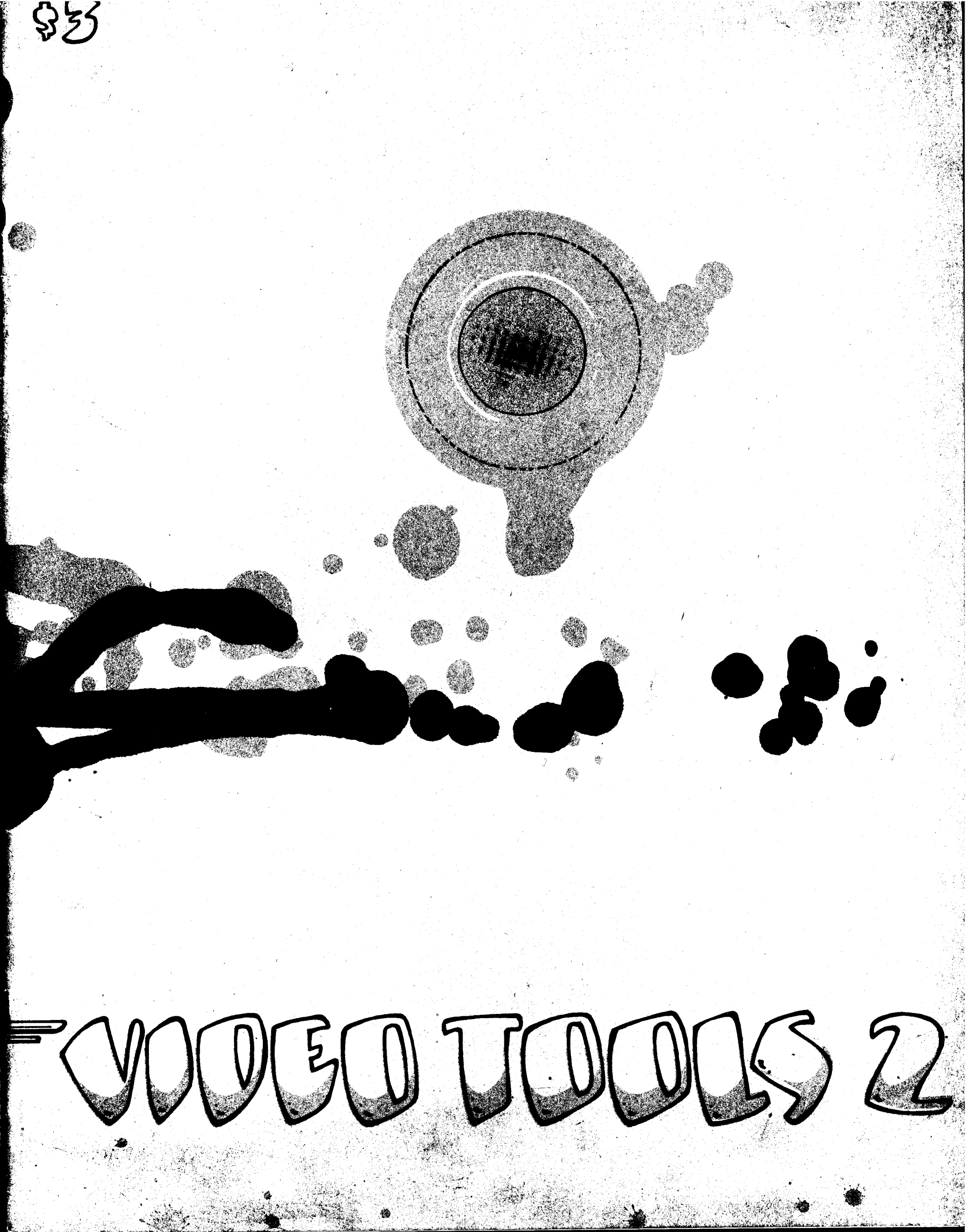
$35



VIDEO TOOLS 2

VIDEO TOOLS #2

The deadline is approaching, work marathon has been going on for about a week. It's 5:30 in the morning and here we are resting on the floor of the Egg Store control room, watched over by machines. These machines and those displayed in this book are not God's answer to humanity's problems, not more important than anything else, maybe efficient tools for communicating with the too many people on earth. (We say this even though our lives for the past months have been consumed by video and Video Tools.)

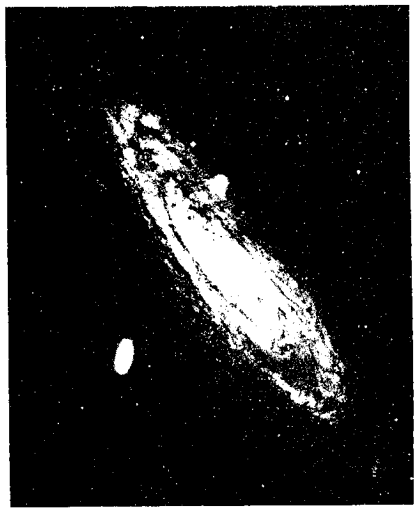
Paula & Bill

THE VIDEO TOOLS PROJECT

The Video Tools project was started last year by Cy Griffin. We worked very hard (not really knowing what we were doing) and put together Tools #1, an attempt to provide some needed information to the thousands of people using video equipment.

The response to the first book motivated us to do it again. *I'm sorry you have to pay for Tools.* Although there's lots of activity, grand plans and Lui's Cadillac, this is a small business when you come down to $s. If Video Tools can pay for itself, or come close, we can keep doing issues, maybe even supplements.

The Tools project is not just putting out a book once a year. It has set up a structure (people) within CTL to gather and disseminate information. Please call or write.



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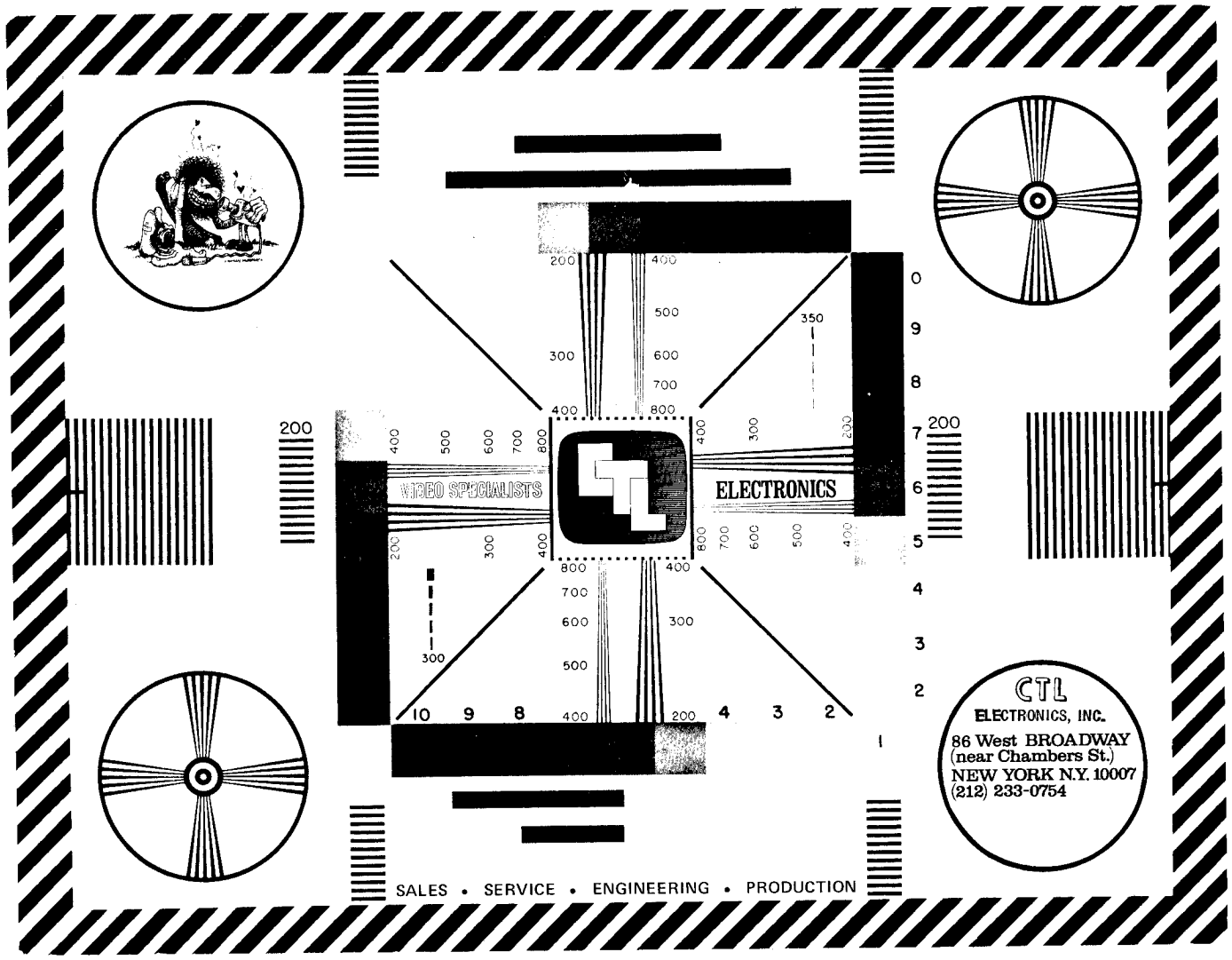
LUI AND THE CTL STAFF

SPIRITUAL PRESENCE
CY GRIFFIN

PUBLISHED BY CTL ELECTRONICS INC.



MAY, 1973

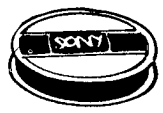
CONTENTS 1

●Chi Tien Lui started his business about five years ago in a loft at 146 Reade Street. Because Lui was willing and able to make special modifications for experimenters in the then infant medium, CTL Electronics grew quickly, attracting other talented video people.

As video moved from the lab to everyday use, our customer base has expanded to include producers and consumers around the world.

The publication you now hold is a product of our dedication to users of video.

VIDEO CLUB



SONY V-30 H ½" 30 MIN. TAPE REG. $20.00. FOB N.Y.C. **$10.50**

About a year ago we started the Club--the idea was for us to order in greater volume and pass the discount on to our customers.

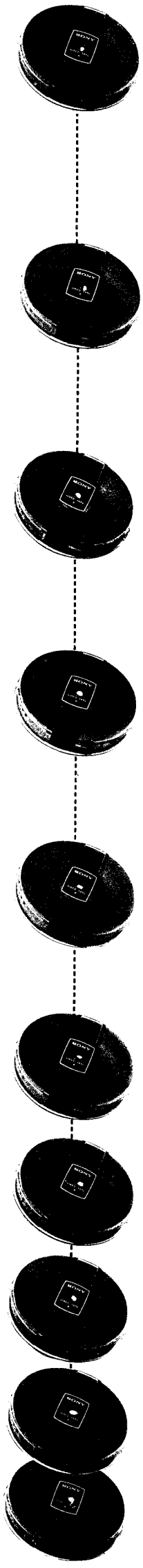
We sell V-30H Sony half-inch, 1/2 hour videotape at $10.50; V-32 Sony half-inch, 1 hour tape at $19.00 (FOB-NYC). The Club discount is on all purchases of hardware, classes, and the use of our studio facility, the Egg Store. VIDEO TOOLS is free for Club members.

The Club is open to individuals and nonprofit organizations. There is a $10.00 membership fee (for one year)--this allows us to continue and expand such projects as Video Tools, Research & Design, the Egg Store, and the Central Tape Library.

To save us bookkeeping hassles, payment for Club discount purchases is required at the time of purchase.

PRICES

When we started Tools #2 we were unaware of the fact that a big money problem was going to complicate our lives. But here we are with sinking dollars and floating yen, all the prices on goods manufactured in Japan have changed. As we go to print Shibaden hasn't gotten their new prices together. They have said that their prices would go up between 7 and 15 % -- so we added 10% to the old list price. If this seems a strange thing to do in a catalog we have three things to say, 1)Tools is much more than a catalog, 2)We are excited about getting it out, 3)WE DON'T SELL ANYTHING AT LIST PRICE.



A RAP FROM JOHN

●The change the software industry is going to make is that you'll really begin to separate the software from the hardware. When a record sells for $5 retail, you actually have the material cost of producing the record (about 50¢), with the label and jacket, wrapping it in plastic etc. Then you add in everybody's profit, including profit on the software that's there, but the basic cost of the hardware, the record that the software is on, is very low. So really, you're buying software when you buy a record. When you buy a videocassette, you're also buying a piece of hardware that costs $28 (club price). And if you try to build that into a profit structure to support your software producer on a percentage basis, it just gets unwieldy. Indeed now, you have cassettes that are selling for $2-300. So, what's going to happen is that you're going to separate the cost of the software, and you're going to charge someone for access to the software, whether they rent it, or they rent it and make a copy of it, or they have you make a copy of it for them. They're paying for use of the software, to get it from the producer's head to their own, and if they want to go back to it, fine. It's their's; I don't think they're going to exhibit it, because I think if the software's cheap, people aren't going to pay to go to a theater to see it, except in special cases, software of events. I think there will be a lot more live video events. And people will go to see those rather than something recorded.

The authorized duplicator is going to have a better-generation copy; and the price differential isn't going to be that great. It's easier and more practical to go to a legitimate distributor to get the record, than to go to somebody who's going to have a fourth- or fifth-generation copy. You've got to get close to your master with this kind of software.

The CTL Library allows any producer to put in a tape, with a form to put some handles on it so that people can find it and get it out again. As to what the producer wants to charge for access to that tape, it can be nothing, or it can be $100. The producer also has to supply a master, or submaster from which we can dub. Our contract with the producer states that after X number of passes have been made on this master, in other words, after it's been sold X number of times, it will be returned to him in return for a new copy.

Then the consumer has the option--he can rent it for that access price, and produce another copy, or he can have a copy made for him by the seller. Initially this would be very centralized, but as popular software becomes available, you'll find more and more decentralization. The record store of today with as many as 5,000 different titles in stock becomes the video-cassette store. The store owners can stock the same number of titles, but they can also continue to sell any title as long as they have raw stock in the basement--they con't have to order more copies, they've got the equipment there, and the masters on file. Again, this becomes mostly a bookkeeping expense. Eventually this library system will become part of the computer-utility libraries that will appear in the early 80s, via the cable systems.

Central Tape Library

The Central Tape Library (as we've cleverly named it) is an expanded function of the Video Tools project and the Egg Store. We are collecting masters (or sub-masters) from people who would like us to distribute their videotapes.

The hardware (cassette/cartridge, reel-to-reel, duplicating) is available at Club prices, and the software may have any price. *Paula says* we'd rather sell a tape ten times for $15 than once for $150.

We will publish an updated catalog of the tapes in the Library, and try to get your software to the many people who want and need it.

If you have software for the Library, write for an input kit (see loose page).

•TELEVISION IS OLDER THAN YOU MIGHT THINK. METHODS FOR TRANSMITTING PICTURES HAVE EXISTED FOR ALMOST ONE HUNDRED YEARS. THE FOLLOWING TIMETABLE GIVES A HISTORICAL PERSPECTIVE TO OUR FAVORITE MEDIUM, AND GIVES ALL YOU DATE FREAKS A CHANCE TO GET OFF.

John sez: I hate names and dates.

1818

Berzelius discovered an element he called selenium. When this element was exposed to different intensities of light, its ability to conduct electricity varied. We call this the *photoelectric effect.*

1830

Michael Faraday proved that electricity could pass through "nothing"--a glass bottle from which air had been extracted. This showed that electricity consisted of a stream of electrons. Faraday's bottle led to the design of the *vacuum tube.*

1868

Philip Carey thought that since the photoelectric effect could vary electric current in proportion to the intensity of a beam of light, a picture could be broken down into various intensities of light and the light transformed to corresponding pulses of electricity which could be sent along a wire.

1878

Crookes' tube emitted rays which flowed from its cathode (negative terminal) through a vacuum to its anode (positive terminal). *Cathode rays* are an unhindered beam of electrons that can be manipulated by magnets.

1880

Maurice Leblanc suggested that if each part of the picture could be separately exposed to light in rapid succession and in sequence, the illusion of the entire picture could be created at the receiving end. This idea introduced the principle of *persistence of vision* upon which the television tube depends for its effect.

1884

Paul Nipkow, a German engineer, designed a mechanical television, consisting of a scanning disk with a spiral pattern of holes which was set in front of a brightly-lit picture. The disk turned, the first hole crossed the picture at the top, the second a little lower, and so on. With a full revolution of the disk, each part of the picture would be briefly exposed in turn. The disk revolved quickly enough so that the complete scanning happened within one-fifteenth of a second (Light striking the retina persists for about one-fifteenth of a second, because of delayed chemical reaction. Therefore a picture scanned at that rate would be retained long enough to be viewed as a coherent whole.). Light passing through the holes in the disk was guided with lenses and mirrors to a selenium cell; a bright area caused a strong current to flow from the light-sensitive cell, a dark area caused a weak current. This fluctuating current was carried by a wire to a lamp. A second scanning disk was placed before the lamp, revolving at the same speed as the first. The lamp flickering through the disk reproduced the original picture. All that was lacking was a means of amplifying the impulses.

1897

Karl Braun added a fluorescent inner surface to Crookes' tube, producing a glow when struck by rays.

1923

MECHANICAL VS. ELECTRONIC
(electronic wins! Yaay!)

John Logie Baird made an apparatus consisting of an old tea chest carrying a motor which rotated a circular disk. The spindle was a darning needle and the disk had holes cut in it over which were fixed bulls-eye lenses bought from a bike shop. The projector lamp was housed in a biscuit tin. With this, Baird successfully transmitted an image of the Maltese Cross a distance of 9 feet.

In September of 1929, Baird started experimental transmission (5 1/2 hours per week) from the Oxford Street transmitter of the BBC. His total number of viewers was under 30. Baird was not all that successful; by 1932 he said that only 500 sets were in use, not counting people who might have built their own. In the summer of 1933 the BBC broadcast a request which ran:

> The BBC is most anxious to know the number of people actually seeing this television program. Will those who are looking in send a postcard marked "Z" to Broadcasting House immediately.

At about this time, things start getting really complicated as far as who invented what, and who was to be transmitting. Zworkin at RCA was vying with Philo T. Farnsworth, who conceived the basic features of today's electronic TV system in 1921, while still a high school student. EMI now realized that the future of television lay with an electronic system. EMI, composed of the former Gramophone Co. Ltd., Columbia Gramophone Co. and others, merged in 1934 with Marconi to form Marconi Television Co. Ltd. Baird and his slender resources didn't stand a chance against EMI, which had already demonstrated an electronic system to the BBC with three times as many lines (405) and twice as many frames (50).

Baird decided to try to keep up with the times and started experiments with the cathode ray tube, borrowing the system developed by Farnsworth. Farnsworth had already done a ten-day demonstration of electronic TV at the Franklin Institute in Philadelphia. He formed the Capehart Farnsworth Electronics Co. In 1949, ITT bought the company and a new corporation, ITT Farnsworth Research Corp., was formed, which later became ITT Laboratories of Ft. Wayne, Indiana.

> Television was invented in San Francisco in 1926 by Dr. Philo T. Farnsworth--despite what you may have heard from RCA (who used Dr. Farnsworth's invention even though he held all the patents) [Phil Gietzen, Video Navigators]

1955

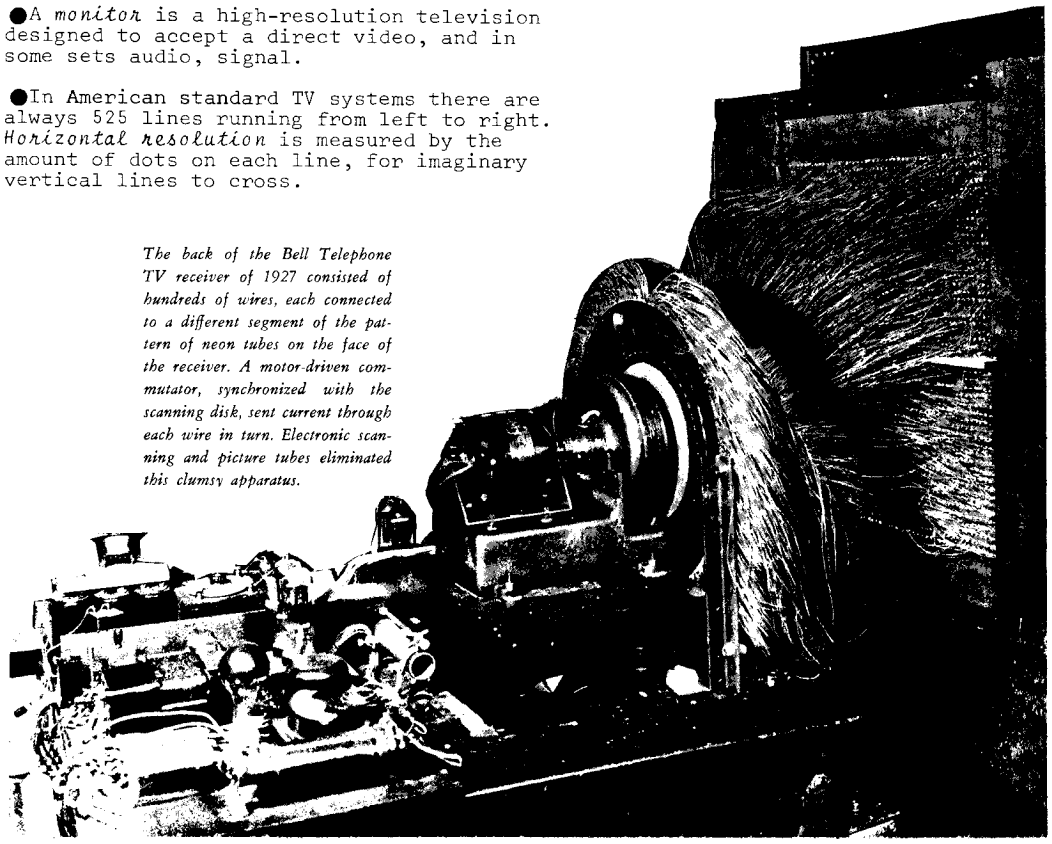
In 1955 Ampex demonstrated the first videotape recorder, making *instant replay* possible.

1968

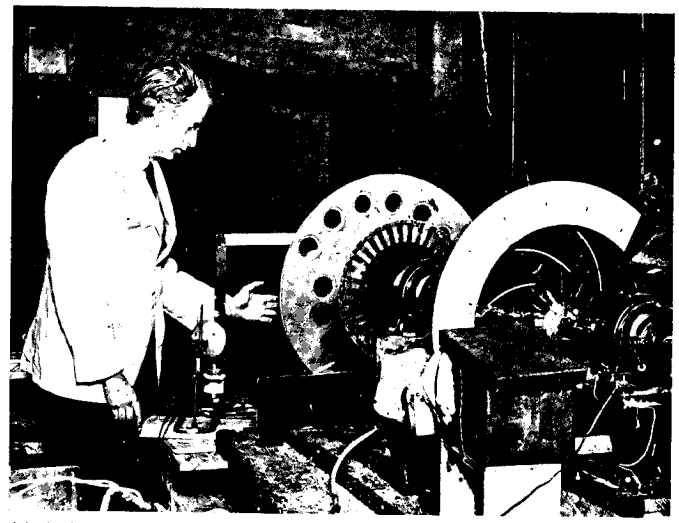
Sony marketed the first 1/2" videotape recording system (VTR). VTRs went portable in 1970.

●A *monitor* is a high-resolution television designed to accept a direct video, and in some sets audio, signal.

●In American standard TV systems there are always 525 lines running from left to right. *Horizontal resolution* is measured by the amount of dots on each line, for imaginary vertical lines to cross.

