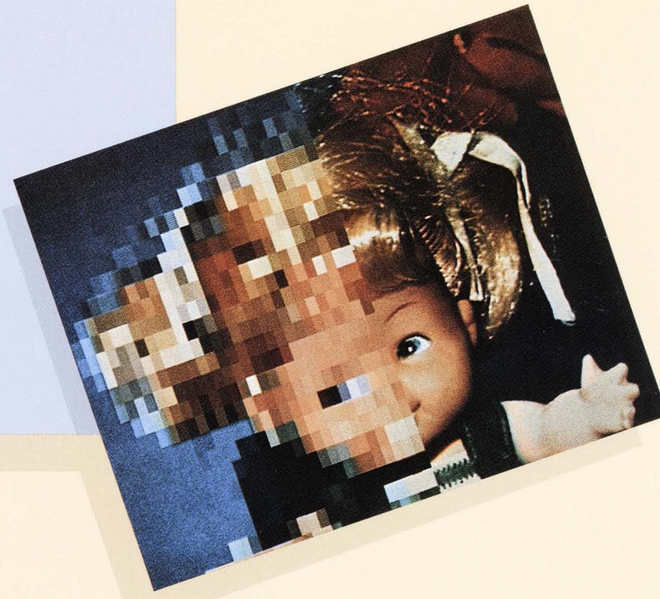
- Rotation along variable X, Y and Z axes*
- True 3-dimensional perspective*
- Mosaics (featuring luminance key, or using external keys)
- Posterization/Solarization (including luminance reversal)
- DIGI-MATTE™ key processing channel*
- Soft key edges
- Globals
- Auto cube*
- Blur
- Aspect ratio
- Picture cropping
- Interfaces to any switcher, via GPI
- Interfaces to Ampex ACE Editor