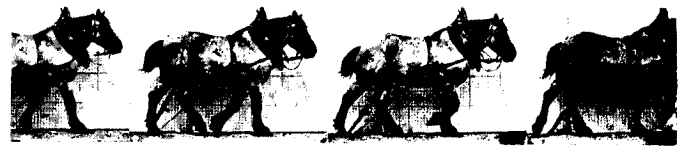


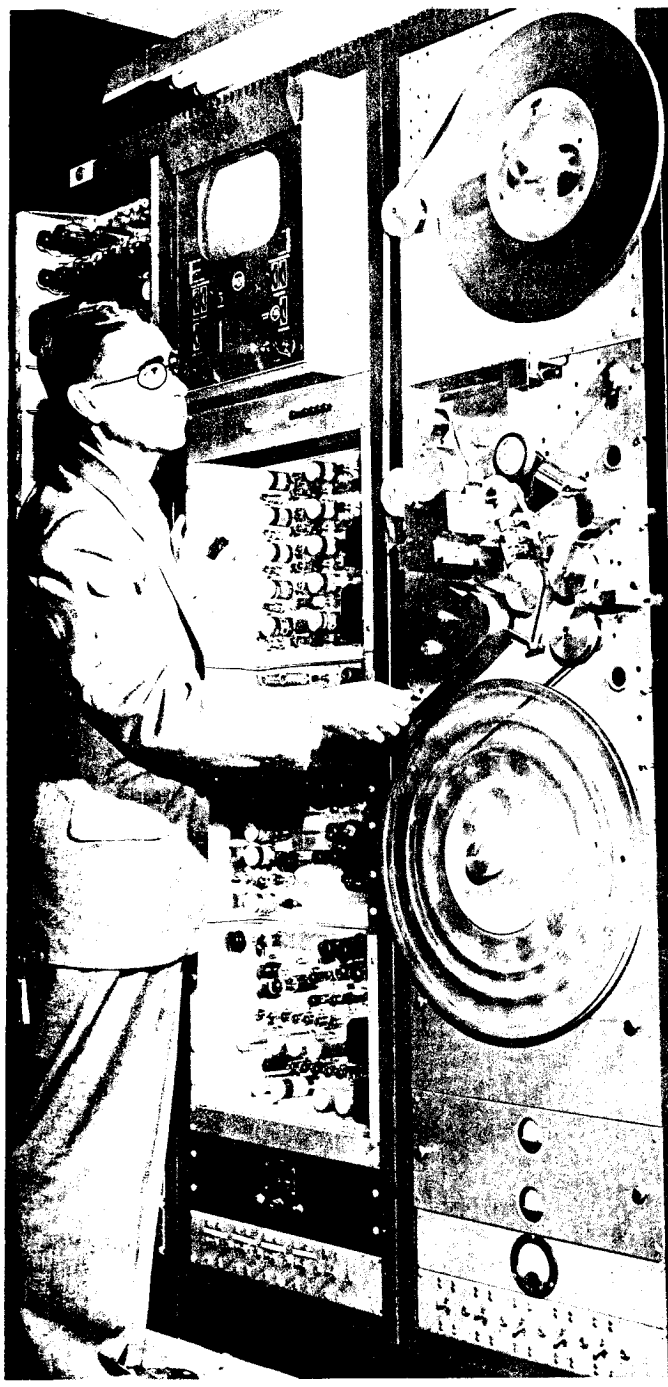
The back of the Bell Telephone TV receiver of 1927 consisted of hundreds of wires, each connected to a different segment of the pattern of neon tubes on the face of the receiver. A motor-driven commutator, synchronized with the scanning disk, sent current through each wire in turn. Electronic scanning and picture tubes eliminated this clumsy apparatus.



John Logie Baird and his apparatus, 1925

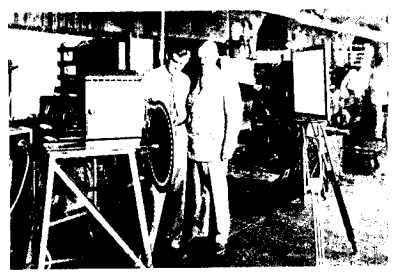
The process of recording a television picture is called kinescoping. Before the invention of videotape in 1955, a TV station that wanted to record its programs had to shoot off a studio monitor with a 35mm camera. The TV picture stored on film was called a kinescope. To broadcast a pre-recorded program, the kinescope had to be played through a film chain.



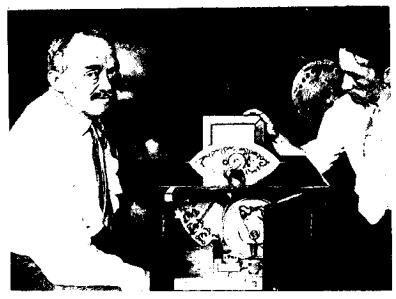


In 1883 cartoonists were still having fun with the "impossible" dream of transmitting distant views by some kind of electrical apparatus.

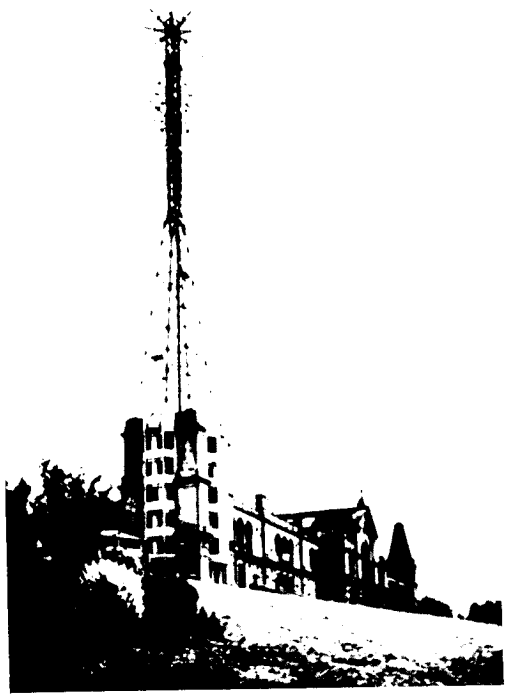
In 1955 Ampex demonstrated the first videotape recorder (certainly not a portable), allowing instant replay.



Dr. E. F. W. Alexanderson of General Electric was one of the leading pioneers in the early days of television. He appears here (right) with an associate, Ray D. Kell, inspecting the mechanical scanning disk during experiments in Schenectady, N. Y. in 1927.



Early television experimenters in 1925, using a mechanical scanning disk. The engineer holds in his right hand the picture to be televised, while his left hand operates a control button. The image was picked up through the rotating disk by a light-sensitive cell on the top of the cabinet.

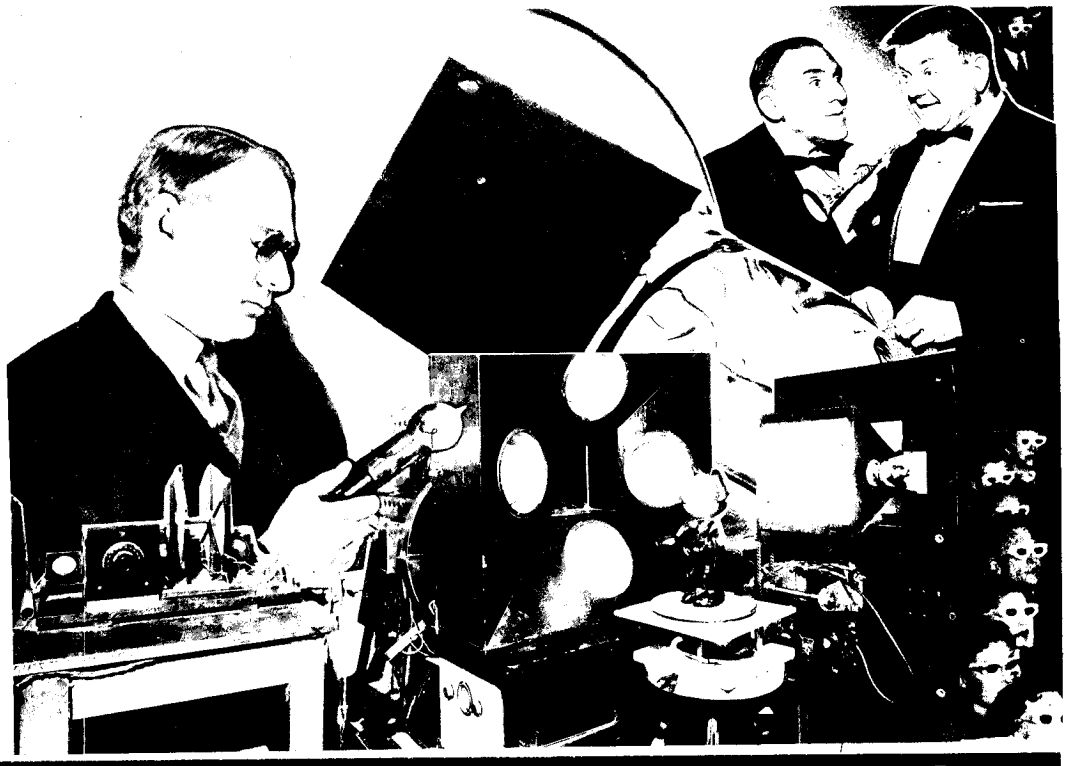


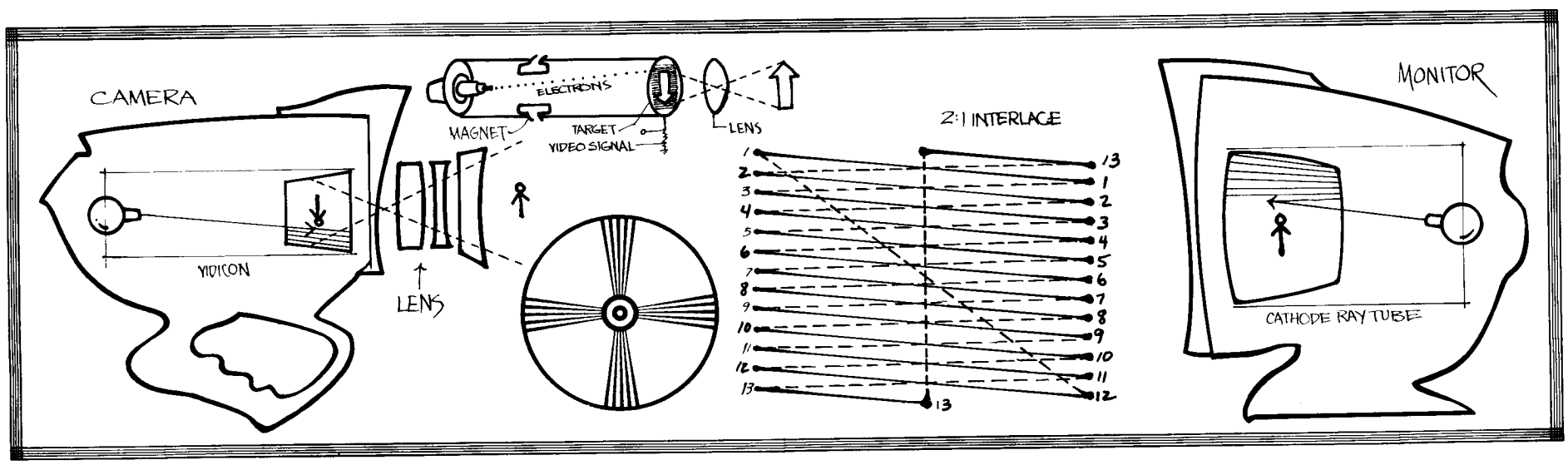
Alexandra Palace, from which regular transmissions began in 1936

The iconoscope of 1923, invented by Vladimir Zworykin, provided the first means of scanning a scene electronically, basic principle of the modern television camera.

In 1930 Felix the Cat whirled for hours on a phonograph turntable in front of television scanners, while RCA engineers in their homes made reception tests. The rig to the left of the scanning camera was the complete transmitter of experimental station W2XBS, the predecessor of WNBT and WNBC-TV.

William Bendix as Riley and Henry Kulky as Otto Schmidlapp in a 1955 episode from The Life of Riley. *This situation comedy, first shown in 1949 and revived (with Bendix) in 1953, was the prototype of a TV genre which has been described as "artificial characters in artificial situations being egged on by artificial laughter."*





CAMERA

●A video camera works in much the same way as a human eye. A lens collects reflected light and focuses it on a surface that conducts more electricity at the points where light strikes it, and less electricity where less light strikes (*photoconductivity*). In the eye, this surface is called the retina. The analog of the retina in a TV camera is the *target* of the vidicon tube. The *vidicon tube* converts light into an electrical signal, the voltage of which varies in proportion to the levels of light on the original subject. This is called the *video signal*. The reverse (inside surface) of the vidicon target is scanned by an electron beam that moves in lines from right to left starting at the bottom (middle) and moving up.

A standard American TV picture consists of 525 horizontal scan lines. Each 525-line picture is one *frame* of video. The *scanning beam* must scan the entire target twice in order to make one frame--it scans the odd lines the first time through, and the even lines on the second run. All this takes place in 1/30 of a second. Each half-frame of video is called a *field*, and each field is scanned in 1/60 of a second. If a field contains exactly half as many (262 1/2) lines as a full frame of video, then the camera used to record the information has *2:1 interlace* sync. If each field is different, then the camera is running on *random interlace* sync. Most video production equipment uses 2:1 interlace.

Sync (synchronization) consists of electronic pulses generated inside the camera or by an external sync generator. These pulses tell the scanning beam when to start each line and when to return to the top of the picture. The former are called *horizontal sync pulses* and the latter *vertical sync pulses*. The pulses are delivered to coils which act as electromagnets. The pulsing magnetic fields induced in the coils deflect the scanning electron beam in the necessary directions.

Since some time must be allowed for the scanning beam to return across the screen from right to left and from bottom to top (the *flyback* or *retrace time*), the beam has to be blacked out at the end of each line and at the very bottom of the screen. This blackout period is called *blanking*. The timing of blanking corresponds to the timing of the sync pulses in both the vertical and horizontal intervals.

At this point in the transmission process our original picture has been broken down into the electrical components of video signal, sync, and blanking.

VERTICAL WAVEFORM

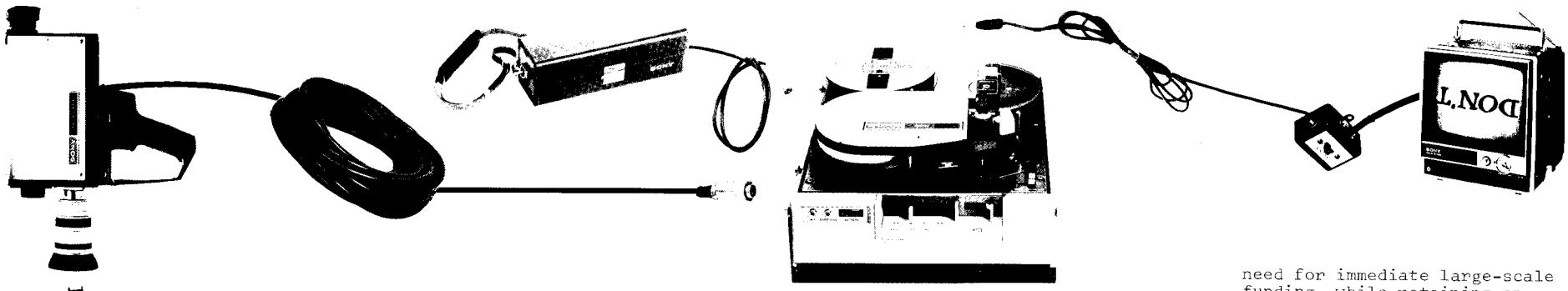
Amplifiers inside the camera boost the signal on its way to the camera output. A *coax* (coaxial cable) carries the signal from the camera output to a VTR or a monitor.

DISPLAY

●A television monitor or receiver operates by reversing the process that took place in the camera. The electrical signal coming from the camera is changed back into a visible picture which is displayed on the surface of a screen.

The *cathode ray tube* (picture tube, or *CRT*) of a TV monitor consists of a scanning electron gun, a deflection yoke which contains horizontal and vertical pulse generating coils, and a screen with its inside surface coated with a phosphorescent material. In a closed circuit system, a coax carries the video and sync signals from the camera to the cathode ray tube of the monitor. The incoming video signal drives the monitor's electron gun and the incoming sync drives the coils in the deflection yoke. The electron gun then scans the phosphorescent screen exactly in sync with the original scanning pattern that took place in the vidicon tube of the camera. The phosphorescent screen emits more light where higher voltage strikes it, and less light with lower voltage. Therefore, the highest points of the video signal correspond to the brightest parts of the picture. What the video signal actually does is vary the *voltage* of the electron gun of the monitor.

These same signals can be transmitted through the air and picked up by an antenna for home reception. Cable TV transmits the signals over very long coaxial cables using a series of amplifiers to keep the signal from degrading.



DON'T POINT CAMERA IN THIS DIRECTION

..roll your own video

●Our own experience has been in alternate television. Using low-cost portable videotape cameras and recorders (porta-paks) and related hardware, we have been able to work almost wholly outside the structure of conventional television.

Freed from the studio environment, we have generated a style which, at its best, surpasses the spontaneity of television's early days. While none of our work is as slick as conventional TV, the best of it is a rudimentary rediscovery of what television is all about. Until now, however, our experiments have been piecemeal.

We have now decided to produce a total model of what we'd like television to look like. *Our plan is to produce a four-to-six hour package of programming which integrates the best techniques of alternate television people and technology into a new grammar of TV formats.*

We have named this event *PRIME TIME*, and anticipate that it can be transmitted simultaneously on select outlets across the U.S. as a kind of "network-for-a-night."

PRODUCTION STRATEGY

Prime Time will be produced in three stages, each with a discrete budget and a usable outcome. By establishing goals for each stage, we will avoid the need for immediate large-scale funding, while retaining an overall conceptual direction. Moreover, our energy will not be gambled on an all-or-nothing scheme.

The three stages are:

1. SURVEY: We will canvass new hardware and software developments in the U.S. and Europe and compile a print and video report which can be shared by people interested in a new operating system for television.

2. PROTOTYPE: After the survey, we will produce a one-to-two hour show which integrates the best existing videotape available with special production. The prototype will be distributed to recoup its production costs, and to generate further financial and audience support.

3. PRIME TIME: On the basis of what we learn doing the prototype, we will produce an entire evening's alternate television.

Prime Time is being organized by TVTV, the same group which produced the Top Value Television convention videotapes. TVTV began as a loose-knit coalition of members of Raindance and Ant Farm, two experimental video groups, along with members of other video groups and individuals from around the country.

Prime Time and TVTV are based in San Francisco. The people who prepared this proposal are:

Chip Lord
Doug Michels
Hudson Marquez
Allen Rucker
Michael Shamberg
Curtis Schreier
Megan Williams
Tom Weinberg

● In the context of a print culture, libraries have a long, proud, and hard-won tradition of providing free and open access to knowledge. Traditionally this information has been predominantly in the form of print.

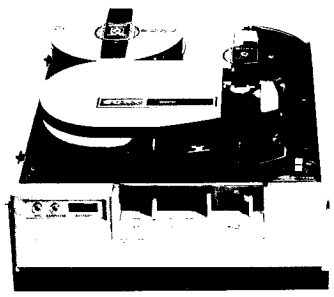
Today people seek information via the TV tube; they are users of electronic information assemblage. For the majority of Americans are literally turned on to television. And this is not just a matter of one communications format being superior to the other, it's a matter of recognizing the power of the moving image and sound.

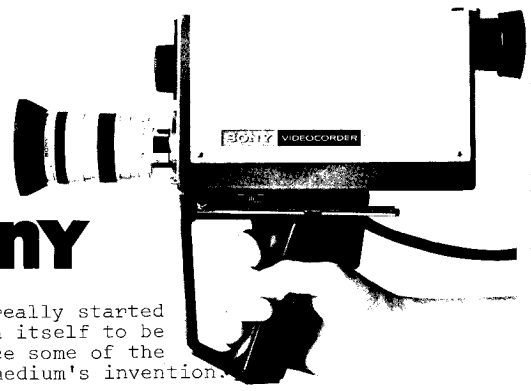
Walter Dale
Video Project Director
Port Washington Public Library
reprinted from
Film Library Quarterly, 1972

Lynda says: I've had my Sony Rover II AV-3400 for close to two years, and it still works--that's miracle enough for me.

6 PORTABLE SYSTEMS

CTL VIDEO TOOLS #2





sony

● The AV-3400 is the machine that really started the video revolution. It has proven itself to be reliable and has been used to produce some of the most exciting television since the medium's invention.

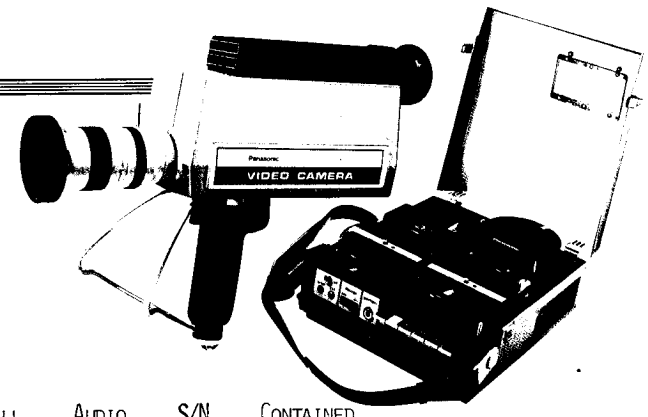
● The new Sony portable with built-in color recording capability - The AV-8400 is self-threading with the same reel that the Panasonic cartridge machine takes. It will accept a standard reel (manual threading). It has an external color box for playback; color recording is done with a box that fits in the place of the RF adapter. This is removable, so an RF can be put in for playback through a TV set. This machine has a dropout compensator with the color playback module.

Projected list price is $1,500 for the deck AV-8400, AC-1000 (AC adapter/battery charger), CLP-8000R (internal color pack for record), CLP-8000 (external color pack for playback). With a black-and-white camera, projected list price is $2,000.

prototype ▼

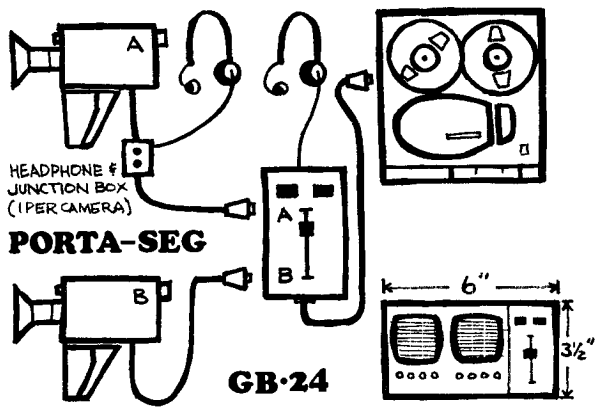
PANASONIC

● Our experience with the new Panasonic portable is limited due to its newness. Much to our surprise, you cannot use the Sony portable camera with the Panasonic portable deck; in other words, interchange of components is as yet impossible. One advantage that's immediately evident is its lightness and narrower design. The viewfinder screen is slightly larger than the one in the AVC-3400, showing a brighter image. The function controls are push levers for easier operation. There is a power switch which starts the heads turning, so you get a still as soon as you turn the machine on. The pause lever doesn't catch; for editing you would use the power switch to get the heads up to speed and leave your hands free. Unfortunately, they have designed the camera so that the handle cannot be removed.



PORTABLE	TAPE WIDTH	RECORDING TIME	COMBINED WEIGHT	VIEWING SYSTEMS	PLAYBACK	CAMERA RESOLUTION	VTR RESOLUTION	LENS	STILL FRAME	AUDIO DUBBING	S/N RATIO	CONTAINED BATTERIES	Shpg. wt.	list price
Sony AV-3400	1/2"	32 min	24 lbs	1" pic electronic viewfinder	monitor in camera	400 lines	300 lines	zoom 12.5-75	Yes	Yes	40-dB	45 min	2 pkgs. 10+40	1745.00
(color) Panasonic NV-3082	1/2"	32 min	22 lbs	1.5" pic electronic viewfinder	monitor in camera	450 lines	300 lines	zoom 12.5-75	Yes	Yes	40-dB	45 min	same	1795.00

SEE PRICES PG 2

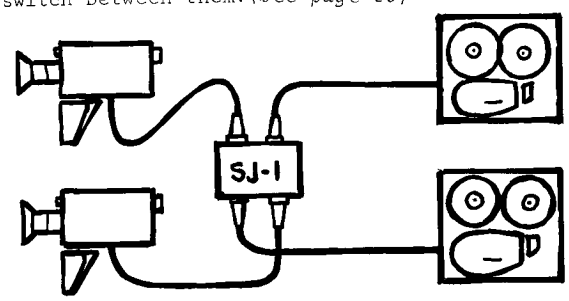


● The CTL microproduction studio enables you to go out into the field with a really portable, battery-operated special-effects generator. The SEG with 2 camera inputs does switches and fades--$220.00. 3 cameras--$285.00. The monitors measure 1" diagonally--$195.00 each. A junction box for headsets allows communication between director and camerafolk-$85.00. Headsets--$35.00 each.

This unit with cameras and VTR can run off a single BP-30; because of the added power consumption, you will get approximately 1 1/2 hours of power from that battery.

CTL SYNC DISTRIBUTOR

● Multi-deck sync junction box for AV-3400 (CTL model SJ-1--$69.00) enables you to use 2 cameras and 2 decks to record in perfect sync. One camera controls both decks. For example, when recording an interview, you would have one portapak recording Ferd, the other recording Carol. During editing, you would have Ferd on the playback deck, Carol on the editing deck. All edits would be made as inserts. If a servo-controlled deck and an SEG are available, you can put Ferd and Carol each on their own playback deck, and then switch between them: (see page 26)



BATTERIES

● BP-20 internal battery, 40 minutes of power, requires 6-hour charge (with AC-3400). The BP-20 is a lead acid battery, called a *gel cell* because the acid is in jelly form for safety. This battery cannot be overcharged, because the charger automatically shuts off the incoming power when the battery is fully charged. Lead acid batteries should be recharged as soon as possible--they should not be left in the cold when they are not charged.

● BP-30 external battery, 3 hours of power, requires a 16-hour charge. The BP-30 is a nickel cadmium battery. These batteries have a longer lifetime. They can store more power in less space than a gel cell; a nickel cadmium battery the size of the BP-20 could give you 90 minutes of power. This battery cannot be charged with an AC-3400 adapter; use the charger that comes with it. Do not charge it for more than 16 hours-when overcharged, these batteries have been known to explode.

● Panasonic TY-355C (pair) internal battery. Same as BP-20, but without the fancy package or cord.

● After a time you will find that your BP-30 won't give you a full three hours of power. To re-energize the battery, keep your deck in standby until deck stops, with a matchbook cover (or the like) putting pressure on the automatic shutoff switch (*see VTRs page 8*). This will completely discharge the battery. Recharge for fifteen hours.

nicad *Paul McIsaac says:* "Get nicads in series"

● An alternative to the BP-30 (3-hr battery) is buying 10 nickel cadmium batteries in series. These can be purchased at Advance Electronics in NYC, or your favorite electrical supply store.

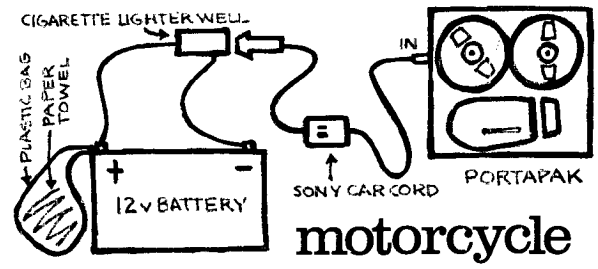
For 4 hours of power, 12 volts, Paul paid $5.75 per nicad--$57.50. This charges for 14 hours. The charger is a 12-volt, 400 milliampere trickle charger--$12.00.

This setup will need slight modification. Bring all the above supplies to Rodger at CTL; he'll get it all working for you at about $10.00.

● Most people are aware of the short duration of the gel cell battery that comes with the portapak. The 3-hour battery pak that Sony makes is both expensive ($129.70) and sometimes dangerous (i.e. large numbers of them are exploding). The solution is to adapt a standard 12-volt motorcycle battery. When properly hooked up, it will provide 4 to 8 hours of power, depending on the size of the battery.

Equipment:

1 12-volt motorcycle battery	$12.18
1 Sony car cord, DC2400	19.50
1 cigarette lighter well	2.00
wire	
1 1/2 amp trickle charger	5.00
1 paper towel	
1 plastic bag	
1 carrying case	5.00



motorcycle

The battery is hooked up to the cigarette lighter well. Positive goes to the center lead, negative to the surrounding sheath. *Caution: The battery cannot be directly hooked into the deck. Voltage surges can blow the deck!* The Sony car cord is used to hook the cigarette lighter well to the deck. The car cord is used because it has built into it a voltage regulator and fuses in case of surging.

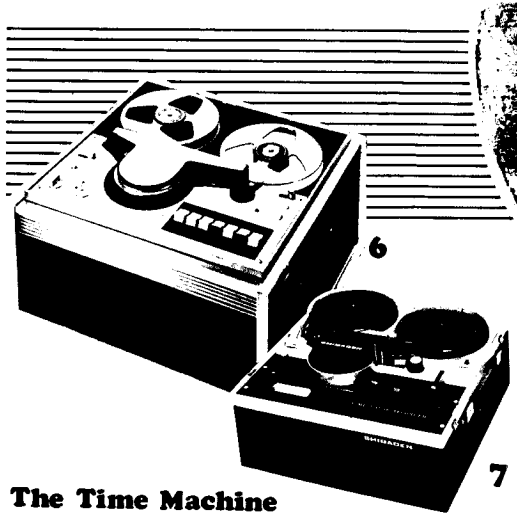
The battery should be charged approximately once every two weeks. If it is left standing uncharged for long periods of time the battery will corrode.

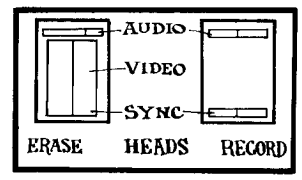
A plastic bag with absorbent paper towels should be fastened to the battery runoff valve to catch any excess battery acid that might spill.

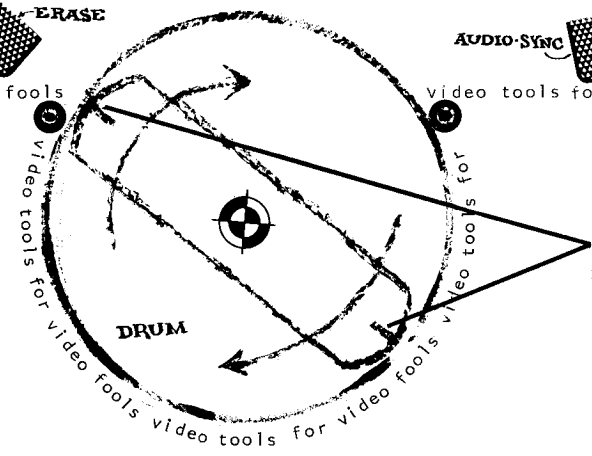
The finished battery can be stored in a camera case (or something that permits it to remain upright) and can be carried over the shoulder when using the portapak.

Total cost: $43.50

Alan Miller
AEF VIDEO







The Time Machine

●*A time lapse deck compresses information by skipping frames (the Javelin records 1 and skips 6). In playback each of the stored frames is repeated a corresponding number of times.*

When using the slow motion control on standard VTRs you get lines across the picture. This is because the change in speed affects the angle at which the tape hits the heads. In the *Javelin,* the tape guide moves to change that angle, compensating for the change in speed--and eliminating the noise bar.

Also, the Javelin switches between two sets of heads during slow playback, so that a clean signal is available even when the main heads are scanning the area between two tracks.

●The VTR records electrical signals which represent the light levels seen by the camera.

TAPETRACK

● Video *heads* are actually small electromagnets with a small space between the poles. When a magnetic material is placed in or near a magnetic field, the molecules of the material are reorganized, producing a magnet. In magnetic tape, the material is tiny oxide particles. The magnetizing device, called the *head,* is a number of turns of wire coiled on a core. In the record mode, the core becomes magnetized by the record current passing through the wires. As the tape passes the head, the varying magnetic fields lay down a magnetic pattern on the tape, directly proportional to the coil current. A direct reversal of this process occurs during playback.

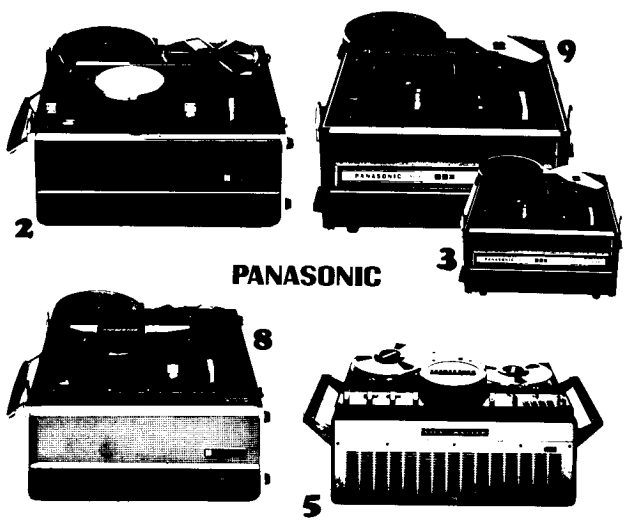
In effect the VTR reads the arrangement of the oxide molecules.

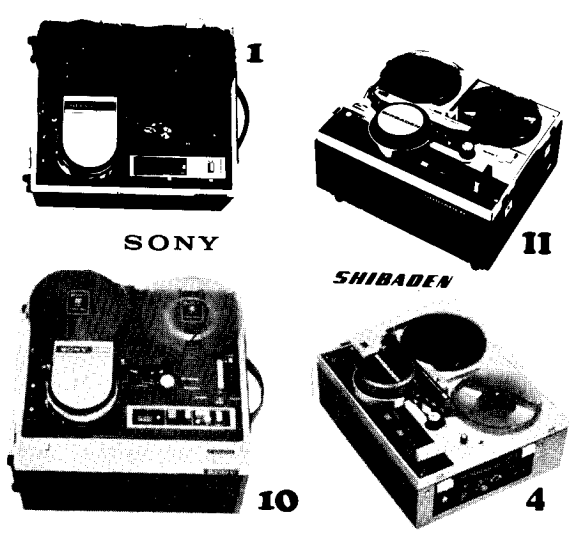
The feed reel is slightly higher in position than the takeup reel, so that when the tape passes across the heads it is descending, causing the video tracks to be slanted.

To the left of the video heads (drum) there is a full track erase head which is only activated when the machine is in the record mode. This means that when recording you are also erasing any information previously on that tape.

To the right of the video heads (drum) is another head assembly which records the audio and the control or sync pulses. Both are recorded longitudinally, audio at the top of the tape, control pulses at the bottom.

The *capstan* is the device which pulls the tape along from the feed to the takeup reel. In record or playback the tape is pressed against it by the pinch roller.



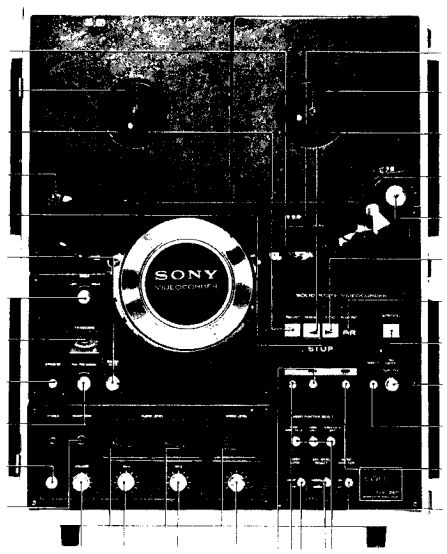


	VTR	Tape Width	Weight	Dimensions	EIAJ Standard	Horizontal Resolution	Power Consumption	Special Features	Shpg Wt	List Price
1	Sony AV-3600	1/2"	33 lbs	15-3/4"w 9-3/16"h 13-3/16"d	yes	300	60w	audio dub - stop action	45	$960.00
2	Panasonic NV-3020 (player only)	1/2"	33 lbs	15-5/8"w 8-5/8"h 15-3/8"d	yes	300	60w	audio dub - stop action	25	850.00
3	Panasonic NV-3010	1/2"	28 lbs	14-11/16"w 6-3/4"h 13-13/16"d	yes	300	60w		40	595.00
4	Shibaden SV-510U	1/2"	30 lbs	16-1/2"w 7-5/8"h 14"d	yes	300	85w		41	850.00
5	Panasonic NV-504	1"	97 lbs	29-3/8"w 12-1/3"h 15-3/8"d	no	450	260w	slow motion & stop action - solenoid operated adaptable to color - adaptable to 2nd audio		4200.00
	TIME LAPSE									
6	Panasonic NV-8020	1/2"	59 lbs	17-1/4"w 10-5/8"h 17"d	no	260	115w	6, 12, 24, & 48 hour settings - stop action - set to 6 or 12 hr - full audio capacity		1895.00
7	Javelin X-400	1/2"	58 lbs	18-1/2"w 10-1/4"h 17"d	yes	300	95w	slow motion & stop action - insert edit - end of frame edit - records for 7 hrs - independent audio erasure & recording		1995.00
	Shibaden SV-512U	1/2"	37.4 lbs	16-1/2"w 9-11/16"h 16-1/2"d	yes	300	100w	6, 12, 24 & 48 hour settings	48	2085.00
	COLOR									
8	Panasonic NV-3120 (player only)	1/2"	40 lbs	15-7/8"w 8-7/8"h 17-1/8"d	yes	300 b&w 240 color	75w	audio dub - stop action - dropout compensator		1250.00
9	Panasonic NV-3110	1/2"	31 lbs	14-1/16"w 8-3/4"h 13-17/32"d	yes	300 b&w 240 color	65w	dropout compensator	42	895.00
10	Sony AV-8600	1/2"	39 lbs	16-1/8"w 9-1/2"h 15"d	yes	300 b&w 240 color	90w	dropout compensator	50	1150.00
11	Shibaden SV-520	1/2"	35 lbs	16-13/16"w 9-13/16"h 14-5/16"d	yes	300 b&w 240 color	60w		45	1375.00

8 VIDEO TAPE RECORDERS

●The Shibaden editing machines made the most perfect half-inch edits we have ever seen, but only for a few hours. Shibaden (as Number 3) really tries harder, so they have taken back all the machines they have sold recently, to correct the problem.

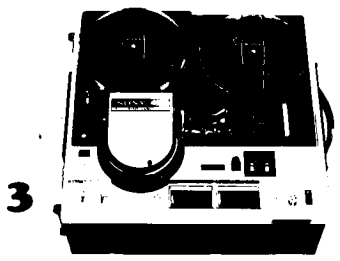
PROTOTYPE ▼



●NEW 1" EDITING DECK WITH BUILT-IN COLOR PACK
Sony UV-340--Digital readout in tenths of a second, for easy editing. Signal-to-noise ratio is better than 44dB--Horizontal resolution 340 lines b&w, 270 lines color. 2 tracks of audio. Compatible with the EV-320F in black-and-white mode.
projected price $8000.

1

VIDEO INSERT MODIFICATION *(EV 320F only) enables you to make video only, audio only and video/audio edits using audio channel 2 with no overlapping audio. - $175.00*



3

●The NV-3130 and the AV-3650 are the most popular half-inch editing decks; both have a little problem with audio at the edit point. Using the 3650 you will get a two-second sound delay; with the 3130 there is no delay--instead a short popping sound is recorded.

●EDITING - Video editing is an electronic process rather than a physical one, as in film. The editing process is essentially playing back scenes from your master (original) tape and recording them onto a second VTR, assembling one scene after another, unaltered in any way. In order to get clean cuts (no glitch or rollover) the second VTR should have a capstan servo mechanism. With this the motor speed of the capstan is controlled by the vertical sync pulse, so the tape is pulled along in sync with the incoming picture.

The editing procedure is as follows:
Cue the playback machine to the start of the scene that is required next. The recording machine is then cued to the end of the last scene. Both machines are then backed up (6-10 seconds, since it takes most VTRs 6 seconds to come up to speed). There are various methods for backtiming, the most accurate is to use a stop watch, though this is very time-consuming. Another is to use a grease pencil, or *Dan Drasin's editing guides* (By far our favorite method--it is very quick and in no way affects the tape, as grease pencils do--write to us and we'll send you the editing guides). These guides are taped to the takeup reels on both machines; Dan has calibrated the number of revolutions the reel must make to move 6 seconds. After backtiming, both machines are put in the pause mode, to start the heads turning. Both machines are then started simultaneously in the playback mode. When the edit point is reached, the record deck is switched from playback to record and an edit is achieved.

INSERT EDITING MODE is used to insert new information within the confines of an existing recording. The insert mode *utilizes the existing control track.*

UNDERSCANNING THE MONITOR enables you to use the skew control to improve the quality of your edits. You are in fact partially correcting the horizontal time base stability problem that is inherent in 1/2" video. The horizontal time base instability is caused by the stretch on the tape; the skew controls the tension from the feed reel.

HOW TO USE THE SKEW - You will notice that when the monitor is underscanned the vertical lines at the bottom of the picture are broken and skewed to the right or the left, how far depending on how much the tape has been stretched. You should adjust the skew before making an edit. Make this adjustment from the playback mode. By matching the image in the broken line to the rest of the picture, you are matching the bottom of the field you are looking at to the top of the next field.

HOW TO UNDERSCAN THE MONITOR - In the back of your monitor you will find a number of screws. The screw marked height or size is the underscanning control; turn it slowly until you see a black bar (that's the vertical blanking) at the bottom of the picture.

●On the Sony AV-3650 there is a sound lag at the beginning of each edit because of the distance the tape has to travel to get from the erase head to the audio record head. The Panasonic NV-3130 gets around this by putting the audio and erase heads together on one double head (to the right of the drum).

SOUND-OVERS WITHOUT A MIXER

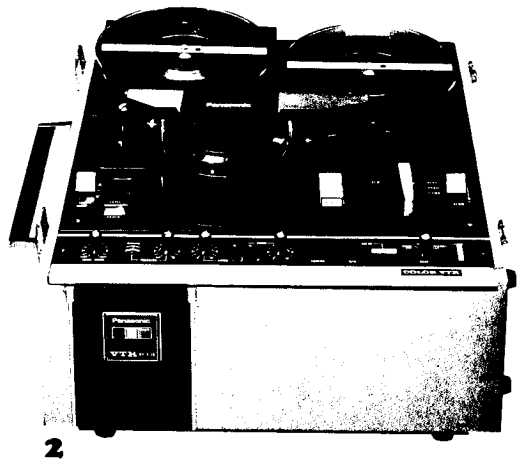
●If you want to make audio dubs and retain the old sound you need some way to turn off the audio erase head. This can be done with a switch or simply by covering the erase head with a piece of paper or masking tape cut to size. On the 3650 you need only to cover the full erase head on the left of the drum. To make the audio dub, put the deck in forward, press edit and then press audio dub hard, so that the edit button pops up.

On the 3130 the left half (erase portion) of the double head has to be covered. To make an audio dub that retains the old sound, put the deck in assembly edit mode, start play and push audio dub.

Making video inserts that retain the old audio is also simple. *Andy Mann says* on the 3650, put the deck in forward, then press edit. Keep the edit button depressed with one finger and then press record. The edit button must be held down for the duration of the insert to keep the old audio.

On the 3130 both the full erase head (to the left of the drum) and the erase portion (left half) of the double head must be covered. Make your insert in the usual fashion. The old audio will be retained.

Whenever you cover heads with tape, be sure to clean the heads thoroughly after removing the tape.



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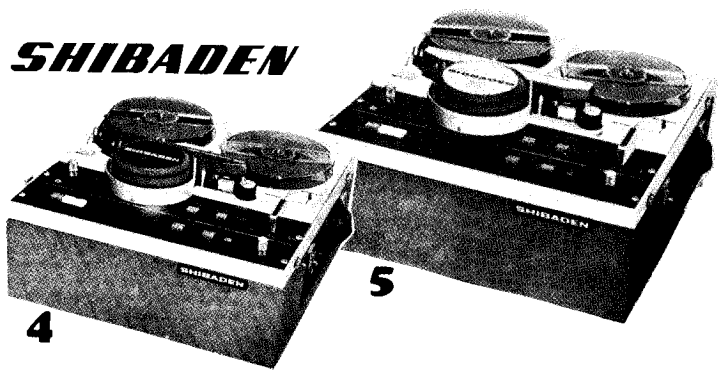

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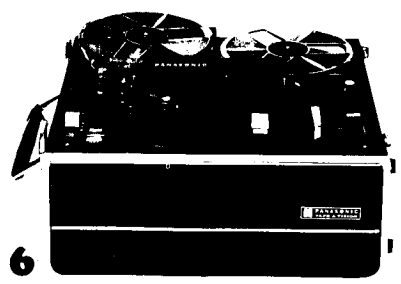
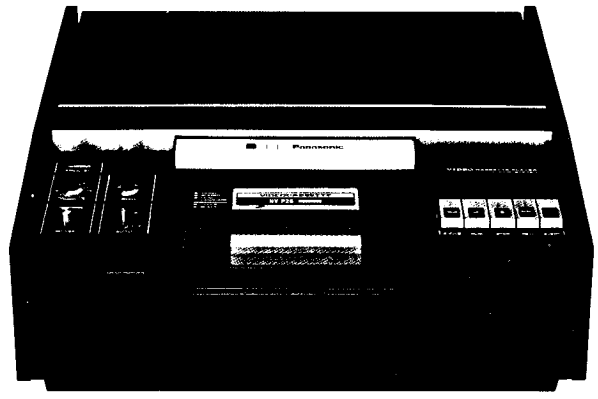


6

	Editing Deck	Tape Width	Weight	Dimensions	Recording Time	Horizontal Resolution	EIAJ Standard	Special Features	Shpg Wt	List Price
1	Sony EV-320F	1"	86 lbs	18-3/4"w 10-1/4"h 19-1/4"d	60 min	300	no	flying erase head - adaptable to color 2 channels on audio - slow motion & stop action - solenoid operated		$5950.00
2	Panasonic (color) NV-3130	1/2"	46 lbs	15-7/8"w 6-1/4"h 16-3/4"d	63 min	300 b&w 240 color	1	stop action & slow motion in playback - drop-out compensator		1650.00
3	Sony AV-3650	1/2"	42 lbs	17-5/16"w 9-5/16"h 15-11/16"d	60 min	300	1	audio dub - stop action		1245.00
4	Shibaden (color) SV-520D	1/2"	37.4 lbs	16-1/2"w 9-13/16"h 16-1/2"d	60 min	300 b&w 230 color	1	insert & assembly	50	1815.00
5	Shibaden SV-510D	1/2"	32 lbs	16-1/2"w 7-5/8"h 16-1/2"d	60 min	300	1	insert & assembly	45	1232.00
6	Panasonic NV-3020SD	1/2"	36 lbs	15-5/8"w 8-5/8"h 15-3/8"d	63 min	300	1	audio dub - stop action & slow motion in playback	50	1150.00

Panasonic



The Panasonic video cassette machines NV-2125, NV-2120, NV-2110 use 3/4" tape. They have 2 tracks for audio, and a built-in RF adapter for channels 5 and 6. The NV-2125 has a built-in tuner for recording off the air. Maximum record/playback time 60 minutes.

NV-2120 list $1450.
NV-2110 list 1150.

CTL modification For automatic rewind-replay - $200.00

CASSETTE

SONY

The Sony video cassette machines VO-1600 and VO-1000 use 3/4" tape. They have 2 tracks for audio, and a built-in RF adapter for channels 3 and 4. The VO-1600 has a built-in tuner to allow recording directly off the air. Maximum record/playback time 60 minutes.

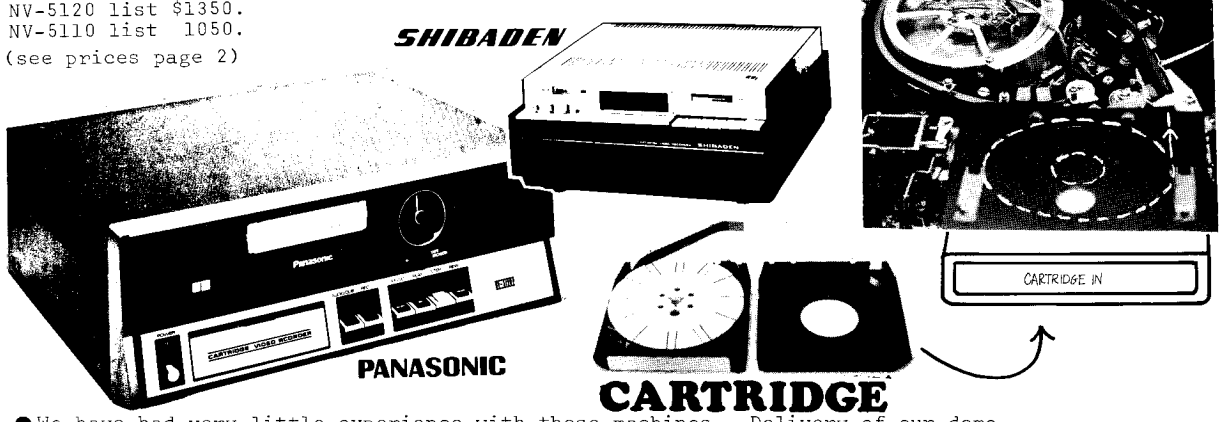
VO-1600 list $1,525.00
VP-1000 list $1,095.00

●Our experience with the cassette machines has been very good. They use high-energy tape, therefore increasing the signal-to-noise ratio. The color is great. If you record on the cassette format you will need to transfer material onto reel-to-reel format in order to edit. It costs more to do, but it works out really well for color. Also, because of the nature of the equipment, you should not put the cassette in, or pull it out, unless it's at the beginning or end of the reel. The edges of the tape get chewed up if you do. Panasonic added a nice touch to their cassette machines--an elevator which lowers (or raises) the cassette into place. The Sony machines just drop the cassette into place.

The Panasonic cartridge machines NV-5125, NV-5120, NV-5110 use 1/2" (EIAJ #1) tape. Each has a built-in dropout compensator and RF adapter. These machines automatically rewind. Maximum record/playback time is 30 minutes. The NV-5125 has a built-in tuner. #### The Shibaden SV-530U has a built-in dropout compensator and automatic rewind; RF optional.

NV-5120 list $1350.
NV-5110 list 1050.

(see prices page 2)



●We have had very little experience with these machines. Delivery of our demo model came recently. They look great. One advantage with this system is that any EIAJ #1 tape (longer than 20 min. requires special thin tape) can be used with the addition of leader, trailer and a cartridge box. Another is that the tape is not being grabbed, but instead is threaded automatically onto a second reel inside the machine. Cartridge machines have only one track of audio.

FOR USE WITH VO-1600

●SONY ALT-1 is an *isolation transformer* which gets rid of hum. It is needed when dubbing onto cassette except when recording from another cassette. [John says you will also need a *variable attenuator* which is a device used to reduce the input level of the sound to the AGC (Automatic Gain Control) threshold] The AGC circuit automatically reduces the volume of an input signal when it is too loud for the recorder. On the VO-1600 the AGC is designed to accept very low level audio signals; therefore the signal from another deck is much too loud and gets reduced by the AGC. During a silent portion of the tape the AGC readjusts itself trying to maintain optimum recording level. As the amplification (gain) is turned higher and higher, background noise such as room tone, hum, and tape hiss are brought to full volume--yecch.