* OPTION



Mosaic Window Inside

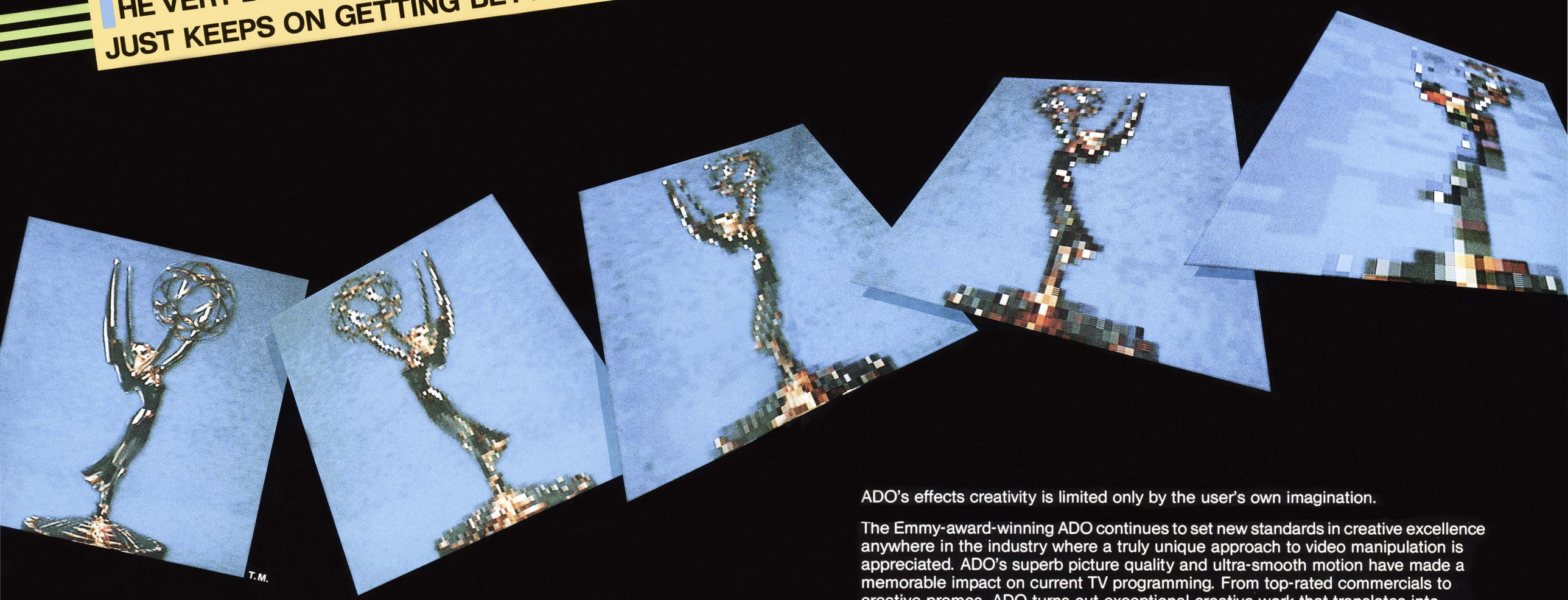
Posterize



Mosaic Wipe

THE VERY BEST IN VIDEO DIGITAL EFFECTS JUST KEEPS ON GETTING BETTER.

Besides true perspective, rotation, size/position, aspect ratio, off-axis moves, and freeze, ADO now offers mosaics, posterization/solarization, blur, soft key edges, as well as a separate high-quality external key processing channel called Digi-matte™ for key signal manipulations.



T.M.

Ampex Digital Optics (ADO) continues to take the video effects market by storm worldwide. In 1983, ADO won three major industry awards, including the prestigious Emmy.

ADO is the most versatile and asked-for digital effects unit on the market, and a proven money maker. Today, ADO is even more. It has and will continue to grow. It presently offers the creative video expert real-time video processing that's even more powerful than it was in the past.

ADO's effects creativity is limited only by the user's own imagination.

The Emmy-award-winning ADO continues to set new standards in creative excellence anywhere in the industry where a truly unique approach to video manipulation is appreciated. ADO's superb picture quality and ultra-smooth motion have made a memorable impact on current TV programming. From top-rated commercials to creative promos, ADO turns out exceptional creative work that translates into handsome profits. ADO is highly versatile — executing flips, tumbles, and spins, and allowing picture rotation about all three axes with true 3-D perspective with computerized precision and unmatched smoothness.

Ampex ADO is "user-friendly" with fixed and well-defined tasks. And for multi-channel requirements, ADO's unique user reconfigurability allows the freedom to delegate and configure multi-channel systems based on the user's production needs. All ADO channels may be used simultaneously by separate users, if required. No ADO channel ever needs to sit idle in a busy video production environment.

T.M. NATAS/ATAS

The Ampex ADO system consists of a control panel and a signal system processor. The control system uses multiple microprocessors to communicate back and forth to permit easy effects generation, and to allow real-time image manipulation. ADO offers the user a wide variety of standard operating modes, as well as many programmable modes.

MAJOR ADO MODES

Target position and size: this function allows an image to be positioned left, right, up or down, depending on how the joystick is deflected. Size/positioning provides unlimited expansion or reduction capabilities. Pictures may be reduced to zero or expanded beyond 200 times, allowing freedom for added production effects.

Source size and aspect ratio: lets the operator control aspect ratio and the size of the image in source space.

Rotation (3-D): causes rotation of the image about all three axes (X, Y and Z) in target space. ADO's unsurpassed smooth motion, along with variable motion control, permits realistic and "free-floating" rotation.

Perspective (3-D): provides true image perspective into the third dimension. ADO can give any image perspective about all three axes (X, Y and Z) for added realism and drama.

Axis select (3-D): allows positioning the axis of rotation for all 3 axes on or off the picture plane.

Locate (3-D): controls the position of the image relative to the observer's perceived point of view. This is done in conjunction with perspective.

Border width/color: lets operator control the width and color of borders surrounding the picture.