To compensate for this it is necessary to reduce the level of the incoming signal by the use of an attenuator, or a mixer such as the Schure M-67FC or M-68. [CTL's attenuator, with 2 inputs, 2 outputs, lists at $29.00]

DR. CALEB GATTEGNO (OF EDUCATIONAL SOLUTIONS) EXCERPTS FROM AN INTERVIEW, DECEMBER 1, 1972

●Only awareness is educable in man and awareness is an alien notion for 90% of the people. If you make tapes on awareness, either you show people who are concerned with awareness or exercises that people get engaged in. I want to blow people's minds using the medium itself. I am a student of awareness, therefore I am aware of what my sight does to me, what my ear does to me. I am interested in making video tapes that uncover areas that have never been looked at. I cannot teach anyone anything, my teaching is not passing on information, it challenges, it forces the mind to focus on some aspect. I teach languages silently; this is heresy to all the teachers of language.

Adults have all learned from words, when they are part of a visual culture.

There is a new role for teachers. I don't want to replace teachers, I want to make television the teacher in the home. Schools have to do something else. If you watch television and you only get soap operas or news, you are not using the totality of the medium. Since this medium will be with us for generations. at some point people will want to use it properly. That's when they will come to me, if I'm alive, and say "Give us a program that can blow the mind."

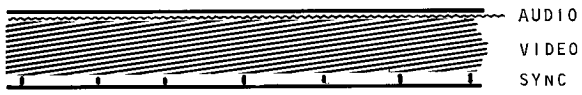
I have a whole series of scenarios which start with almost nothing, a dot on the screen and this dot becomes, with explosions through drawings, a star. I act on that star and the film or tape shows you what I want you to become conscious of. From the dot come lines which go in all directions. I put maybe 50 such lines, there is space around the edges. After a while I can put 50 more, and 50 more until the star covers the plain, so you can think of the plain as being a star with an infinite number of rays. Then it returns, goes backward until I have only a few rays remaining, then one of them can sweep the screen, one of them is representing the infinity, so when you see one you can see infinity. I can force you to see infinity. You can see infinity when looking at only one thing. And that, of course, is the power of the medium.

Education has been through words, words are slow. They take a lot of energy. While with television, we get so many impasses at once.

I have spent years reducing centuries of knowledge to seconds of impact. It's a new way of using our minds which does not conflict with the previous one. I cannot say I love you through television, I have to be there. You have to use words. The purpose of speech shall remain the purpose of speech, we shall know it better because we will know its limitation.

Television can do a great deal more when it's coupled with computers, which is another of our creations. Because man has created the tool, it becomes an extension of man, it's not a substitute for man. It allows us to get into areas, because of its speed and its memory, where we are precluded because of our slowness. Now that we have this technology, let's have the education that is compatible with it. If you know your powers, you use them; if you can walk, you carry yourself around, so let's try to use these new powers.

EIAJ TAPE FORMAT



●VIDEOTAPE is just a ribbon of a flexible base material (usually Mylar). Onto the surface of this is a mixture of binder or glue and finely ground particles of iron oxide. These particles are magnetized by the field from the heads(*see VTR page 8*).

HIGH ENERGY TAPE (cassette tape is high energy) is coated with an oxide that requires a stronger magnetic field for recording. When this tape is played back the signal is stronger, but the noise in the machine remains constant. Therefore this tape increases the *signal-to-noise ratio*, which is the ratio of the noise on a line of video to the actual signal. High energy tape will play back on any machine, but because different recording currents are required, a machine must be specially set up in order to record. There are two types of high energy tape, the first, *chromium dioxide tape*, has a harder surface than conventional tape, resulting in increased head wear. The other, *cobalt doped tape*, is no harder than conventional tape. It allows for the increase in quality without sacrificing head life.

SILVERCHROME tape has an extremely fine-grain structure (finer particles) and a much smoother tape surface. This tape also increases the signal-to-noise ratio. It has an extra-strong

video tape

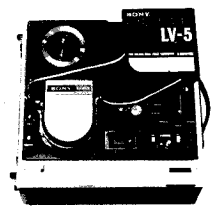
binder system, decreasing *dropout* (missing oxide on the tape). Silverchrome gives you all the advantages of high energy tape with none of the disadvantages. We have found this tape best suited for editing because of its binding system. When you are in the pause mode, the heads are wearing away the oxide particles. Pre-test when editing. You can *record black* on the whole tape (laying down a track which the heads can follow during the recording process) and check the tape for dropout.

SPLICING should be avoided but in the event your tape breaks or gets chewed up, you might want to cut out the damaged portion of tape and splice the ends back together. Special *aluminized splicing tape* should be used, and great care should be taken when fitting the ends together--any mismatch can really damage the heads.

CARE OF VIDEOTAPE is of great importance. Essentially, information placed on the tape during the recording process is permanent and will remain unchanged unless altered by an external magnetic field. Even though the magnetic signal will not deteriorate, the physical properties of the tape are susceptible to damage. Poor handling or faulty storage can make a tape useless.

Tape should be stored like books, on its side in its box. If the tape is stacked one on top of another you are putting pressure on the reels, which in turn puts pressure on the edges of the tape. Tape should be put back into plastic bags. Clean the dust that has accumulated off the box before opening it again.

The way the tape is wound on the reel is of primary importance. If the tension is too great or not great enough, the information stored on the tape will be affected. A cinch or wrinkle in the tape caused by slack, will be transmitted through the layers of wound tape. The area of tape that is wrinkled should be spliced out; it is not good for the heads and the information on that area will be unviewable.



The endless loop cartridge is for reel-to-reel machines. Five or ten minutes of information will continually replay until the machine is stopped. This loop cartridge cannot be used on a portapak.

LV-5 5 min. $24.
LV-10 10 min. $30.

CATALOG NUMBER		PLAYING TIME	LIST PRICE
PANASONIC 1/2" CARTRIDGE TAPE			
NVP-510		10 MIN.	15.95
NVP-520		20 MIN.	18.95
NVP-530		30 MIN.	22.95
NVR-510	CARTRIDGE		
	REEL	10 MIN.	2.95
NVR-520	"	30 MIN.	2.95
NVB- 44	CART. BOX	30 MIN.	2.95
NVB- 44	SPLICING TOOL FOR LEADER/ TRAILER		17.50
NVP-506	LEADER	4 FT.	.75
NVP-507	TRAILER TAPE	886 FT.	45.00
NVP-508	SPLICING TAPE FOR LEADER	60 FT.	7.95
SONY 3/4" CASSETTE TAPE			
KC-10		10 MIN.	17.00
KC-20		20 MIN.	20.00
KC-30		30 MIN.	25.00
KC-60		60 MIN.	35.00

KC-30 3 lbs./ KC-60 5 lbs.

1/2 hr. 1/2" 1 lb / 1 hr. 2 lbs.
1/2 hr. 1 " 3 lbs/ 1 hr. 5 lbs.

SONY

Catalog Number	Playing Time	Tape Size	Reel Size	List Price
V-30F	10	1/2"	4 5/8"	$10.00
V-30D	20	1/2"	4 5/8"	15.00
V-30H	30	1/2"	5 1/8"	20.00
V-31	30	1/2"	7"	20.00
V-32	60	1/2"	7"	40.00
V-12-30	30	1"	8" plastic metal	40.00 50.00
V-12-60	60	1"	8" plastic metal	60.00 70.00

KAREX *silverchrome*

Catalog Number	Playing Time	Tape Size	Reel Size	List Price
SC-1	14-20	1/2" EIAJ	4 5/8"	$14.95
SC-2	32	1/2" EIAJ	7"	21.97
SC-2A	32	1/2" EIAJ	5 1/8"	21.97
SC-3	64	1/2" EIAJ	7"	39.95
SC-8	32	1" SONY	8" metal reel	39.00
SC-9	63	1" SONY	8" metal reel	59.95

SONY EMPTY REELS

Catalog Number	Tape Size	Reel Size	List Price
RH-5V	1/2"	4 5/8"	$2.75
RH-5E	1/2"	5 1/8"	3.00
RH-7V	1/2"	7"	3.00
RH-72	1/2"	7"	3.00
R1-8VP	1"	8" plastic	6.50
R1-8V	1"	8" metal	12.00

Dan says
" Karex empty reels are cheaper than Sony's."

LET'S KEEP IT CLEAN

●Dirty tape will cause *dropout*, random noisy spots on the picture. Care should be taken to cover unused tape machines. The plastic bags that tape comes in are useful for storing recorded tape, even when it is in a box.

When all else fails and you have a dirty tape (40-60 dropouts per minute), hold a lint-free tissue against the oxide side of the tape as it is run through the machine in the fast-forward or rewind mode. *Kimwipes*, Kimberly-Clark, or *Microwipes*, Scott, have both been used with success. Don't use facial tissue, it is a good lint generator. A word of caution--keep fingers clear of the edge of the tape. It can cut into a finger just like a piece of bond paper.

Mark Bradley
Karex, Inc.

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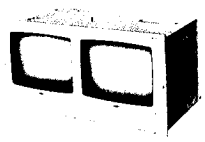

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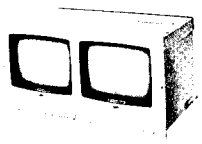

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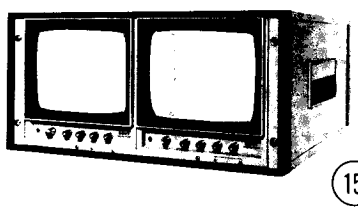

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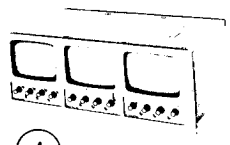

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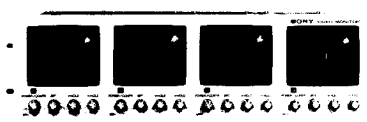

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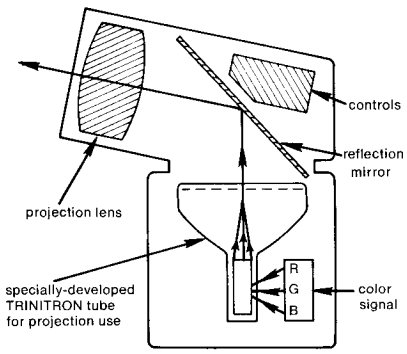
Available picture size: 50″ measured diagonally (40″ width x 30″ height at 50″ screen)

Audience area: viewing area: 10-70′ / at 50″ screen optimum seat arrangement:

Projection distance: approx. within ± 40 degrees from center 5′ for 50″ picture

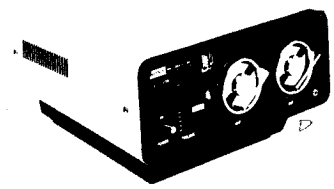
Dimensions: video projector: 15″ (W) x 27″ (H) x 19″ (D) video screen: 45″ (W) x 36″ (H) x 4″ (D) video screen with stand: 45″ (W) x 59″ (H) x 16″ (D)



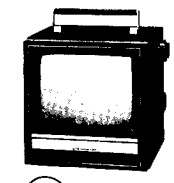
INNER STRUCTURE

SONY Color Video Projection System

A	VSS-01	Screen Stand	$ 150.00
B	VPS-500	Screen	300.00
C	VRG-1	Regulator	35.00
D	VTU-5	Tuner	325.00
E	VPP-2000	PROJECTOR	2235.00



VTU-200 VIDEO TUNER



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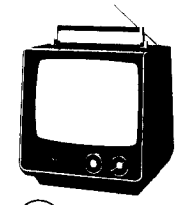

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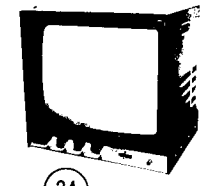

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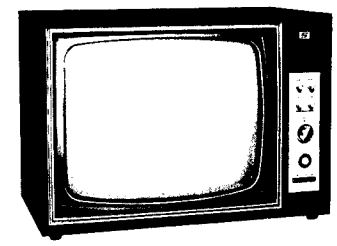

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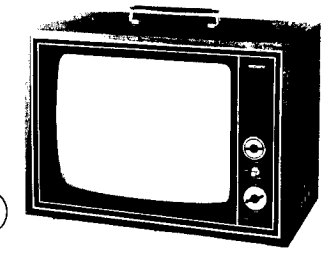

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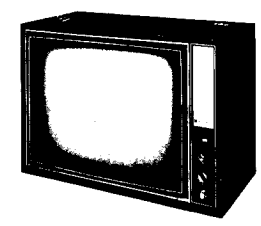

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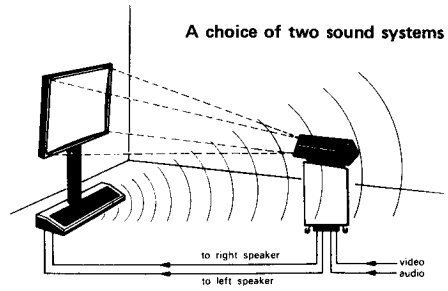
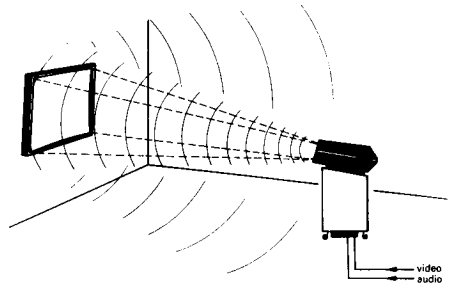
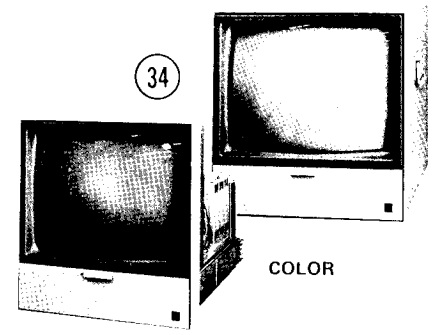


Video screen with the optional floor stand. Sound waves come from the speakers built into the video screen stand VSS-01.



A wall-mounted video screen. Sound waves come from the built-in speakers of the projector and are reflected, with the picture, from the screen.



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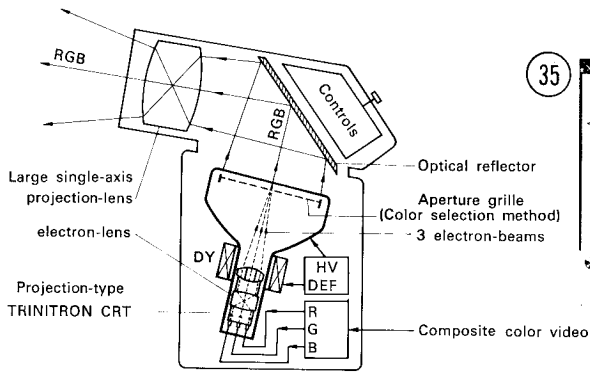
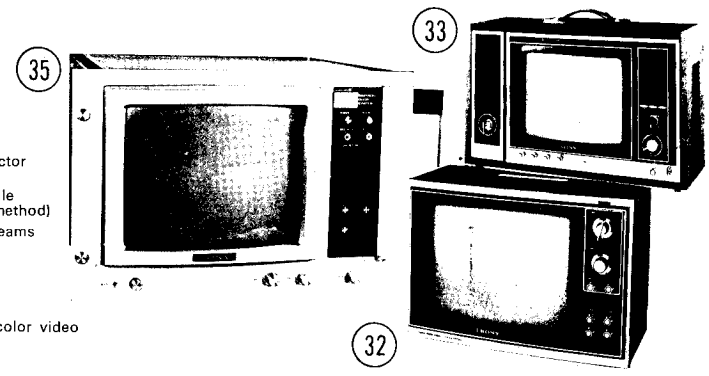
COLOR

SONY TRINITRON Color CRT

In conventional color TV tubes, there are three electron beams, one for each of the three primary color spots. These are set up in a triangular formation. The convergence of the three beams is very critical, necessitating complex adjustments. The Trinitron system uses a single electron gun and a color-selection device called the aperture grill. Three beams in a line come from the gun; the grill separates the beams. There are fewer controls for convergence, adjustments are greatly simplified. American TV manufacturers are switching to the Trinitron (in line) system for color TVs up to 19".





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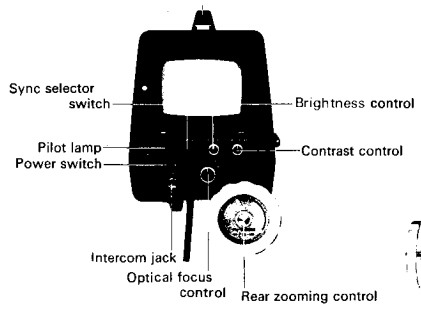
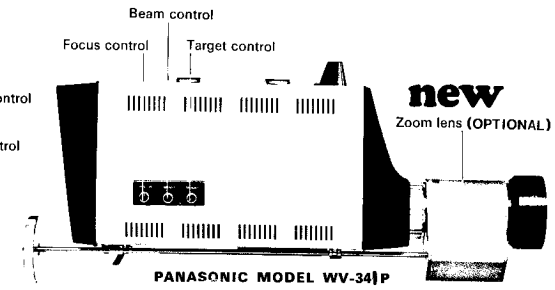
12 MONITORS

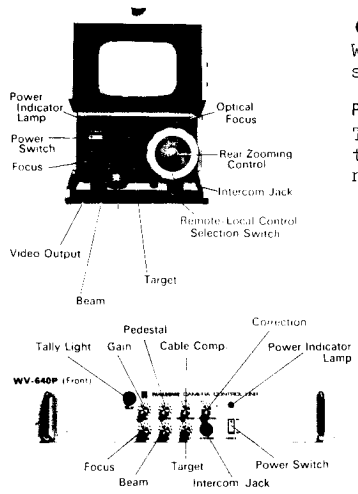
CTL VIDEO TOOLS #2

	Monitor	Screen Diagonal	Video Connector	Audio Connector	Approx. Dimensions	Approx. Weight	Horizontal Resolution	Tuner (Receiver)	Special Features and Standard Accessories	Shpg Wt	List Price
1	Sony PVM-400	(4) 4"	coax		19"w 5-1/4"h 12-1/2"d				rack mountable		750.00
2	Shibaden VM-502	5"	UHF		6"w 7-3/4"h 11-1/4"d	11.7 lbs	500			15	219.45
3	Panasonic TN-63	6"	coax		6"w 7-3/4"h 11-1/4"d	10 lbs	600		metal carrying case	14	220.00
4	Panasonic TN-633	(3) 6"	coax		19"w 7"h 11-1/4"d	34 lbs	600		rack mountable	45	650.00
5	Sony CVM-950	8"	coax & 8 pin	mini & 8 pin	9-1/8"w 10-1/2"h 10-7/8"d	12 lbs		Yes	earphone - external antenna connector - 8-pin connecting cable	16	250.00
6	Panasonic TN-93	8"	coax		8"w 9-3/4"h 15-3/8"d	18 lbs	800		metal cabinet	24	250.00
7	Panasonic TN-95	8"	coax & 8 pin	RCA & 8 pin	8"w 9-3/4"h 15-3/8"d	20 lbs	800		metal cabinet - under-scanning switch	28	300.00
8	Panasonic TN-932	(2) 8"	coax		19"w 10-1/2"h 15-3/8"d	38 lbs	800		rack mountable	48	500.00
9	Panasonic TN-952	(2) 8"	coax	RCA & 8 pin	19"w 10-1/2"h 15-3/8"d	45 lbs	800		rack mountable - under scanning switch		600.00
10	Panasonic TR-910M	8"	coax		9-5/8"w 9-5/8"h 9"d	15 lbs	450		black cabinet finish with silver trim - diecast handle	20	145.00
11	Panasonic TR-910V	8"	8 pin	8 pin	9-5/8"w 9-5/8"h 9"d	15 lbs	400	Yes	black cabinet finish with silver trim - diecast handle	20	190.00
12	Ball Bros TU-8	8"	UHF		8-7/16"w 8-1/2"h 17-1/4"d	27 lbs	800			35	465.00
13	Ball Bros TE-9	9"	coax		8-11/16"w 9-3/16"h 10-1/16"d	12 lbs	600			16	250.00
14	Ball Bros TE 9 RT	(2) 9"	This is a twin unit of TE 9, for 19" rack mounting								475.00
15	Sony PVM-900MA	(2) 9"	UHF		19-3/4"w 9-1/2"h 21-7/8"d	65 lbs	500		rack mountable		702.00
16	Sony CVM-112	11"	UHF & 8 pin	mini & 8 pin	11-7/8"w 11-5/8"h 13-1/2"d	16 lbs		Yes	earphone - 8-pin connecting cable	22	175.00
17	Panasonic TR-513V	12"	8 pin	8 pin	17"w 12-1/4"h 11-1/2"d	22 lbs	400		leather grain finish - diecast handle	30	240.00
18	Shibaden TU-120 U	12"	8 pin	8 pin	15-1/2"w 11-1/2"h 8-7/8"d	17.6 lbs	450			24	251.90
19	Ball Bros TE 12	12"	UHF		13"w 9"h 10-11/16"d		600				350.00
20	Ball Bros TU 12	12"	UHF		11-1/4"w 11-3/4"h 18-1/2"d	24 lbs	800			32	490.00
21	Shibaden VM-172 (CCTV)	17"	UHF		16-5/16"w 15-3/8"h 11-3/8"d	33 lbs	650			45	328.90
22	Shibaden VM-171	17"	UHF		16-5/16"w 15-3/8"h 11-3/8"d	33 lbs	600			45	328.90
23	Ball Bros TU 17	17"	UHF		16"w 16-1/2"h 16-3/4"d	35 lbs	800			48	515.00
24	Miida (Hitachi) TIM-17C	17"	UHF		16-1/2"w 13-1/2"h 15-11/16"d	40 lbs	550			50	320.00
25	Sony CVM-192U	18"	UHF & 8 pin	XLR & 8 pin	22-3/4"w 17-1/2"h 13-1/2"d	50 lbs		Yes	8 pin connecting cable		335.00
26	Panasonic TR-195 V	19"	UHF & 8 pin	RCA & 8 pin	22-3/8"w 16-1/8"h 14-5/8"d	36 lbs	600	Yes	black metal cabinet finish	48	300.00
27	Shibaden TU-200U	20"	UHF & 8 pin	mini & 8 pin	26-1/2"w 17-7/8"h 14-3/16"d	44 lbs	400	Yes			357.50
28	Panasonic TR-220M	22"	UHF		27-7/8"w 19-13/16"h 15-3/4"d	62 lbs	600		wood finish		325.00
29	Panasonic TR-220 V	22"	8 pin	RCA & 8 pin	27-7/8"w 20"h 16-5/16"d	48 lbs	600	Yes	wood finish		375.00
30	Shibaden TU-23UL	23"	8 pin	8 pin	19-15/16"w 19-11/16"h 13-3/8"d	66 lbs	550	Yes			568.50
31	Ball Bros TU 23	23"	UHF		23-1/8"w 22-1/2"h 21"d	99 lbs	800				545.00
	COLOR										
32	Sony CVM-1225	12"	UHF & 8 pin	mini & 8 pin	22"w 14-3/16"h 15-7/8"d	48 lbs		Yes	Trinitron system - 8 pin connecting cable		595.00
33	Sony CVM-1720	17"	UHF & 8 pin	mini & 8 pin	21-13/16"w 15-11/16"h 20-1/16"d	68 lbs		Yes	Trinitron system - 8 pin connecting cable (10 ft)		850.00
34	Ball Bros TCR Series	25" (also 19")	UHF & RGB			145 lbs			hanger mount available - internal color bar & cross hatch generator - underscan switch - degaussing		3100.00 (2900.00)
35	Sony PVM-1200	12"	coax		19"w 12-3/16"h 16-6/16"d	57	280		rack mountable - under-scanning switch		800.00



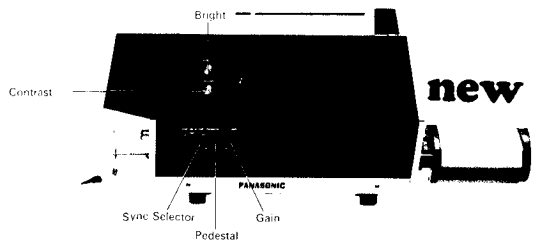


PANASONIC MODEL WV-341P



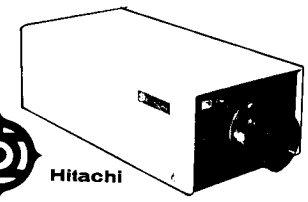
●There is an optional circuit board for the WV-361P, which gives internal 2:1 interlace sync. $75.00

Panasonic WV-380P has aperture correction. This compensates for shading caused by lens, to give even brightness so there is no darkness at the edges of title cards, &c.

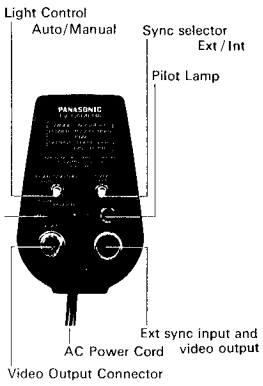


WV-380P
HIGH RESOLUTION STUDIO CAMERA

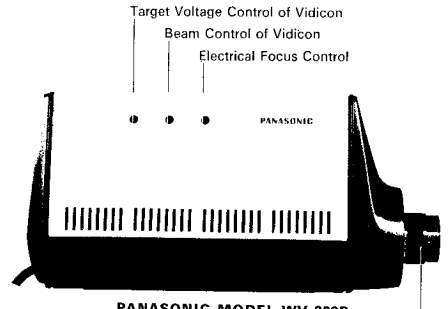
B&W



Hitachi



AVC-3210DX
ENSEMBLE



PANASONIC MODEL WV-200P
CCTV CAMERA

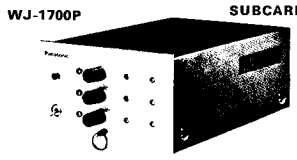
Color

●The color signal is made up of 3 primary colors: red, green and blue (RGB).

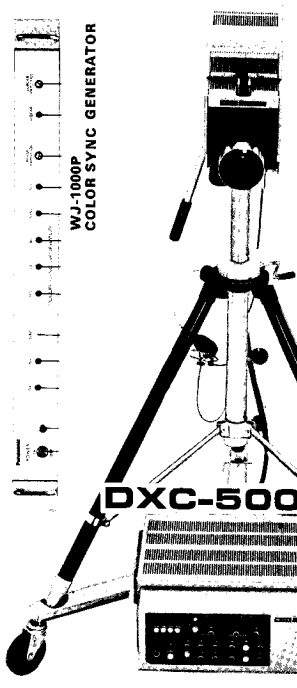
Initially, all color cameras used 3 pickup tubes, one for each of the primary colors. In a 4-tube camera, one tube is for luminance, or white, which gives detail.

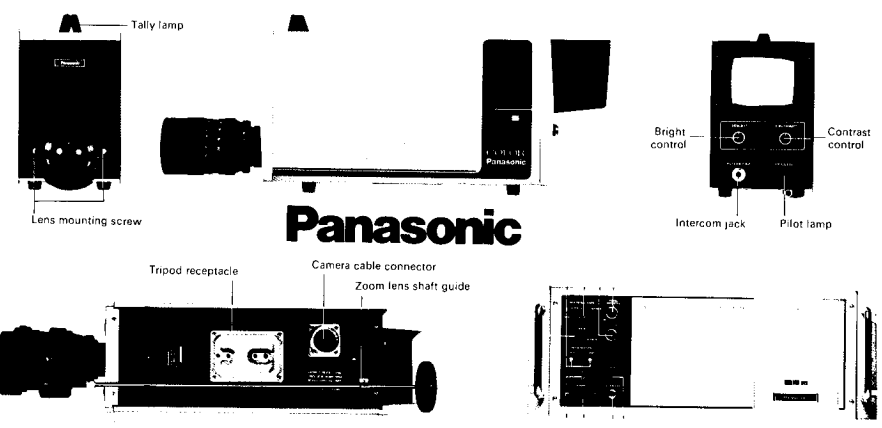
It is unnecessary for the color signal to be really sharp in order for the picture to be viewed as sharp; the human eye is not sensitive to detail with color information. So, to make color cameras lighter and less expensive, just the proportion of color at each area of the picture is encoded, rather than exactly where the edges of color are.

POINT SEQUENTIAL SYSTEM - In cameras with two vidicons (like the DXC-5000), one produces the Y or luminance signal, the other produces point sequential color signals (RGB). Incoming light is split at the back of the zoom lens assembly to be focused on the faceplates of both vidicons. There is a stripe filter in front of the chrominance vidicon to perform color dissection. As the electron beam scans the image formed by the vertically-aligned striped filter, an output signal is produced in this sequence: black, blue, red, green. The black signal produces an index pulse used in decoding. These signals then go through the sample-and-hold process. This is done with three chroma gates which open one at a time in sequence. After the black pulse, as the blue stripe is being scanned, the first gate opens, measures the color and holds it until the other colors are measured. This is done to provide a continuous output.



WJ-1700P
SUBCARRIER PHASE SHIFTER-DISTRIBUTION AMPLIFIER

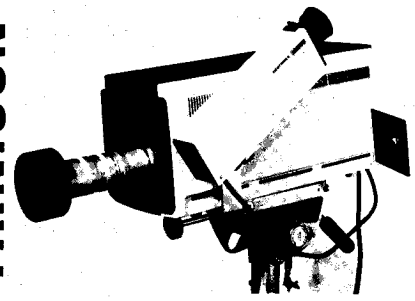


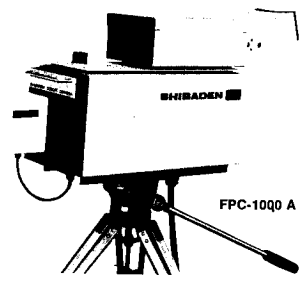


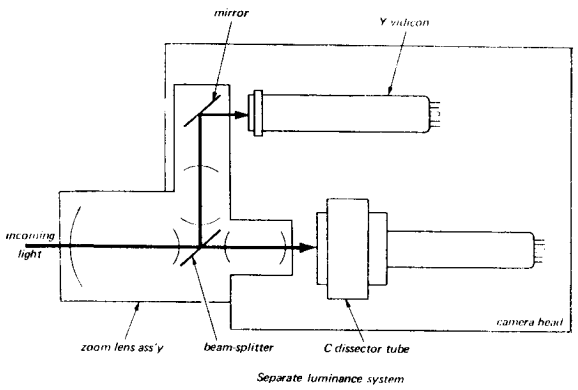
COLOR STUDIO CAMERA
MODEL WV-2100P

CAMERA CONTROL UNIT
WV-8200P

TRINICON*







Separate luminance system

Luminance (or "Y") is the amount of light intensity, which is perceived by the eye as brightness.

Chrominance is the property of light which produces a sensation of color in the human eye, apart from any variation in luminance that may be perceived.

PORTABLE COLOR

● AKAI CVC-150 S is the first handheld color camera to be introduced in the U.S. As with all vidicon color cameras, it is necessary to use very flat lighting to achieve an acceptable picture. Thus, although the camera is light and easy to shoot with, unless you have lights set up, you can't walk into a room and start shooting.

The quality of the picture is a little worse than the DXC-5000 Sony color camera, but I feel it is acceptable for 1/2" video. The thing to remember is that the technology exists to take any video image and run it through a computer to produce broadcast-quality signals. At this point it is very expensive to do this, but the cost of the hardware and software is getting lower.

Although the Akai CVC-150 S is the first, several other companies are developing similar products in this price range. The most important breakthrough is the Charge Coupled Device (CCD) color camera. The CCD camera uses a flat solid state matrix of light-sensitive spots to translate the image into an electrical signal. This will eliminate the vidicon tube, which is the major cause of weight and unreliability in video cameras. Experts are predicting a CCD color camera (of 1/2" quality) before the end of 1973, and a broadcast color camera within two years.

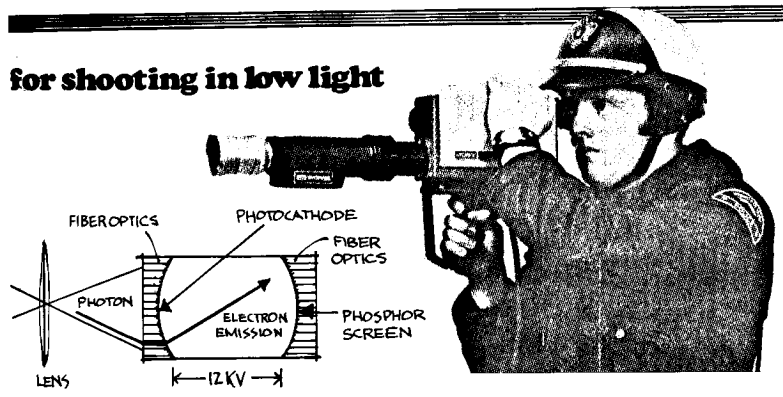
In conclusion, if you must "get it down" now, buy the Akai. If you are planning a system for future purchase, or if you are buying now with limited funds, and black-and-white will do the job, give the technology a little more time to develop.

John

MAGNAVOX SERIES 400

●Lui saw the new Magnavox color camera at a trade show in Las Vegas. It's small, about the size of an AVC-3200, and inexpensive ($2500), but the picture quality is poor. The resolution is only 200 lines and there's too much red in the picture.

for shooting in low light



● In the *image intensifier* light is focused by the lens into fiber optic tubes, which carry the light to a photocathode surface. The photocathode gives off electrons when struck by light. The phosphor screen, like a a TV tube, gives off light when struck by electrons.

Before the electrons reach the phosphor screen they are accelerated by a 12,000 volt potential.

When weak electrons (from low light) get speeded up, they create a brighter light when they hit the phosphor screen. This brighter light is then focused onto the vidicon.

The Sylvania model 221 uses 3 intensifiers to give 3 stages of intensification. These intensifiers attach to most cameras (portapak included) & take C-mount lenses.

Lui saw the Sylvania intensifiers and *says* that they look as good as the Westinghouse intensifier camera (costing $9,390). This is a camera which provides viewable pictures with as little as .0002 footcandles of light. There is no lag problem with image intensifiers.

221-first generation device $2500.
222-2nd generation, much smaller $5900.

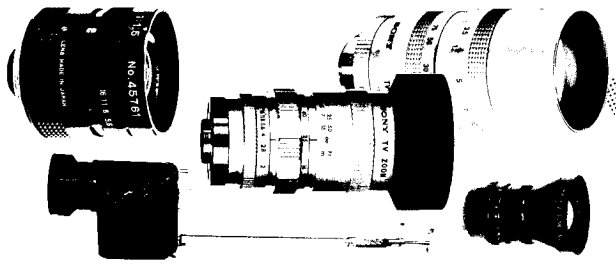
Lui says " The next best thing for shooting in low light is a silicon diode tube." (see pg. 16)

Camera	Weight	Dimensions	View Finder	Horizontal Resolution	Vidicon Tube	Lens	Special Features	Shpg. wt.	List price
Panasonic WV-200 P	4 lbs	3-1/4"w 5-9/16"h 10"d		550	2/3"	F1.6 - 16mm C Mount (no iris)	comes with 20 ft coax cable	8	255.00
Panasonic WV-240 P	4 lbs	3-1/4"w 5-9/16"h 10"d		550	2/3"	F1.6 - 16mm C Mount (no iris)	comes with coax cable, coax coupler, type C8 - use with VEC series cable	8	375.00
Panasonic WV-250 P	4 lbs	3-9/16"w 5-19/32"h 10-5/16"d		400	2/3"	F1.6 - 16mm C Mount	comes with 20 ft coax cable, coax coupler, type C8 - use with VEC series - RF out 5 & 6	8	475.00
Panasonic WV-341 P	12 lbs	5-1/2"w 6-1/3"h 14-1/2"d	4.5"	550	2/3"	F1.6 - 16mm C Mount (no iris)	2-way viewfinder to see effects 4.5" viewfinder - comes with coax cable - use with 10-G series cable	8	595.00
Panasonic WV-361 P	14 lbs	7"w 7-1/2"h 14-1/2"d	6"	550	2/3"	F1.6 - 16mm C Mount (no iris)	viewfinder playback 6" viewfinder - comes with coax cable - use with 10-G series cable	20	750.00
Panasonic Studio Camera WV-380 P	35 lbs	7-1/2"w 12-1/2"h 21-1/4"d		700	2/3"	optional	comes with camera control unit 25' camera cable, 4 pin plug for power supply & tally light	45	2000.00
Sony AVC-3000	5 lbs	3-3/4"w 3-3/4"h 9-7/8"d		400	2/3"	F1.8 - 16mm C Mount	UHF connector for video signal output - auto light-level compensator	9	310.00
Sony AVC-3200 DX	7 lbs	4-3/16"w 4-3/4"h 13-1/4"d	4"	400	2/3"	zoom lens VCL-16B F2.0 - 16-64mm	comes with 16 ft camera cable, carrying case, tripod, microphone with extension cord	25	830.00
Sony AVC-3210 DX	7 lbs	4-3/16"w 4-3/4"h 13-1/4"d	4"	400	2/3"	zoom lens VCL-16B F2.0 - 16-64mm	comes with carrying case, tripod, microphone with extension cord	25	925.00
Sony AVC-3400	6 lbs	2-13/16"w 5"h 15-1/16"d	1"	400	2/3"	zoom lens F/2 - 16-64mm C Mount	built-in microphone, requires CMA 11 except with AV 3400	10	695.00
Sony Studio Camera AVC-4200 A	14 lbs	6"w 11-1/8"h 14-3/4"d	4"	450	2/3"	without lens	built-in 2:1 interlace sync generator - C Mount for choice of lens	25	830.00
Sony AVC-4600	18 lbs	17-7/16"w 3-1/2"h 13-13/16"d		650	1"	without lens	comes with C Mount adapter - optional single rod control for zoom	28	1325.00
Shibaden HV-40S	5.5 lbs	3-3/4"w 4-3/8"h 9-1/4"d		500	2/3"	C Mount F1.8 - 16mm w/fixed iris	random interlace, takes external sync	10	329.89
Shibaden HV-15	7 lbs	4"w 6-1/2"h 10-7/8"d		600	1"	F1.4 - 25mm C Mount	random interlace	12	495.00
Shibaden HV-15S	7 lbs	4"w 6-1/2"h 10-7/8"d		600	1"	F1.4 - 25mm C Mount	2:1 interlace	12	687.50
Shibaden HV-70F	12.1 lbs	3-7/8"w 8-11/16"h 15-3/4"d	3" removable	450	1"	F1.9 - 25mm	2:1 interlace - external switchable VF mode	16	654.50
Shibaden FP-100A	16 lbs w/o lens	6-1/8"w 10-15/16"h 13-3/4"d	5"	550	1"	single axis rear control zoom lens, adapter for C Mount, 5:1 zoom	external 2:1 interlace	21	1424.50
Shibaden FP-100D	16 lbs	6-1/8"w 10-15/16"h 13-3/4"d	5"	600	1"	C Mount	CCU - external sync only	21	2194.50
Hitachi TIE -250	3.3 lbs	3-7/8"w 2-1/2"h 7-7/8"d		550	2/3"	C Mount	built-in RF - random interlace	5	240.00

color

(see prices page 2)

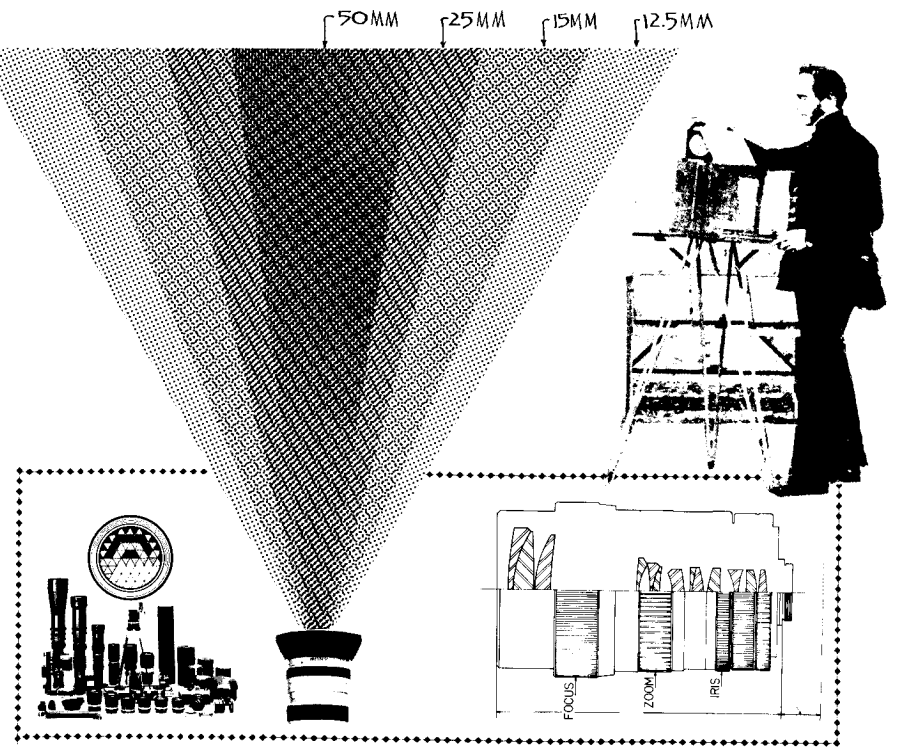
Camera	Weight	Dimensions	View Finder	Horizontal Resolution	Vidicon Tube	Lens	Special Features	Shpg. wt.	List price
Shibaden FP-1000A	16 lbs	6-1/8"w 10-15/16"h 13-3/4"d	5"	550	1"	single axis rear control zoom lens, adapter for C Mount, 5:1 zoom	comes with junction unit, - NTSC type	20	
Shibaden FPC-1000A	41.8 lbs w/o lens	7-1/2"w 14-1/2"h 20-7/8"d	5"	400	2/3" 3-tube	F1.8 - 20-100mm Fujinon	2:1 interlace - NTSC type		10,945.00
Shibaden FPC-1000A S1	41.8 lbs w/o lens	7-1/2"w 14-1/2"h 20-7/8"d	5"	400	CHALNICON 2/3" 3-tube	F1.8 - 20-100mm Fujinon	2:1 interlace - NTSC type		
Shibaden HV-1500	6 lbs w/o lens	6-9/16"w 5-1/8"h 9-1/4"d		250	1" 1-tube	C Mount	2:1 interlace - NTSC type	10	
Shibaden FP-1200	48 lbs	8-1/4"w 14-3/4"h 23-3/8"d		400	PLUMBICON 1" 3-tube	F2.5 - 16-160mm	built-in color bar generator		17,886.00
Shibaden HV-1100	18 lbs	5-7/8"w 7"h 16"d		400	2/3" 3-tube	optional	NTSC type - 2:1 interlace	25	10,945.00
Sony DXC-5000B	8 lbs	16-5/16"w 2-7/16"h 10"d	4"	450	1"	F2.0 - 16.5-95mm 6:1 zoom	red, green, blue & NTSC type gain & pedestal control - 2:1 interlace	30	11000.00
Panasonic WV-2100P	22 lbs	6-1/2"w 8-7/16"h 16"d	4.5"	500	2/3" 2-tube	optional	NTSC type - 2:1 interlace	42	4995.00
Sony Trinicon DXC-1000	23 lbs	7"w 7-3/8"h 22-3/8"d	1" optional ($300.)	300	TRINICON 1-tube	F2.5 - 18-108mm 6:1 zoom	internal sync generator & control unit - 2:1 interlace		3900.00

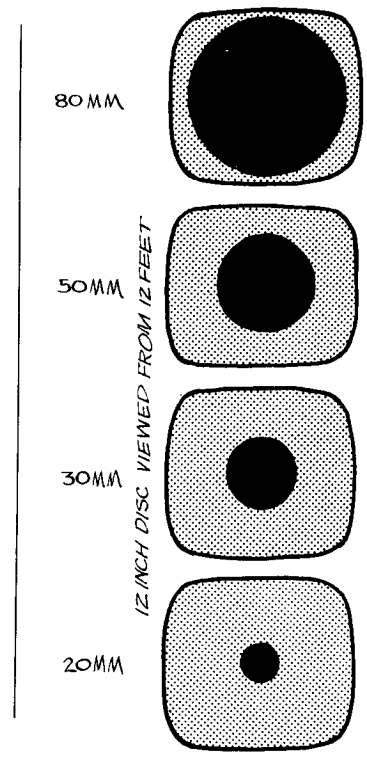


●The choice of a particular focal length lens is not only a matter of covering the field of view that is required. Lenses of different focal lengths also produce different perspective effects.

A short focal length lens (wide angle) makes an object that is moving toward or away from the camera appear to be moving much faster; it also has a greater *depth of field*--this is the range in which things are in focus in front of and behind the object you are focusing on.

Lenses have an iris diaphragm which can change the diameter of the lens opening (called the *aperture*) and affect the amount of light allowed to reach the vidicon. The higher the f-stop number (aperture closed), the greater the depth of field. Depth of field is proportional to the distance of the camera to the subject, the focal length, and the f-stop. (Camera shake is more apparent at a long focal length.)





LENS	APERTURE	FOCAL LENGTH	PRICE
Standard-Fixed focal length 2/3" vidicon			
COSMICAR			
C-2514	1.4	25mm	62.95
C-2519	1.9	25mm	34.95
FUJINON			
HF35-A	1.7	35mm	70.16
Telephoto 2/3" vidicon			
COSMICAR			
C-5019	1.9	50mm	64.95
C-5014	1.4	50mm	85.00
C-7519	1.9	75mm	64.95
C-15032	1.9	150mm	127.95
518EX	1.8	50mm	66.50
Wide Angle 2/3" vidicon			
TAMRON			
507	1.9	12.5mm	75.75
VCL-08	1.5	8.5mm	81.00
FUJINON			
MN-815	1.5	8.5mm	58.25
COSMICAR			
C-815EX	1.5	8.5mm	69.50
C-1214	1.4	12.5mm	115.50
C-418X	1.8	4.8mm	157.95
Manual Zoom 2/3" vidicon			
FUJINON			
H5X14A	2.0	14-70mm	212.00
H8X12.5A	2.0	12.5-100mm	483.95
H10X11A	2.5	11-110mm	722.65
COSMICAR			
C7223MZ	2.3	12-72mm	179.95
TAMRON			
VCL-1206	1.8		
Rear Control Zoom 2/3" vidicon			
TAMRON			
V5X15MSB	2.8	15-150mm (MS mount)	1400.00
H8X12.5A	1.2	12.5-100mm (for AVC-4200A)	810.00
V5X20MSB	2.5	15-150 (MS mount)	550.00
FUJINON			
H8X12.5HP	2.0	12.5-100mm	786.42
H10X11HP	2.5	11-110mm	848.00
H5X14P	2.0	14-70mm	371.00
H8X12.5HP	1.8	20-110mm	689.00
C6X18HP2	2.0	12.5-100mm	790.00
Rear Control Zoom 1" vidicon			
FUJINON			
C5X20HP	1.8	20-100mm	835.00
C8X18HP	2.0	18-144mm	960.00
C10X16HP	2.5	16-160mm	1375.00
Motorized Zoom 2/3" vidicon			
FUJINON			
H5X14MA	2.0	14-70	565.00
H8X12.5MA	2.0	12.5-100mm	880.00
H10X11MD	2.5	11-110mm	1055.00
Motorized Zoom 1" vidicon			
FUJINON			
C5X20MA	1.8	20-100mm	835.00
C8X18MA	2.0	18-144mm	1144.00
C10X16MA	2.5	16-160mm	1675.00
Control Box for all Motorized Zooms			
FUJINON	3 speed		158.00

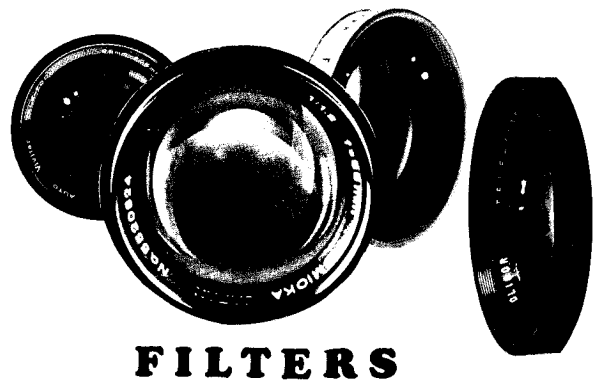
●*VIDICON* Tubes work on the photoconductive principle. The optical image is focused on to the *target*, which is made of a material that will pass a greater amount of electricity when struck by light. Therefore, as the electron beam scans the picture area, it produces a voltage proportional to the amount of light on each point of the picture. This is the standard TV camera tube--it affords good resolution and has rapid warmup. These tubes can be burned easily in bright light.

SILICON DIODE Tubes enable you to shoot in low-light-level situations. The target is composed of thousands of silicon diodes--these are more sensitive to light than the chemical coating on the target of a vidicon. They are more sensitive to the red end of the spectrum. The disadvantage in using this tube is the problem of lag, brightness staying in the picture (*decaying*). These tubes are not adversely affected by bright light and are interchangeable with vidicons, by disabling the AGC (automatic gain control) circuits of the camera.

PLUMBICON Tubes are also used in low-light-level situations. They have a lead oxide surface on the target. These tubes have very little lag. A camera that doesn't come with a plumbicon tube must be redesigned in order to use one.

8844 2/3" vidicon tube, grade A	$ 69.00
VID-1801 2/3" T.I. silicon diode, prime	$600.00
VID-1802 2/3" T.I. silicon diode, 2nd	$400.00

Modification and installation of silicon diode tube, $100.



FILTERS

●*Filters* are used for controlling light in both black-and-white and color. They can either be screwed directly onto the lens, or an adapter ring can be used.

Black-and-white cameras "see" colors differently; this results in colors being recorded in lighter or darker shades of gray. White light is the sum total of all the colors of the rainbow, or equal amounts of the primary colors--red, green and blue. When one or two of the colors are absorbed (subtracted), the color we see results. Colored filters absorb some of the light reflected from a scene before the light reaches the vidicon. Understanding this aspect of color could help you get certain desired effects when you are shooting colored objects in black-and-white.

Colors as seen in white light	Colors of light absorbed
red	blue & green
yellow (red + green)	blue
black	red, green, blue
white	none
gray	equal portions R,B,G

Contrast filters change the relative brightness valves so that two colors, which would otherwise be recorded as nearly the same, will have very different brightness in the picture.

A red apple and its green leaves might record as two nearly similar shades of gray. Using a red filter which transmits the red and absorbs the green, the apple will appear light and the leaves dark. A green filter will produce the opposite effect. Yellow or red filters are often used to darken a blue sky so that clouds will be prominent.