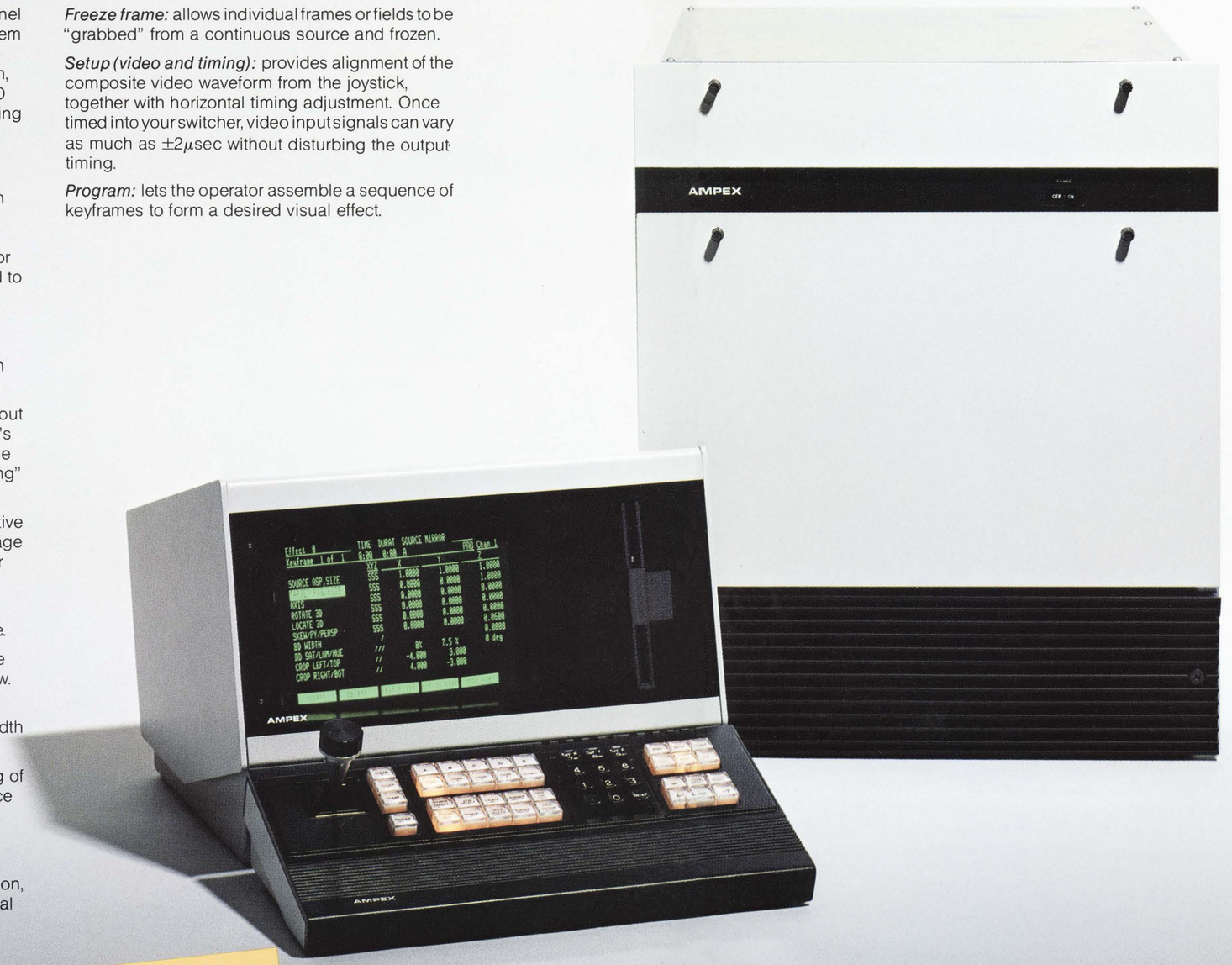
Cropping: two separate modes permit cropping of unwanted portions of a picture out of view. Once cropped, the remaining image can be fully manipulated.

Numeric entry keypad: permits the operator to specify a parameter, or to establish a time duration, by directly entering a numeric value. Incremental trimming is also possible.

Freeze frame: allows individual frames or fields to be "grabbed" from a continuous source and frozen.

Setup (video and timing): provides alignment of the composite video waveform from the joystick, together with horizontal timing adjustment. Once timed into your switcher, video input signals can vary as much as ±2μsec without disturbing the output timing.

Program: lets the operator assemble a sequence of keyframes to form a desired visual effect.



Time: a mode that permits the entering of a specific time duration for an effect's overall time, or for the time duration of an individual keyframe.

Run effect/direction: these modes permit stored keyframes to be run in real time to produce the desired programmed effect. Forward and reverse directions are both possible.

MORE OF ADO'S MODES

Mosaics: unlike most effects systems offering mosaics, ADO brings a highly versatile and creative approach to mosaic images. Mosaic capabilities include: variable block size and aspect ratio, selective mosaic placement (using luminance keying, variable window boundaries, programmable wipes, and external keying using the optional Digi-matte™ key processing channel.

Posterization/Solarization: this mode includes 16 levels of luminance mapping, 32 levels of chroma mapping and variable luminance reverse. All frozen posterized and mosaic images can be manipulated and programmed on a keyframe basis.

Soft key edges: permits the user to select seven degrees of softness.

Effects programming/editing: user has a choice of programming capabilities, including: mirroring, three types of motion selection, A or B source selection, interlace, global and grids.

Blur: allows a picture to appear "blurry" or out of focus.

Disk copy: permits large blocks of data to be transferred from a recorded disk to a blank disk.

Independent time line control: permits control of all pauses and the start/stop time of an effect, independent of keyframe locations.

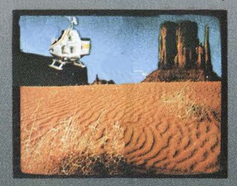
Channel identification: superimposes a large number and letter corresponding to channel and video source being viewed by the user.

A DIGITAL EFFECTS SYSTEM DESIGNED FOR EASY OPERATION.

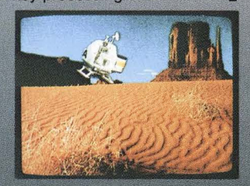
Direct Camera Input

Still-Store Input

1



(1, 2 and 3)
2-Channel with
Concentrator and Digi-matte
key processing channel 2



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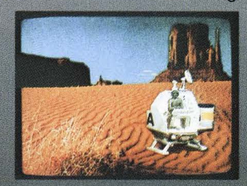


ADO is easily the most versatile and feature-packed digital effects system for the money. It was a winner before, and now it has even more to offer the creative video expert. ADO's outstanding options and accessories include:

THE ROTATION OPTION: This option gives ADO the power to combine rotation about all three axes as part of a picture manipulation within any given effect.

Not only can ADO perform X and Y rotation, but Z axis rotation as well (motions similar to the spinning of a steering wheel). These flips and tumbles may be accomplished with perspective, if so desired. As objects rotate, ADO's sophisticated electronics can actually foreshorten horizontal and vertical dimensions, providing a reality of true depth. The axis and direction of rotation parameters are constantly being updated, whenever the joystick is moved, for full-effect previewing when desired.

THE PERSPECTIVE OPTION: The perspective option is what makes ADO so special. It provides true image perspective into the third dimension. ADO takes any picture and adds perspective about all three axes. The operator can use the joystick to control the depth of the perspective. In this way, the realism and imagery of the scene can be totally controlled.

THE DIGI-MATTE OPTION: This new option allows for two independent external key inputs (A/B). The external key signal input is transformed identically with the video transformation, effectively giving the user a two-channel manipulation for keyed effects in real time. The key channel is a full 8-bit, monochrome, half bandwidth channel. This feature saves the operator time, and it eliminates the need for tying up additional equipment. In the past, two channels or a matte reel were required to perform this task. Now, both video and key inputs can be transformed in real time.

THE HUB BOX OPTION: This option acts as a buffer and line isolator for ADO's communications line. It allows four control panels to communicate on the bus isolated from one another.

INTERFACE BOX OPTION: This option is necessary for multi-channel installation whenever a "Hub Box" is not used. The interface box allows daisy chain interconnection between control panels in multi-control panel installations.

THE CONCENTRATOR OPTION: The Concentrator option is a dedicated, multi-channel digital mixer/keyer. The Concentrator is configured as a two-channel mixer that's expandable to handle up to four channels. The basic unit combines two channels in the digital domain, and it directs the combined digital image back to a selected ADO channel for final composite video conversion.

Major Concentrator operating features include:

Smooth digital keying: makes sure edges consistently line up without timing adjustments.

Auto priority: system can compute which image is in the foreground.

Manual priority: permits manual priority setting for complex effects when intersecting images occur.

Transparency: variable from opaque to invisible.

Dimness: controlled dimming of any channel to the concentrator matte background.

Light Source: a transformed image is automatically dimmed to an ambient level, depending on a light source intensity and direction.

Border generator

One or two independent matte generators.

Timing: The inputs to various ADO channels automatically maintain horizontal timing.

Self-diagnostics: internal computer can be interrogated via an external terminal (using the RS-232 port provided).

Smooth key edges: accepts smooth key edges from ADO channels.

User reconfiguration: (see chart illustration on pgs. 10 & 11) this is an exclusive feature of the ADO system. ADO can be easily reconfigured so user can get demanding production work out of all channels at the same time.