Neutral density filters reduce the amount of light before it passes through the lens. These differ from other filters in that they partially absorb all visible colors equally. *Bill says* the Texas sun is so bright, that with the aperture closed to the last stop, there is still too much light, so he uses neutral density filters. Since greater depth of field is possible with the lens closed (smaller aperture), to get less depth of field, neutral density filters can be used to obtain that effect when there would otherwise be too much light.

Polarizing screens also darken blue skies. They minimize reflections from foliage, water and glass, etc. (not metallic surfaces). Two polarizing screens can be used as a variable neutral density filter by mounting them together and rotating one.

We have just touched on the subject of filters. If you're interested, Kodak publishes an info book called *FILTERS* for black-and-white and color pictures. You can pick it up at a camera supply store. It discusses the use of filters in still photography; most of the information is applicable to video.

This stuff is expensive, check on picking it up used. Also improvise, it can't hurt.

16 LENSES TUBES AND FILTERS

TOP VALUE TELEVISION (TVTV) began in early 1972 as an Ant Farm/Raindance fantasy project to cover the National Conventions, then grew to include Videofreex and independent video people from New York, Chicago, San Francisco, and Los Angeles.

TVTV Tech Notes

Our experience of last summer as **TOP VALUE TELEVISION** led us through some technical problems which we think other people may be encountering, or will encounter, as more of us try to get distribution for our tapes.

Following is a debriefing of some of those experiences which we think folks would like to know about:

SHOOTING - The most basic thing we learned is that even though a tape will play back as an original, it may not be possible to edit from it. A major cause of non-editable tape is a camera cut where the original tape locks up right away while the sync signal is actually too erratic for a stable edit.

Because many people have a tendency to shoot just as something happens, the initial 3-5 seconds of the action can be lost in the editing process. Conclusion is that you should click on the camera 6 seconds before you want to make a shot.

Also, Tivicon* tape, although it plays back all right on the original, is generally useless when there are wild fluctuations in light level. Because there is no AGC in a Tivicon* camera, the sync pulse drops considerably when the light level is high (characterized by a blooming effect).

As the world's largest TV studio, the convention hall in Miami Beach was thick with RF interference from transmitters. Chuck Kennedy of Videofreex solved this problem for us by essentially plugging the leaks into the camera by grounding them with flat, braided wire. (Chuck and Parry Teasdale were our engineers for TVTV and most of what you're reading here is what they figured out and passed on to us.)

RF interference is characterized by snow and grid patterns in the raster, even on broadcast TV. It ends up on the tape as well. While the conventions were an exceptional situation, shooting near a TV transmitter will occasionally generate the same problem (down on Wall Street, for example, or at the top of the Empire State Building).

Chuck's method of shielding the camera is the best we found for plugging the leaks. In addition to the wire grounding, he also scraped off the paint on both the camera lid and the camera body. This provided a tighter seal between the metal of both. The only remaining hole is the microphone on AV cameras and that can be shielded either with your hand or a piece of aluminum foil. (In fact, wrapping the whole camera in aluminum foil is a quick way to thwart RF interference.)

Finally, because we were using a lot of different portapaks (we had 10 available and used 5 at a time), Chuck pre-tuned each, using a Sony alignment tape to assure compatibility in playback.

EDITING - We owe the superb technical quality of our tapes to Parry and Chuck, who literally checked each edit for stability. As a routine, they would first look at each piece of tape to be edited (we used an AV 3600, and the Panasonic NV 3020 and NV 3130 as our playback decks, the 3130 because of its built-in drop-out compensator) through an oscilloscope to make sure the sync pulse was stable. If the edit held on the Sony 320F, but there was still some doubt as to its stability, Parry or Chuck would dub back down to a third generation half-inch copy and play that back through RF. Occasionally, even though an edit held up on the master, it would not transfer when played back through RF (which approximates home reception). By checking each edit as we went along we avoided finishing the tape and then discovering technical weaknesses.

It was during editing that we discovered the problems mentioned under **SHOOTING**. (All of our original tape was shot with single system portapaks and edited at the Egg Store on the 320F. We also used the Panasonic VY-922 switcher-fader with genlock and recommend it highly.)

We did not use a proc amp for editing. While we borrowed one from Grass Valley, we were unable to get it to stabilize with the 320F. From what we've heard, the Grass Valley is not a particularly good machine to use with helical scan equipment.

DUBBING - For half-inch distribution we made straight electronic dubs. These were distributed to cable stations and, depending upon each systems' commitment to half-inch, they transmitted fairly well. (We had a horrendous ex-

perience at Sterling-Manhattan, however, with our first tape. Thanks to John Sanfratello, Sterling has solved some of the basic problems with respect to half-inch, but not on all of their circuits. The night our tape played, the engineer forgot to run it through the right circuit and the quality was execrable. Our conclusion is that the only way to assure good transmission of your tape is to be there every time, and in lieu of that it pays to provide the most stable copy possible.)

The most exciting thing we did was broadcast the tapes because in so doing we proved that half-inch tape has not only a technical capability comparable to other black-and-white modes, but it can also be made stable enough for all uses.

We had not originally planned to sell our shows to broadcast outlets for a variety of ideological reasons, but we changed our minds because of the money involved (we got an average license fee of $500 per showing) and the exposure.

Our first solution to the problem of transferrring to quad was via scan conversion, which is simply shooting the playback off a monitor. While this provides perfect stability because each copy is camera original, there is a loss of both resolution and contrast, since scan conversion is an optical process.

Unfortunately, we didn't discover the electronic method until the end of our distribution efforts. We did it at Westinghouse in Philadelphia using the new *Ampex AVR-1 quad machine* (*see Processing, page 23*) which has extensive time-base correction circuitry. There are at least two of the machines in Manhattan, at EUE Screen Gems, which refuses to work with half-inch, and Hughes Sports Network, where Richard Rubinstein pioneered in dubbing half-inch earlier this year.

However, Richard only transferred his first generation half-inch tapes (and then edited from two-inch to two-inch, giving him the advantage of quad editing techniques, but the disadvantage of buying time on quad machines). Our success came in transferring our edited master (i.e. a second-generation tape where the time-base error would be multiplied). In some cases, the AVR-1 actually stabilized edits that seemed shaky on our master tape.

What this means, in short, is that it's possible to do low-cost shooting and editing and then broadcast or cablecast from the edit with perfect stability. While there may be some holdout engineers who will never believe this, it is demonstrable. Thus, all the advantages of portapaks can be coupled with the stability of broadcast.

(We know of two other potential solutions to the timebase problem in half-inch and have tried one, unsuccessfully. That is the IVC 960, which is a broadcast standard one-inch machine with time-base correction. We found that the 960 would copy our first generation half-inch tape, but would not accept an edited version. The other option is the Delta 44 time-base corrector which, when coupled with the Delta 28 time-base director, may be able to process half-inch, but we have had no experience with this. The advantage of the latter is that as a module it costs about $10,000, while the IVC 960, which doesn't work anyway, costs $35,000, and the AVR-1 sells for $140,000 and is thus too expensive for anyone to own.)

TAPE-TO-FILM - We explored three processes for transferring our tape to film. We haven't yet done it because of lack of need, but did do an experiment with the 3M Electron Beam Recorder (EBR). EBR is an electronic system which places the scan lines directly on film and bypasses any optical transfer. Because the system demands quad sync, and the place we tried it did not have an AVR-1 (and didn't have the courtesy to tell us about them), the instability of our tape came out as wobbly film frames. The guaranteed process, of course, would have been a traditional kinescope (i.e. shooting off a high resolution monitor), but we felt that would be unsatisfactory.

Assuming you have a time-base corrected tape, the very best tape-to-film process we've seen is by Image Transform (at 2 West 45th Street) in New York and Hollywood. It's so good you can't see scan lines and thus can't tell the original was shot on tape. They use the AVR-1 for playback and thus should be able to work with half-inch.

However, they have experimented with half-inch color and were unsuccessful, primarily because time-base instability is compounded by the complexity of the color signal.

COLOR - We just returned yesterday (December 12th) from a visit to the Magnavox plant near L.A. Magnavox has a hand-held (6 pound) color camera which will be available early next year for $2,500. The camera is not fully portable in that it runs off AC and also requires a modulator box in addition to the camera. However, they say that the camera (called Series 400) can handle up to 28' of cable to the modulator box, and then another 500' from the box to the record deck. Thus, in a stationary situation where you would use AC anyway, hand-held color is now possible.

The camera uses one tube and a filtering system in front of it. The filtering system requires a red filter to be built into the lens (if it were screwed on the outside the red would distort the color). Because the lenses have to be custom made, Magnavox made the stupid decision of having it be permanent. Thus, purchasers are stuck with an f2.5 20-80mm zoom, which isn't a very desirable range.

The camera will operate down to 30 foot-candles, about the light of a well-lit office, and even with supplementary lighting will still not require that bright, plastic type of lighting which characterizes broadcast studio TV.

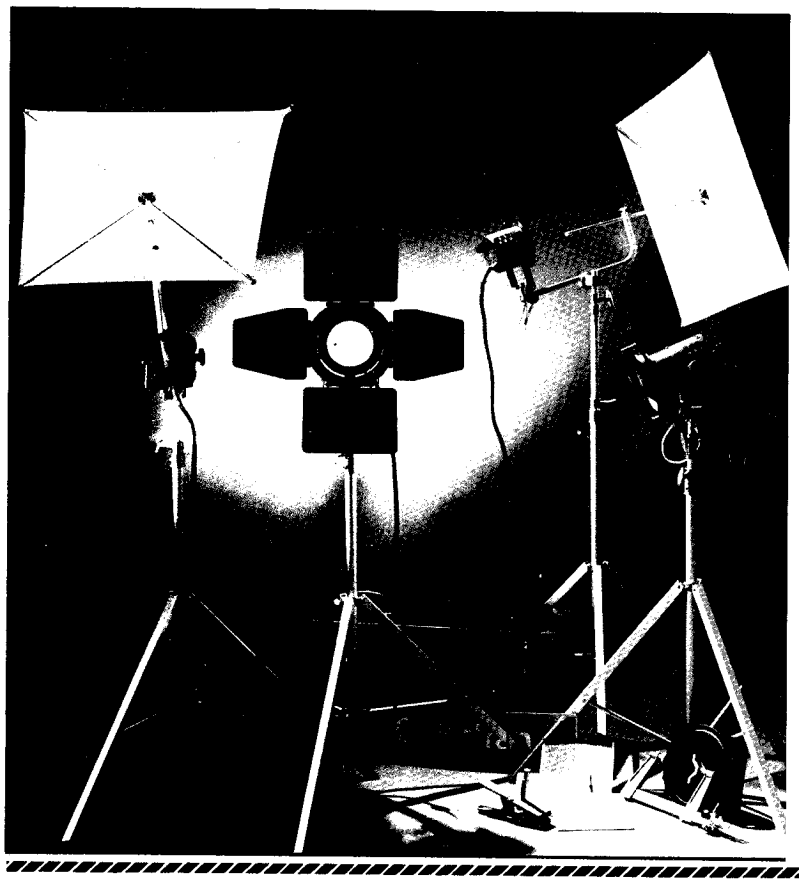
Another disadvantage is that the camera has no controls other than on and off. It puts out EIAJ sync and thus will theoretically work with any VTR except quarter-inch. Ultimately, it could displace the PCP-90 which is the huge portable camera used by broadcasters. Magnavox says that commercial TV people refuse to believe that a color camera can be that small.

The model we saw was a prototype and had disappointing color. But a larger model using the same one-gun system put out excellent color, and Magnavox says that the production model Series 400's can match it.

With about $6,000 and a good inverter it would seem to be possible to build a color portapak using the Series 400 and the new Panasonic portapak which has an optional color circuit module. However, this would probably require a 40-pound backpack just to service a 6-pound hand-held camera.

Well, that's about it from here. If anyone has questions, please write us at: Box 630, San Francisco, California 94101.

*Tivicon is a brand name for the Texas Instruments Silicon Diode tube.



Colortran Commercial Kit

catalog no.
150-018 $645.00

Features

An ideal kit for commercial lighting jobs.

Provides soft, tent-like illumination for specular objects, paintings, etc.

Uses powerful Multi-6 lights for key (highlight) lighting.

One case carries it all.

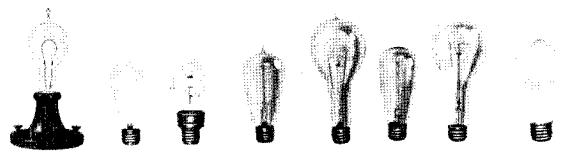
Uses 21.7 amps at 120 volts AC/DC.

Contents

qty.	order code	description
2	100-151	Multi-6
2	118-013	Four Leaf Barndoor
2	122-019	Single Scrim
2	122-020	Double Scrim
2	116-051	Quartz King Dual 650 Mark II
2	157-007	27" Reflector Umbrella
2	157-008	Mounting Bracket
4	152-003	Channel Leg Stand
1	156-001	Gaffer Grip
1	156-006	Mitee Grip
4	176-002	650W, 3200°K, 125 hr. Frosted Lamp
1	148-008	Case

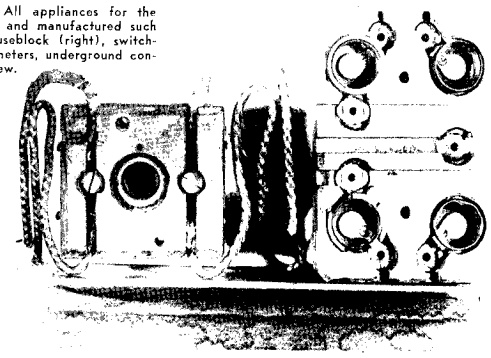
Spot-lamps: highly directional units providing a thin pencil of light for picking out shadow details and illuminating very small areas.

LIGHTING



EDISON The greatest of his achievements was the incandescent lamp for it changed a long night into day. To progress there had to be a beginning. The ascent of the incandescent lamp is shown, left to right: Edison's first lamp, carbon filament lamp, tantalum filament lamp, drawn wire filament lamp with tip, gas-filled lamp with tip, vacuum lamp without tip, gas-filled lamp without tip, inside frosted lamp. National Youth Administration in the National Archives.

A NEW INDUSTRY WAS BORN. All appliances for the lighting system had to be invented and manufactured such as: wooden lamp sockets (left), fuseblock (right), switchboards, dynamos, lamps, switches, meters, underground conductors and connectors, to name a few.



Focusing floods: directional lighting units fitted with a focusing device enabling the width of the beam to be varied to flood a fairly wide area or concentrate on a small portion of the scene only. Normally available in 500 Watt, 2kW., 5kW, or 10kW sizes, they may be fitted with hinged flaps known as "barn doors" to cut off part of the beam when required. Perhaps the most popular and versatile of all standard type lighting units.

Floods: non-directional units consisting of one or more lamps giving a flat light over a broad area.

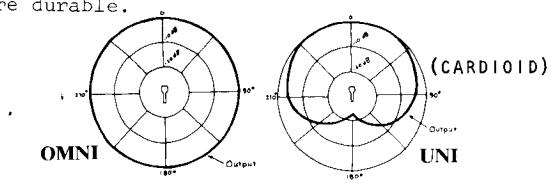
BASICS

●There are basically three different kinds of microphones you might work with:

A *shotgun*, which would be used to pick up one person, or a small group, from a distance away. Shotguns have a very narrow pickup pattern; the further away the mike is from the voice, the more unwanted sound it picks up. Electrovoice makes three really good shotguns. The superduper expensive one takes two people to carry.

Then, there are *lavalier* mikes; these are small and hang around the neck. They have a sound response that's tailored to the fact that you're not speaking directly into it, it's somewhere under the chin. Lavalier mikes are omnidirectional. Sony, Shure, and lots of others manufacture this type.

The third type is hand-held, or stand-held. These are omni- or unidirectional (also called cardioid). Which you should use, depends on the application. There is a really wide range of this type. Generally the best are *condenser* mikes; these require batteries. *Dynamic* mikes plug in directly without a battery, and are more durable.



Omnidirectional would be used if there is only one microphone and a circle of people speaking; you could then suspend the mike in the middle. Directional (uni-) are used to pick up a single voice or for four (or so) voices, each with a mike. Then with a mike mixer you can raise the volume of a soft voice, to balance the sound.

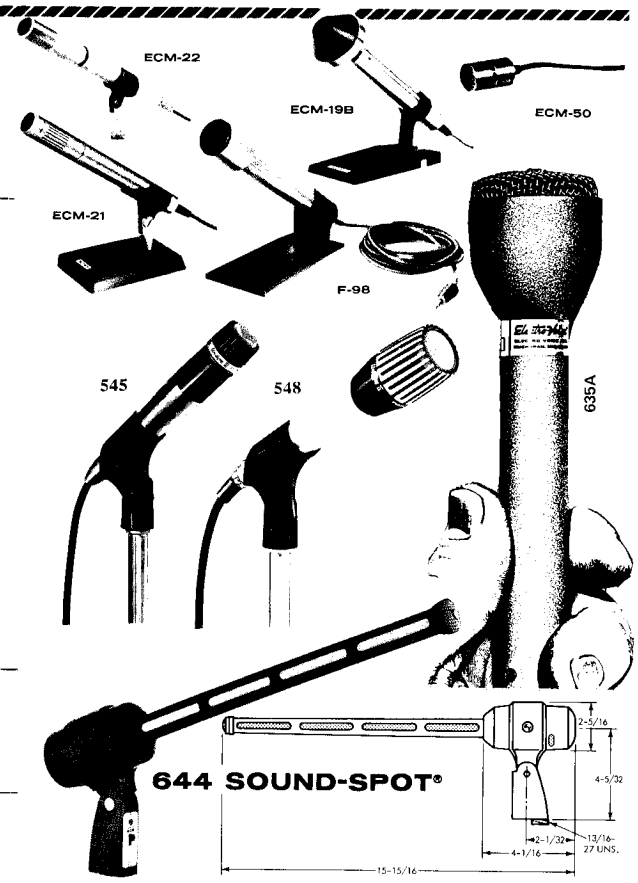
There are also *wireless* microphones; they have a built-in transmitter. Although you don't need cable, you do need a receiver. Some mikes can be used with a regular FM tuner, some require a special receiver. The problem comes if a big garbage truck goes by and you get crackling in your sound.

Equalizers give you control of sounds (individual frequencies). They're effective in reducing room noise, street noise. You can remove rumble, great if you're shooting in subways. They also remove 60-cycle hum (a steady bass tone). But if all you want to do is get rid of 60 cycle hum, use a 60 cycle notch filter.

It is advisable to stick with *low impedence* audio equipment, primarily because there is no problem with using long extension cables.

Alan

SOUND



MICROPHONES - HAND AND STAND HELD

		(net)
ELECTROVOICE		
635A	Omnidirectional Dynamic	56.70
654A	Omni, Dynamic	72.00
RE-50	Omni, Dynamic	77.10
RE-55	Omni, Dynamic	149.40
1711	Omni, Condenser	59.70
RE10	Unidirectional Dynamic	99.60
RE11	Uni, Dynamic	106.50
RE15	Uni, Dynamic	169.80
RE16	Uni, Dynamic	176.70
RE20	Uni, Dynamic	285.00
1751	Uni, Condenser	75.00
1750	Uni, Condenser	45.00
		(list)
SONY		
ECM-19B	Uni, Condenser	32.00
ECM-21	Uni, Condenser	53.50
ECM-22	Uni, Condenser	107.50
ECM-F98	Uni, Dynamic	14.50
		(list)
SHURE		
548-IV	Uni, Dynamic	115.00
545-III	Uni, Dynamic	96.00

MICROPHONES - LAVALIER

		(list)
SONY		
ECM-50	Omni, Condenser	140.50
		(net)
ELECTROVOICE		
649B	Omni, Dynamic	73.50

MICROPHONES - SHOTGUN

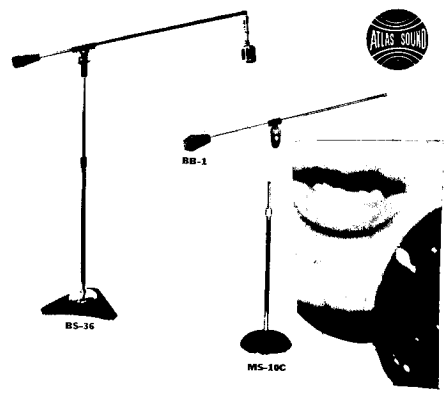
		(net)
ELECTROVOICE		
644	Uni, Dynamic	82.00
DL42	Uni, Dynamic	300.00

CABLES AND CONNECTORS

SONY		
EC-5M	Mic. Extension Cable 16'	3.75
EC-10M	Mic. Extension Cable 32'	5.50
EC-25M	Mic. Extension Cable 82'	10.75
RK-34	Mini Male/Mini Male Cable	2.25
PC-1	Plug Connector (regular to mini plug)	1.50
PC-2	Plug Connector (mini to regular plug)	1.50
AXC-1	XLR Male/XLR Female Connector, 5'	6.50
AXC-5	XLR Male/XLR Female Connector, 16'	8.00
AXC-10	XLR Male/XLR Female Connector, 32'	10.00
EXC-1A	XLR Male/Mini-Plug Connector, 5'	5.30
EXC-1B	XLR Male/Mini-Jack Connector, 5'	5.30
EXC-1C	XLR Female/Mini-Plug Connector, 5'	5.30

AUDIO CONNECTORS

A3M Male	3-pin microphone cable, some monitors, 1" decks	2.10
A3F Female	3-pin microphone cable, some monitors, 1" decks	2.45
Mini m	Sony decks and small monitors	1.25
Mini f	sound extension cables & adapters	1.50
RCA m	Panasonic decks, most stereo amplifiers	.55
RCA f	sound extension cables & adapters	.45
Telephone	older microphone mixers, mike input on Panasonic decks	.65



ATLAS MICROPHONE STANDS

MS-10C	10" Base 34"-62"	$ 9.50
BB-1	Baby boom adapter	6.92
BS-36	Boom stand to 72" high 62" boom	59.85
BS-36W	as above w/wheels	67.80

SMITH-VICTOR CORP.

KIT — 18" x 12" x 6" — Weight 16 lbs.

The Model K2 Kit consists of 3 lights with a total of 1800 watts, 3 stands and a compact carrying case.

The 3 Q1P Quartz Lights, each with a 600 watt DYH Lamp are rated at 3200° K, 75 hour life.

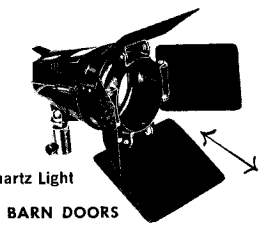
3—S6 Stands—a unique 4 section steel stand that extends to 6 feet or can be used as a low background stand.

By using the No. 511 extension sections of the stand in the kit, it is possible to have a higher than 6 foot stand.

There is a No. 512 adapter to permit the use of the S6 leg section as a low background stand.

The entire unit is packed in a Model 634L case that has 3 compartments for the lights, a stand compartment and extra space for spare lamps and extension cords.

Complete Outfit No. K2 (without barn doors)	**$115.00**
Complete Outfit No. K2B (with 3 barn doors)	**150.00**
Model Q1P Quartz Light	**21.50**
Model S6 Steel Stand	**8.50**
Model 511 Extension	**1.10**
Model 512 Adapter	**1.65**
Model DYH 75 hour Quartz Lamp	**11.70**
Model BD3 Barn Doors	**12.95**
Model 634L Case	**30.00**



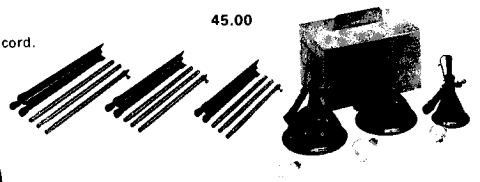
Q1P Quartz Light

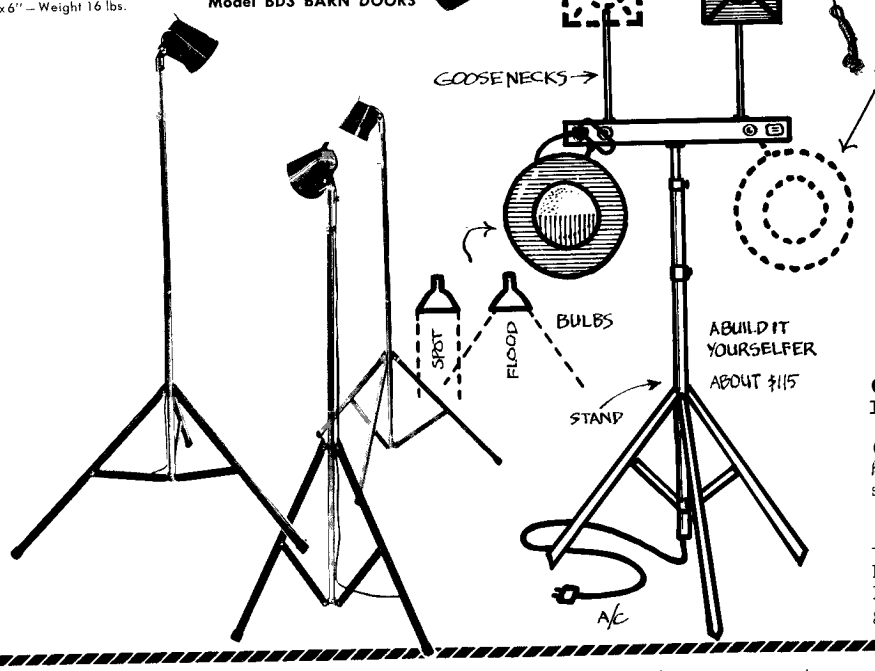
Model BD3 BARN DOORS

Model K6 Photoflood Studio Kit

1 — A5 5" background and special effect light, 10 foot cord.
2 — A100 10" Studio Lights. 10 foot cord.
3 — S6 6-1/2 foot Steel Stands.
1 — No. 1 BBA Floodlight Lamp.
2 — No. 2 EBV Floodlight Lamps.
1 — Handy storage and carrying case.

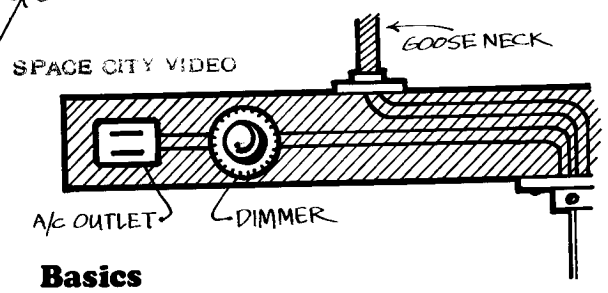
45.00





Model 90

General purpose clamp lamp for No. 1, 250 watt or No. 2, 500 watt lamps. 10-1/2" reflector. On-Off metal socket, heat-free handle with 6-foot cord. **5.95**



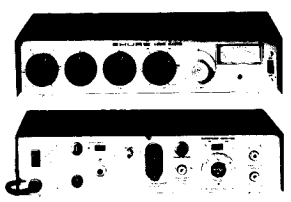
ABUILD IT YOURSELFER ABOUT $115

Basics

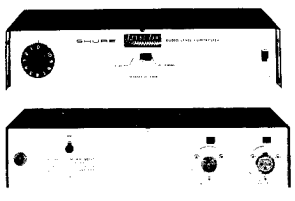
●Light from the front provides an overall level of flat light.

●A strong light from one side referred to as *key light*) casts shadows and thereby emphasizes shape and molding.

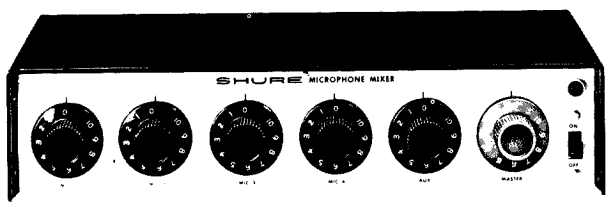
●Light from behind the subject (*back lighting*) tends to make the subject stand out from the background, by emphasizing the various planes. It suggests the third dimension. Back lighting gives a scene depth.

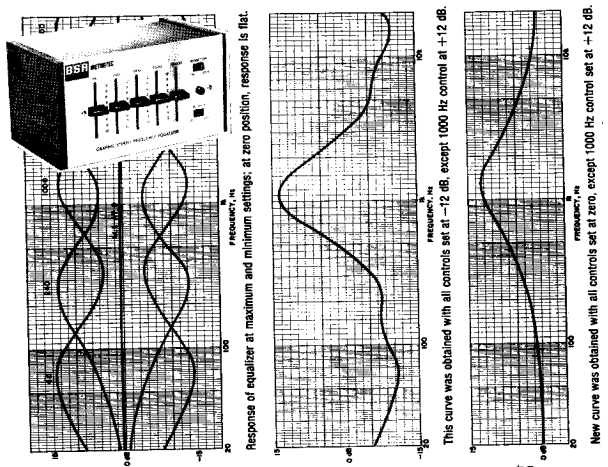


M63



M62V LEVEL-LOC®

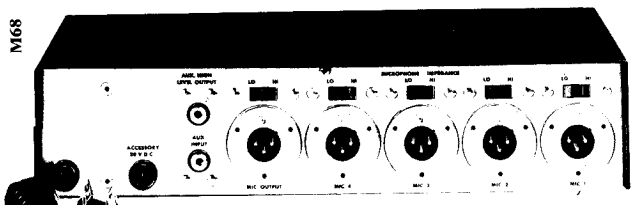




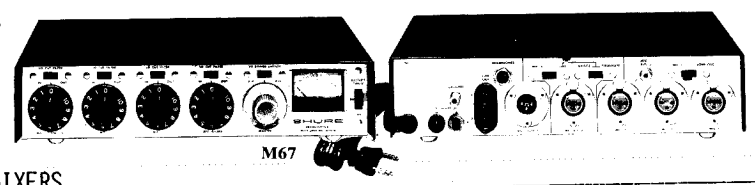
BSR METROTEC Frequency Equalizer

A68S Stacking Kit—Enables you to conveniently interconnect and stack 2 Units—with 2 M68's you get 8 microphone inputs and 1 Auxiliary input. With 2 kits you can stack three Units—say 2 M68's and 1 M63. A single master volume control handles the entire matrix. Includes brackets, interconnecting cable. Fits M62V, M63, M67 and M68 Series, and M688. **List Price: $5.00**

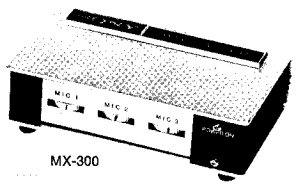
A68R Rack Panel Kit—Standard 19" x 3½" audio equipment rack panel for use with all circuitry units. Gray Hammertone finish. **List Price: $14.00**



M68



M67



MX-300

MICROPHONE MIXERS

	MIKE IN	AUX IN	MIKE OUT	AUX OUT	FEATURES	
SHURE						
M68	4 XLR male	RCA	XLR female	RCA		140.00
M68FC	4 XLR f	RCA	XLR m	RCA		150.00
M68FCE	*same as above, with universal power*					152.00
M688	4 XLR f	2 RCA	XLR m mono	2 RCA	1 panpot stereo	190.00
			RCA mixing bus			198.00
M688E	*same as above, with universal power*					270.00
M67	3 XLR f 1 XLR		XLR m		headphone jack, 1 meter, 600 ohm balanced out, standard telephone, screw post, aux in termination switch	
M63		2 RCA mixed simultaneously	1 XLR m switchable hi-lo impedance	RCA	600 ohm balanced out, head phone jack, aux AC out	160.00
SONY						
MX-300	3 mini		1 mini		battery operated	65.00
MX-12	6 phone	RCA	2 phone	2 RCA	battery operated, head phone jack, 2 pan pots, 2 meters, slide pots stereo	110.00

The M62V Level-Loc is an audio level controller, it reduces overly strong input to keep microphone output at a predetermined maximum level. 100.00

BSR METROTEC Thanks to Andy Mann for showing us the Metrotec Equalizer. It is effective in reducing room noises, rumble, unwanted sound. It allows control of individual frequencies. For stereo or mono sound. In mono it can suggest 2 channel audio. $79.95, kit $99.95 assembled

Bill says Check out the MX-12, we've been using it with great success.

TWO-TRACK AUDIO ON 1/2"

●Two-channel sound can be recorded on the Sony 1" EV series machine, or the U-Matic 3/4" cassette machine. Another way of doing this would be to replace the original audio head on the deck with a small stereo audio head, adding an audio recording amplifier to handle the second audio track. The recording amplifier can be built inside the machine. *Lui says* this modification would be $400.00. No TV will play back two-channel by itself. Sound should be plugged into stereo amplifier.

Lui says better sound can always be achieved by plugging into a stereo amplifier system. Small TV monitors have only 2-3" speakers which are not quite adequate for good quality sound.

●The sound part of the television set has a power not possessed by the optical part, namely, it can reach and affect an audience that is not facing the set. Sound goes around obstacles that stop light rays. Hence we can draw attention via the sounds emitted by the set when we cannot via an image, however beautiful and worthwhile. In sound we have a trigger of a process that can later be taken over by visual images.

Because sound has as its support the surrounding air, because the air takes time to convey its messages, there are fundamental differences between the sound and the light components of the medium.

In addition, vision is in space and sound is in time. When we listen to speech we need to wait until the end of each sentence to understand what is meant, while the act of looking at a landscape provides immediate and simultaneous information from an infinite number of sources. In other words, vision is essentially synthetic and hearing analytic, although through focusing we restore analysis to sight and through memory and conceptualization, we add synthesis to hearing.

A sound system is a built-in element of the TV set, but it is not compulsory to think of it as being only a carrier of words and music. It may have much more to offer. Sounds can be studied in themselves, and for certain purposes should be, as if we were blind people. Such a study would contribute an awareness of sound per se as well as an awareness of the various qualities of sound that our ear and our sensitivities can detect and register. Sounds also can be studied as concomitants of some visual impressions and can be perceived as such when the sources of sounds are shown on the screen.

reprinted from *Towards a Visual Culture*
By Dr. Caleb Gattegno

The most complete book we have found explaining the principles of television is *The Focal Encyclopedia of Film and Television Techniques* by Focal Press. This book is expensive ($37.50) but worth it. Hasting House will take your money and send you the book.

Thanks to the British Bureau of TV Advertising Ltd. for *Puck's Promise, a short history of television.* The pamphlet has information and pictures (*see p. 3*) on early experiments with TV done in England.

Thanks to Parry Teasdale for recommending *The Pictorial History of Television* by Settel and Laas. This book has a good bit of background info and lots of TV stars. It is filled with great pictures (*some on p. 3*). Published by Grosset & Dunlap $7.95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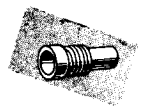
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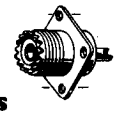
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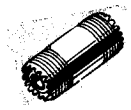
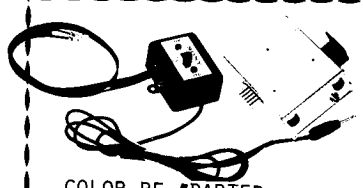

K

connectors

A	AF59TS	"F" Termin. male connector	75¢
B	AF61A	"F" Female spring connector	50¢
C	AF59	"F" Male RG/59U cable connector	30¢
D	AF81-AB	1-3/4" "F" spring connector	1.25
E	1013-21	UHF male to "F" female adapter	3.50
F	260	BNC connector (for RG59/U cable)	1.00
G	SO239	Female UHF chassis connector	
		Standard	45¢
		Teflon	1.00
H	5804	Female UHF chassis connector	1.25
I	M358	"T" UHF adapter	2.20
J	M359	Right angle UHF adapter	1.50
K	PL258	Female UHF adapter	1.25
L	PL259	Male UHF connector, requires adapter	
		Standard	.85
		Teflon	1.25
M	UG176/U	For UHF PL259,adapter (for RG59U)	20¢



RF ADAPTER FOR PORTAPAK

Sony
RFU-52W through 57W for channels 2-7 $59.40
Panasonic
NV-U415, NV-U416 for channel 5, 6 $57.50

COLOR RF ADAPTER
Panasonic NVU-97, 98 for channels 7 & 8. $215.00
Sony RFU-103FW, 104FW for channels 3 & 4. $91.80

MATCHING TRANSFORMER
75 ohm cable to 300 ohm TV antenna lugs
MT-2000 $1.80

AN RF ADAPTER enables you to play back videotapes on a regular TV set. RF stands for radio frequency, which is a high frequency signal that can be transmitted through space. An RF adapter converts video and audio signals to the same type of signal used for television broadcasting.

PORTABLE VTR CAMERA ADAPTER
This adapter allows you to use a portapak camera with a table model VTR.
Sony CMA-2 $118.

SONY CAMERA ACCESSORIES

AVF-3200	viewfinder for AVC-3200, 3210	$216.00
CG-1	sync generator, pulse/square wave	190.00
VCS-31	camera selector to operate up to 3 cameras with one VTR	55.00

PANASONIC CAMERA ACCESSORIES

WJ-120P	sync pulse generator	$250.00
WJ-140P	pulse distribution amplifier	$150.00
WV-650	power supply for tally lamp & id intercom	$ 35.00

still good stuff

GAFFERS TAPE 2" ROLL $4.50

SONY

VCT-1	Monopod	$ 12.
TD-300	Tripod, dolly and cam link head	$345.
VC-20A	Tripod	$ 48.75
TD-1	Dolly	$ 55.00

NEW
BODY (CAMERA) BRACE-A little expensive, but well worth the money. Far superior to any others we have seen. Completely adjustable, folds up. $95.00

CARRYING CASE FOR CASSETTE MACHINE

Sony LC-200 for VP-1000 player	$110.00
LC-300 for VO-1600 recorder	$140.00
Panasonic	
PC-210 for NV2110 player	$125.00
PC-220 for NV2120 recorder	$150.00.

coax

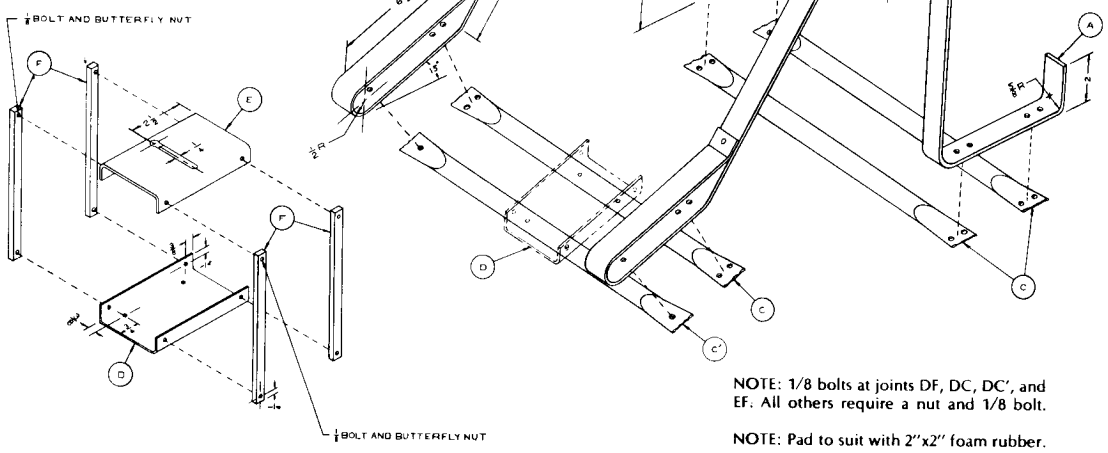
A COAXIAL CABLE consists of three elements. In the center runs a copper wire; this is surrounded by an insulating layer of polyethylene foam, which accounts for the major portion of the cable's diameter in cross section. The insulation is surrounded by a tubular shield of braided copper wire or a seamless aluminum sheath.

COAX BY THE FOOT 1'-99' $.10 per foot
100-up $.06 per foot

CABLES:

MODEL	CONNECTORS	LENGTH	
SONY			
CCF10		16'	
25	6-pin m to 6-pin f	32'	for use wi
50		82'	cameras, c
		164'	
CCY10		32'	for use wi
25	18-pin m to 18-pin f	82'	extension
CCJ 1		5'	for use wi
5	10-pin m to 10-pin f	16'	camera exte
10		32'	tween CGI01
			CCV5000 ser
			(for DXC500
RGC 5		5'	
15		15'	
25	UHF m to UHF m	25'	video cable
50		50'	
VMC-1Q	8-pin m to 2 UHF m, 2 mini m	10'	octopus cab, video & aud, 8-pin, coax
VMC-1M	8-pin m to 10-pin m	5'	for AV-3400
VMC-1B	8-pin m to 8-pin m, 4-pin m	1'	Y-type bran, monitors, a
VMC 3P		10'	
10P	8-pin m to 8-pin m	32'	video exten, monitor, au
25P		82'	
VMC-1C	8-pin m to 8-pin f, UHF m	1'	Y-type bran
CCV10		32'	
25	19-pin m to 19-pin f	82'	DXC5000 ser

The back pack is made of one-inch and three-quarter-inch aluminum tubing, aluminum strapping about one inch wide by one-quarter inch thick, and foam rubber pads screwed to the frame with self-tapping screws. The unit requires no additional harness — it simply rests on the cameraman's shoulders. The entire cost for materials was just under $20.



NOTE: 1/8 bolts at joints DF, DC, DC', and EF. All others require a nut and 1/8 bolt.

NOTE: Pad to suit with 2"x2" foam rubber.

A Aluminum strip, 1x 1/8 — 44" long; 2 pieces
B Aluminum tube, 1" dia., 14" long — flattened at both ends with 2, 1/8" holes at each end; 1 piece
C Aluminum tube, 3/4" dia., 14" long — flattened at both ends with 2, 1/8" holes at each end; 3 pieces
C' Aluminum tube, 3/4" dia., 14" long — flattened at both ends with 1, 1/8" hole at each end; 1 piece
D Steel channel, 2 7/8x3/4x1/16, 4 1/2" long — with 2, 1/8" tapped holes on each side and 4, 1/8" holes on bottom
E Steel channel, 2 7/8x3/4x1/16, 4 1/2" long — with 2, 1/8" tapped holes on each side and a 1/4" slot on top
F Aluminum bar stock, 3/8x1/4, 6 3/8 long — with 1, 1/8" hole on each end
H Butterfly nut (1/8) where noted; 2 pieces

by Charles M. Sutcliffe

Drawing by Joseph C. Nelson

reprinted from Educational Industrial Television
January 1973

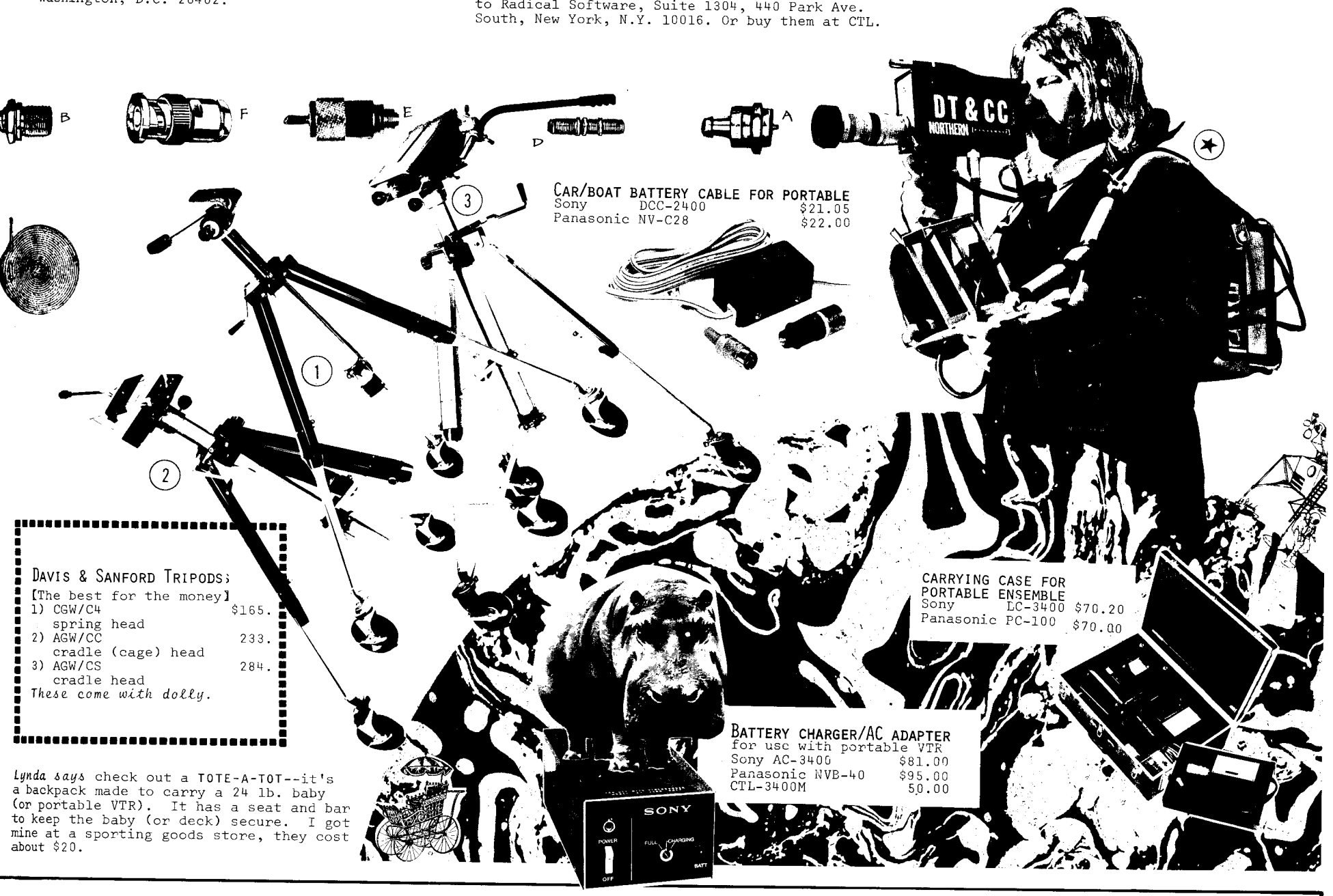
20 ACCESSORIES

CTL VIDEO TOOLS #2

The Mariner 6 & 7 Pictures of Mars explains the television and photographic processes involved in getting visual information from Mars (*see p. 23*). This book can be obtained by sending $4.25 to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Radical Software is an on-going publication started by Raindance. Issues are now being prepared by other groups as well. These books (8 so far) cover a wide range of subjects related to alternative television. They cost $1.95 or $3.00 depending upon the issue. Write to Radical Software, Suite 1304, 440 Park Ave. South, New York, N.Y. 10016. Or buy them at CTL.

? - drawings and poems by Bill Narum. Not related to video (this is a plug), just beautiful artwork (*some on pp. 27, 39*). Copies can be obtained by sending $1.25 to Bill/Space City Video, 4220 Mandell, Houston, Texas.



CAR/BOAT BATTERY CABLE FOR PORTABLE

Sony	DCC-2400	$21.05
Panasonic	NV-C28	$22.00

DAVIS & SANFORD TRIPODS
[The best for the money]

1) CGW/C4 spring head	$165.
2) AGW/CC cradle (cage) head	233.
3) AGW/CS cradle head	284.

These come with dolly.

CARRYING CASE FOR PORTABLE ENSEMBLE

Sony	LC-3400	$70.20
Panasonic	PC-100	$70.00

BATTERY CHARGER/AC ADAPTER
for use with portable VTR

Sony AC-3400	$81.00
Panasonic NVB-40	$95.00
CTL-3400M	50.00

Lynda says check out a TOTE-A-TOT--it's a backpack made to carry a 24 lb. baby (or portable VTR). It has a seat and bar to keep the baby (or deck) secure. I got mine at a sporting goods store, they cost about $20.

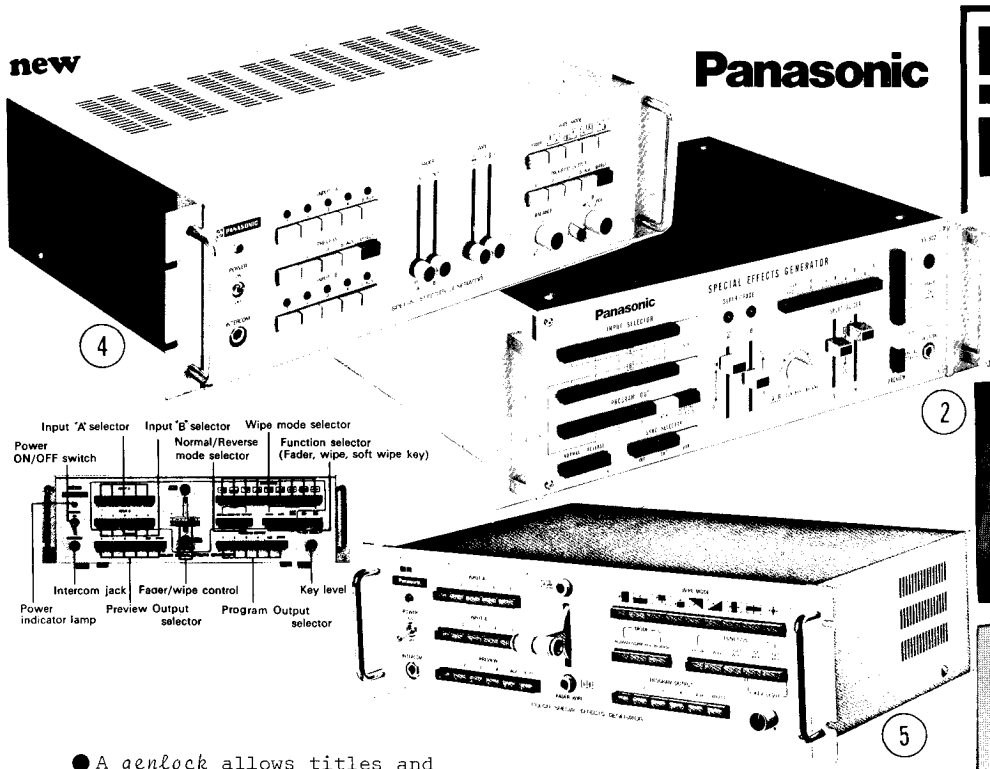
	Uses	
		10.00
	with AVC-3200 & 3210 series	12.00
	, camera extension, video	28.00
		55.00
	with AVC-4600, video, camera	135.00
	on	270.00
	with portable, video & audio,	
	extension, and connections be-	35.60
	G101 (color sync generator) and	48.60
	series camera control unit	70.20
	C5000 series color cameras)	
		12.00
		19.50
	able & RF	28.00
		45.35
	cable for dubbing AV, CV & EV,	
	audio, anything that takes	30.00
	coax, mini	
	3400 to monitor, video & audio	21.50
	branch cord, 2 outputs for	23.75
	s, audio & video	
		13.50
	extension, deck to deck, deck to	27.00
	, audio & video	37.75
	branch cord	17.25
		160.00
	series color camera cable	300.00

VEC25	UHF m to	UHF m coupling	25'	video cable	15.00
50			50'		25.00
100			100'		40.00
4D20	6-pin m to 8-pin m		20'	monitoring cable WV-350, 360P	20.00
23A25			25'		160.00
50			50'	extension cable for WV-2100P (color	220.00
100			100'	camera)	320.00
4T61			6'	tally intercom cable for WV-2100P (color camera) & WJ-5000P (color SEG)	18.00
NV-C26	8-pin m to 10-pin m		10'	monitor cable for portable to monitor	22.00
10G25			25'		50.00
50	10-pin m to 10-pin m		50'	with WV-250P, 340P, 360P, video	75.00
100			100'		115.00
10H25			25'		50.00
50	10-pin m to 10-pin f		50'	extension cables for 10G series, video	75.00
100			100'		115.00
VEC25	UHF m to	UHF m coupling	25'	video cable	15.00
50			50'		25.00
100			100'		40.00
7A16P			16'		39.95
32P	10-pin m to 10-pin f		32'	for portable VTR	59.95

CTL

Woody IN & OUT	10-pin m to 2 UHF m	10'	for feeding composite video in and out of AV3400	27.00
Jim	mini m to matching transformer	10'	RF output of portable to VHF antenna terminals on TV	10.00
Rodger IN & OUT	10-pin m to 2 UHF m 2 mini m	10'	portable to deck or monitor	30.00

new



4 2 5

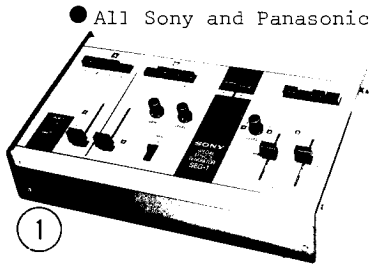
● A *genlock* allows titles and effects from live cameras to be added to previously recorded tapes. The cameras sync from the prerecorded control pulses.