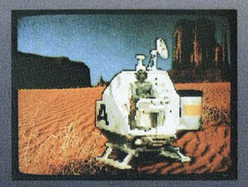
MCP/MC (MULTI-CONTROL PANEL/MULTI-CHANNEL CONTROL) ACCESSORY: This is a software-based accessory that permits a user to reconfigure a four-channel system into two, three or four completely independent systems (see illustration on pgs. 10 & 11). This accessory also provides the capability to create multi-channel effects and to run multiple channels simultaneously from a single control panel without a concentrator.

DIGITAL TEST GENERATOR OPTION: This option generates several accurate test patterns to be used during troubleshooting of the digital signal path, as well as for the precise alignment of output analog circuitry.

THE FLOPPY DISK DRIVE OPTION: The ADO disk drive option not only allows effects to be stored for archival purposes inexpensively, but it also permits the storage of setup parameters established during a creative session. Each disk holds 1350 keyframes which go to make up 60 programmable effects. A directory listing is available for record keeping, and all effects and disks can be identified by name.

OFFERING THE USER A FAR BROADER CHOICE OF OPTIONS AND ACCESSORIES.

(1 and 2)
Mosaic Inside Key Area 1



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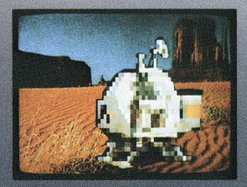

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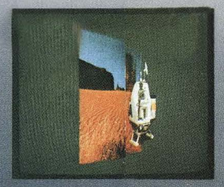
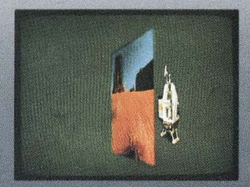
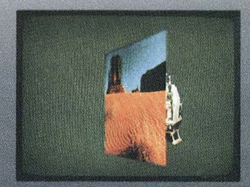


(3, 4 and 5)
Full Key Channel
Manipulation 4



5



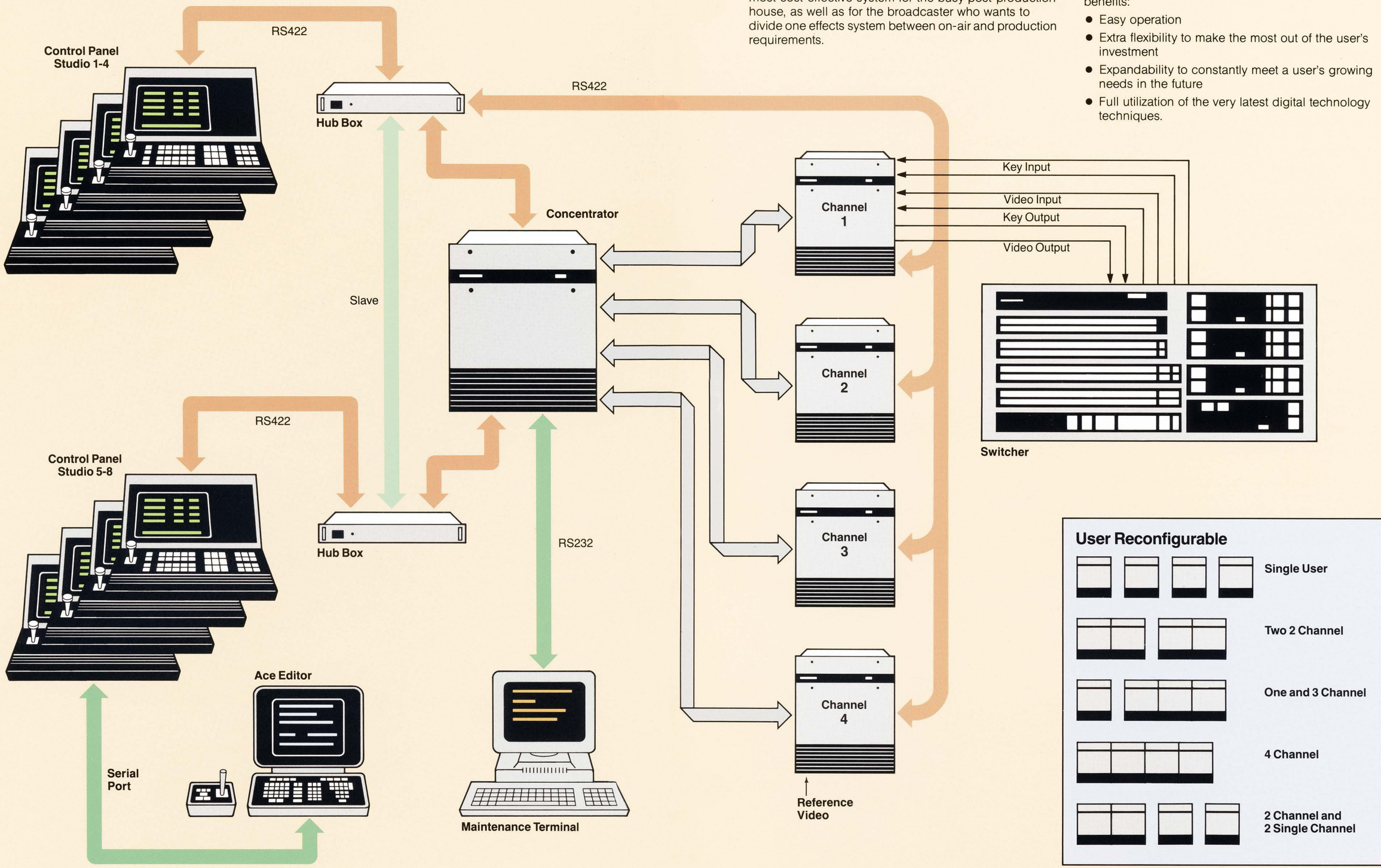
ADO: the digital effects system designed to let you use all your channels, if desired, independently.

ADO remains a highly versatile creative tool. Its unique system architecture allows the user to optimize his capital investment, and to make the best use of his equipment with a minimal number of effects channels. ADO is the most cost-effective system for the busy post-production house, as well as for the broadcaster who wants to divide one effects system between on-air and production requirements.

Review the included system block diagram for yourself. And you will see a configuration that will specifically take care of your individual needs.

ADO. It's the one digital effects system that offers all these benefits:

- Easy operation
- Extra flexibility to make the most out of the user's investment
- Expandability to constantly meet a user's growing needs in the future
- Full utilization of the very latest digital technology techniques.



User Reconfigurable

ADO SPECIFICATIONS

Physical

Signal system chassis
H: 22.72" (58 cm), W: 17.5" (44.5 cm), D: 22" (55.9 cm), Wgt: 200 lb (90 kg.)
Can be mounted in 19" equipment rack or free-stand as a tabletop unit.

Control system
Monitor housing
Contains 9" CRT and optional mini floppy disk drive
H: 11.75" (30 cm), W: 15.25" (39 cm), D: 14.5" (37 cm)
Wgt: 30 lb (13.5 kg.)

Keyboard
H: 3.25" (8 cm) max. (sloping front), W: 15.25" (39 cm), D: 7.75" (20 cm), Wgt: 8 lb (3.6 kg.)

Power consumption

110-120 VAC, 60 Hz or 220-240, 50 Hz – single phase

Signal system:	2.5 kw
Control system:	100 w

Control System

Detachable keyboard with 3-axis joystick

9-inch CRT for data display

Optional mini floppy disk drive for effects archiving

Remote data display output (Non-synchronous)

GPI Trigger Input

Serial Control... ACE Interface

Signal System Interconnects

Video Inputs: Two, BNC 75 ohm, 1 volt, Composite, Analog encoded

Key Inputs: Two, BNC 75 ohm, Composite or Non-Composite, Analog encoded (White or black in key hole.)

Video Outputs: Two, BNC 75 ohm, 1 Volt, Composite, Analog encoded

Digital Signal Data
To Concentrator: Balanced ECL Digital Data, 15 feet max. multi-wire flat cable supplied with Concentrator

Digital Control Data (between control panel and signal system): RS-422, 4-wire plus shield, 9-pin 'D' Connector Communication line. Remoteable 2000 ft. (600 meters)

Performance

Luminance frequency response:
±.5 dB to 4.2 MHz
+.5 −1.0 dB to 5 MHz
±.5 dB to 4.5 MHz
+.5 −1.0 dB to 5 MHz

Input video level range: ±2 dB

Digital signal sampling

Luminance sampling rate: 13.5 MHz

The Ampex ADO is a highly reliable product, representing years of innovative research and development in the video industry. And ADO, as with all Ampex products, is fully backed by a worldwide network of Ampex Sales Engineers. These Engineers will work with you as your ADO is installed and checked out. They are there whenever and wherever they are needed for a variety of support services including: spares and out-of-warranty board exchanges, technical support and training sessions, and technical documentation.

AMPEX Ampex Corporation, Audio-Video Systems Division

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