● The Panasonic VY-922A Genlock SEG is recommended for systems utilizing existing cameras. The back panel can easily be rewired for Sony CV and AV cameras. Instructions for wiring changes can be found in *Video-Tools #1*, or write to Paula.

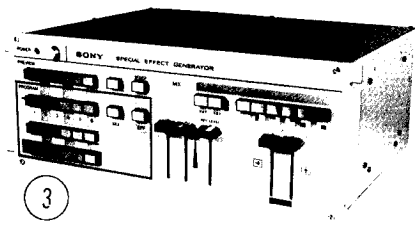
● All Sony and Panasonic SEGs have built-in sync generators. These should be used where simplicity and ease of interconnecting are required.

Viscount and Shintron SEGs require external sync generators and junction boxes for camera connection. These feature vertical interval switching.

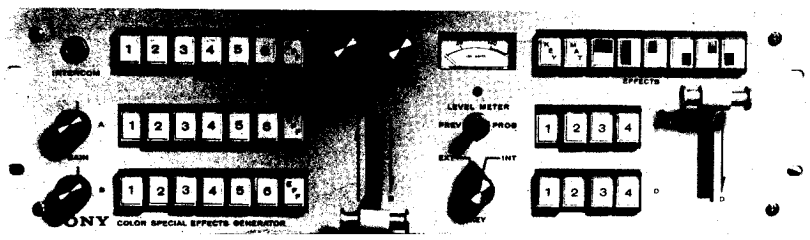
● *Vertical interval switching*: circuitry designed to switch only during vertical blanking period (between frames).



1



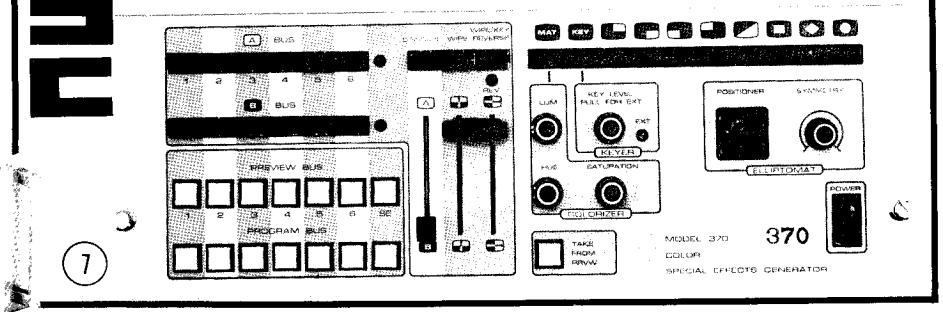
3



6

SONY

A GENLOCK CAN BE ADDED TO ANY SEG THAT TAKES EXTERNAL SYNC.



7

From left to right; black matte, keying, negative key, white matte, horizontal split screen, vertical split, corner insert.

● A *fade* is a reduction of the video signal produced by a fader (similar to a volume control in audio) which can be moved gradually, allowing a slow transition from full picture to black.

For a dissolve, or cross fade, the output of two faders is added together so that the two input signals are superimposed. Usually, on an SEG, the faders are mounted so that pushing both faders up turns one signal completely off and the other completely on. As the faders are pulled down together, the first input increases at the same time the second input decreases, so the total video signal is always one volt. The faders can be operated independently (called a *split fader*) to go to black with both signals, or to compensate for inputs at varying levels. If both faders are turned to their full *on* positions, the output (the sum of the two inputs) will be much higher than one volt, and will produce distortions when recorded.

● A *wipe* allows you to separate the screen into sections with a separate input showing in each section. The controls for the wipe are a series of push buttons to select the pattern, and two sliders, for vertical and horizontal progression of the pattern edges.

SPECIAL EFFECTS

	SEG	WEIGHT	DIMENSIONS	COMPATABILITY	INPUTS	OUTPUTS	KEY	SYNC GENERATOR	COLOR OR MONOCHROME	SPECIAL FEATURES	SHPG.WT.	LIST PRICE
1	Sony SEG-1	9 lbs	15-1/2"w 5-1/4"h 10"d	Sony 6-pin	4/camera	1 program		2:1 interlace, external	mono	negative image switch, 6-pin plug for external sync	15	595.00
2	Panasonic VY-922A	22 lbs	19"w 5-1/2"h 13"d	Panasonic 10-pin, Panasonic 6-pin--easily modified for Sony 6-pin	5/camera 1 VTR	2 preview 2 program		2:1 interlace, external, VTR	mono	negative image switch, genlock for VTR, intercom, tally light circuit	27	975.00
3	Sony SEG-2	31 lbs	19"w 7"h 14-13/16"d	Sony 6-pin, Sony 10-pin for AVC-4000 with JB3	6/camera 1 key	2 preview 2 program	X	2:1 interlace, external	mono	line out to camera tally, intercom, return video with junction box JB3	40	900.00
4	Panasonic WJ-545	18 lbs	19"w 5-1/4"h 10-3/4"d	Panasonic 10-pin	5/camera 1 aux.	2 preview 2 line		2:1 interlace int/ext	mono	genlock, rack mountable, intercom & tally lights, negative switch, keyer	28	1,100.00
	Shintron 366	7 lbs	19"w 5-1/4"h 6-1/2"d	BNC	4/camera 1 key	1 preview 2 program	X	external only	mono	vertical interval switching, tally light switching	12	990.00
5	Panasonic WJ-5000	22 lbs	16-1/2"h 5-1/4"h 10-3/4"d	UHF	5/camera 1 aux. non-composite only	1 preview 2 line	X	external only	color	built-in intercom and tally, soft wipe, circle wipe	28	1995.00
6	Sony SEG-600			UHF	6/camera 1 ext. key	1 preview 2 line	X	external only	color	built-in intercom and tally		3100.00
7	Shintron 370		19"w 7"h	BNC	6/camera 1 key	2 preview 2 program background	X	external only	color & monochrome	diagonal, circle, soft (horizontal) wipes, built-in colorizer, tally light & vertical interval switching		2496.00

22 SPECIAL EFFECTS GENERATORS

CTL VIDEO TOOLS #2

Since the half-inch video signal is scanned diagonally (helical scanning), any stretching of the tape moves the sync pulses out of alignment with the sync pulse at the beginning of the next field. This is called *TIME BASE INSTABILITY*.

TIME BASE CORRECTION

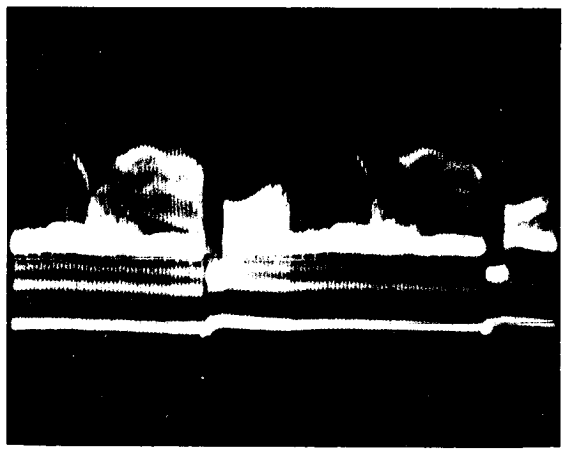
●A big problem with the half-inch video signal is *time base instability* (the thing that made people think that you couldn't broadcast stuff recorded on half-inch). You can think of time base as a clock. Every sixtieth of a second, a vertical sync pulse is supposed to happen-and every 15,750th of a second, a horizontal sync pulse. If the timing of a vertical or horizontal pulse is anything less than exact, a *skew* problem (top of the picture bent) develops. *Time base instability is inherent in half-inch video, because tape stretch changes the relative positions of the sync and video signals.* Skew distortion shows up on home TV sets--these have a time base made to accept only perfect sync (two-inch Quad). Monitors made for half-inch have sync circuits which accept almost any sloppy sync.

A *time base corrector* makes the broadcast of half-inch production possible. The machine has the ability to *delay* (store) a line of video as it occurs. When a signal is fed into a TBC, and the sync pulses are too close together, it stretches out the time it takes for the line of video to happen.

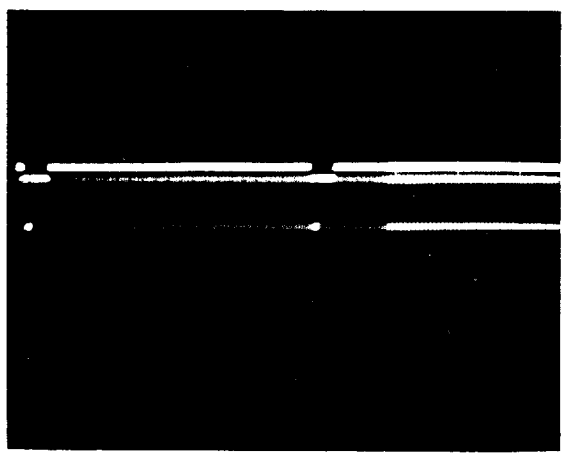
We have heard of good results with two systems. The Ampex AVR-1 is a quad machine with time base corrector. Time on it rents for about $145 per hour, plus an hour reel of two-inch tape costing about $200. The Delta 44, made by Anderson Labs is a time base corrector which is used in conjunction with a quad deck. It runs about $10,000 (all networks and some cable stations already own quad equipment). We've heard about the Delta 44 from people who have seen demonstrations of the system, not from anyone who has worked with it.

The CVS-500 is a combination time base corrector/proc amp which produces broadcast quality color signals from 1" Ampex or IVC (probably Sony UV 340) and 1/2" black-and-white. The price is $8750. Michael Shamberg saw it at the NAB convention and loved it. A CVS-502 will be available soon for 1/2" color.

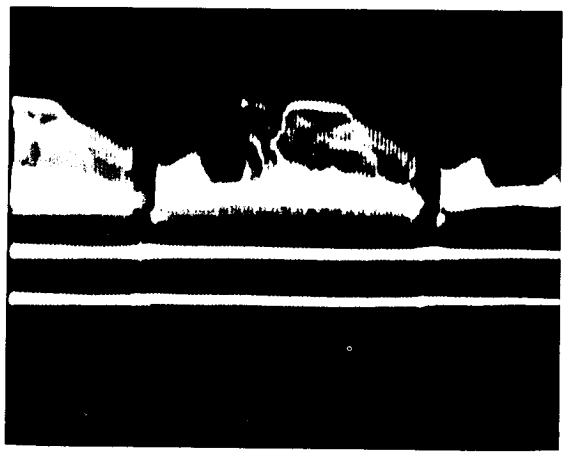
VIDEO SIGNAL BEFORE PROCESS



PROC AMP



VIDEO SIGNAL AFTER PROC AMP



PROCESSING AMPLIFIERS

●A *proc amp* (processing amplifier) allows you to make adjustments in the video signal prior to recording. Some are designed to adjust an already recorded signal.

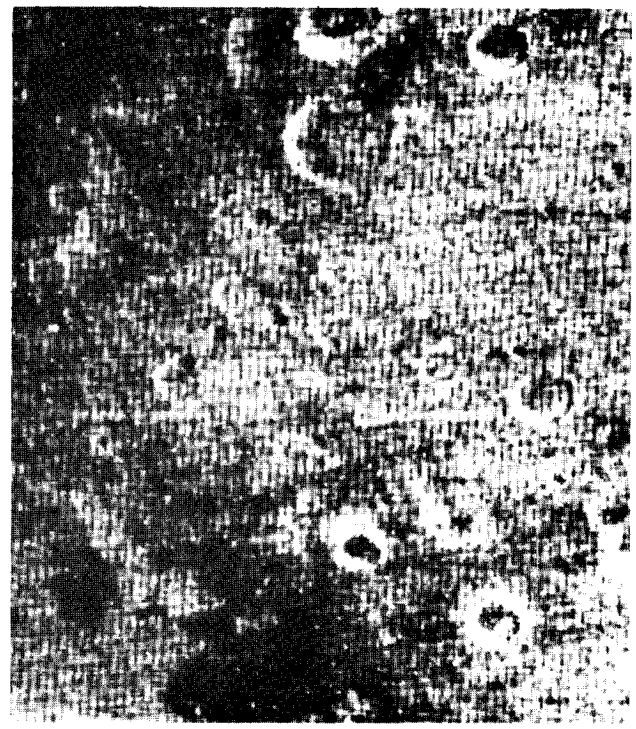
A proc amp gives you a pretty wide range of controls:

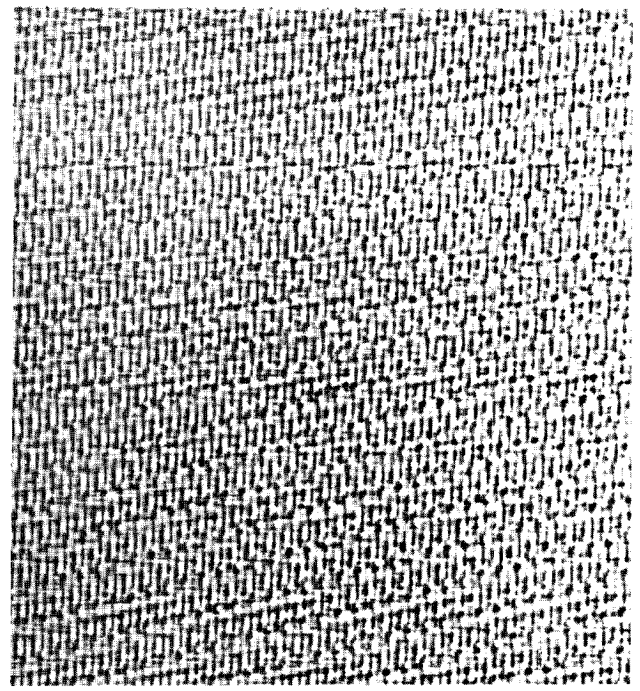
1) It strips off old cruddy sync and generates nice clean sync. (It will *not* correct the time base, however. If your original sync pulses were *off-timing*, the new ones will be too.
2) You can vary the size of *blanking* (see How It Works, page 4)
3) *Video gain control* allows you to raise the level of the whitest white, and *Pedestal control* lets you lower the level of the blackest black. So a picture shot in poor light can be brightened and sharpened up.
4) *Color-capable* proc amps like the 3M let you regenerate *burst* and *chroma* and *adjust chroma* phases.

We have had experience with the Ball Bros. Mark II, the Dynasciences and the 3M DP-100. These have all been designed to work with one-inch format machines, but they will work with half-inch some of the time. We are presently working on the Ball Bros. to make it work with half-inch. The 3M which gave us the best results of the three, will probably need only minor modifications. Most proc amps are in the $2,000 price range. Call us for more info.

IMAGE ENHANCERS

●An image enhancer is a device that reduces noise or improves the resolution in a picture. The most sophisticated enhancers are based on large computer systems and are capable of restoring out-of-focus images, replacing missing information, and other corrections. Simpler units use delay lines for storage of a line of video, so that it can compare each point on the picture with the adjacent points. It uses this information to determine the brightness level of that point.





This sequence illustrates the way in which computer processing was able to remove coherent noise from the pictures. Notice the "basket weave" pattern overlying the picture information (top). The computer analyzed such a picture and separated the repeating pattern (center) from the random scene. This pattern was then subtracted from the original picture, leaving only the noise-free picture

Image Processor

● (Presently "optimized" for video signals...)

...a member of a special class of educational machines called a design-tool-learning machine..

In brief, the *IMAGE PROCESSOR* (I-P) is a patch programmable general purpose analog computer optimized for the real-time processing of images. I have been designing and building it over the last year...

The I-P accepts naturalistic images, modifies and combines them in complex ways and displays or stores the result. A television camera, film-chain, video tape recorder or similar device can be used to decode moving images into a form which the I-P accepts. A television monitor decodes the signal and displays the modified image. The instrument is programmed by routing the image through various processing modules and then out to a monitor or video tape recorder. The modules are designed to maximize the possibility of interconnection, thereby maximizing the number of possible modifications of the image.

This description of the image processor may sound like a sophisticated special effects board in a television station. There is, of course, a similarity. A good analogy would be to compare a desk calculator to a general purpose digital computer: both the desk calculator and computer can add and subtract numbers. The computer, however, can also *store* a program which it executes in time...and more importantly, the computer can modify its program based on *results* of the program.

The image processor has, in addition, the power to execute a program in time, and more importantly to modify what modification is done based on the content of the input image and the program. The image processor is a *general purpose* machine and the special effects generator is not.

DESIGN-TOOL-LEARNING MACHINES

MOTIVATION - The user is able to do what he considers to be something worth doing, i.e. a problem or project of his own choice...

DIRECTION OF ACTION - The user acts on the machine by structuring it to do a desired task...

AVAILABILITY OF STRUCTURE - The structure of the machine is accessible to the user, allowing him more control of the learning situation...

PACING OF USER - The user is in control of pacing; he may take as long or as short as he likes; he may investigate any area in depth...

INPUT TO MACHINE - Large and varied repertory, including keyboard, joy sticks, biological and environmental sensors...

FEEDBACK, MACHINE OUTPUT - Immediate, multisensual, unambiguous and varied; includes colored kinetic events, tactile audio and environmental information...

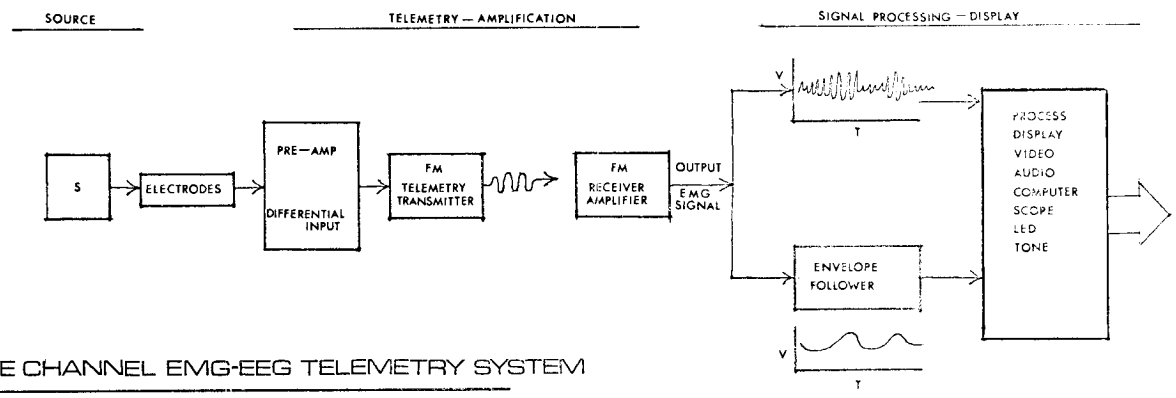
At yet another level the image processor and allied machines are designed for the express purpose of modifying consciousness, increasing awareness, centering, learning non-linguistically, &c.

Machines whose primary function is this "consciousness modification" are not new; a musical instrument is a good example of a machine designed to modify consciousness--what else is it used for?

At the most immediate and final level, it has been a joy working with the instrument; I have learned a great deal from it.

The image processor is not yet finished, but it is functioning; still restricted to black-and-white images and not many input devices have been built. Expansion-ing is slow but steady.

Dan Sandin/Philip Lee Morton - Video E/S
University of Illinois at Circle Campus
Department of Art
Box 4348
Chicago, Illinois 60680

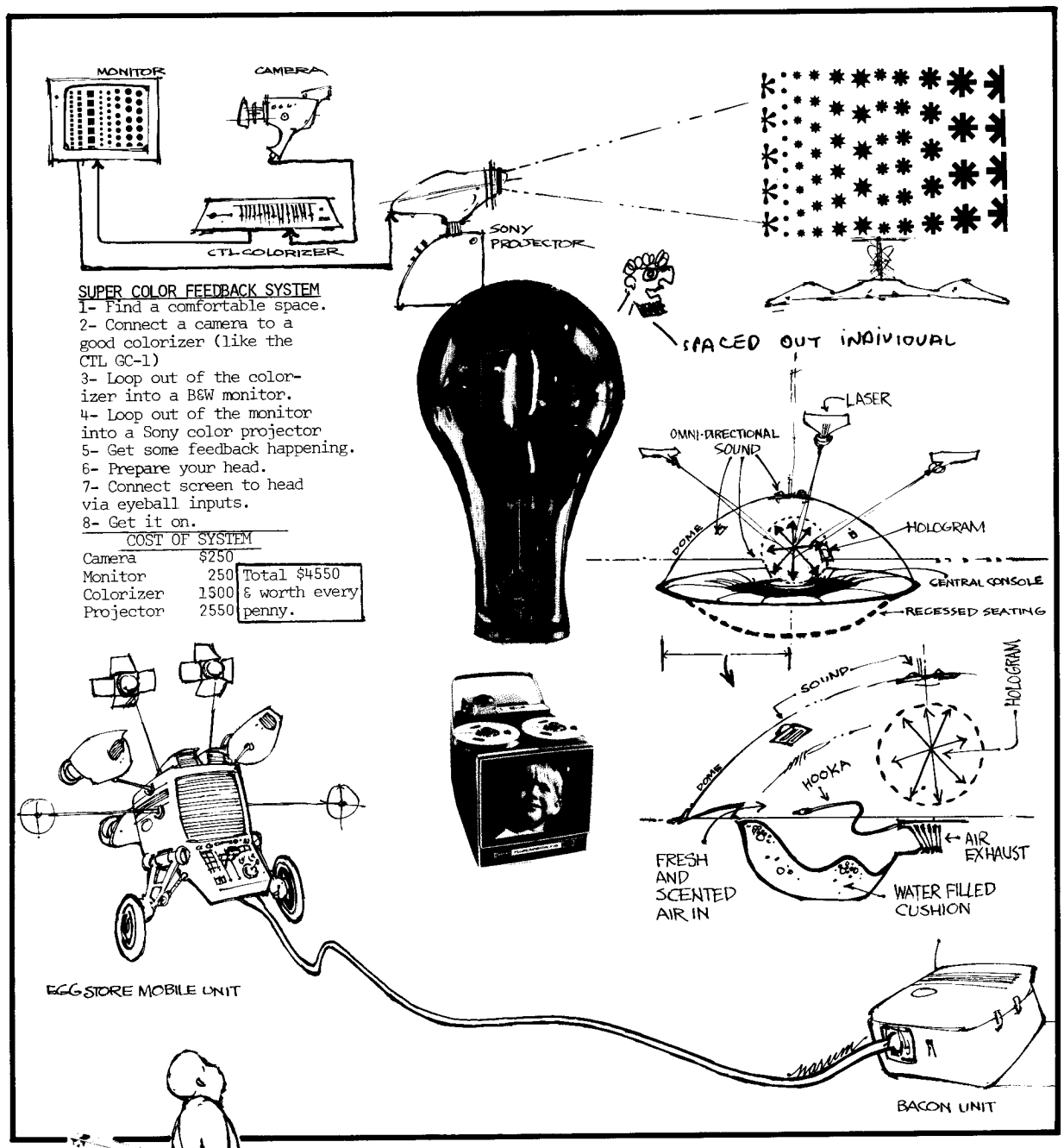


ONE CHANNEL EMG-EEG TELEMETRY SYSTEM

●EMG (*electromyogram*) refers to the bioelectric potentials generated by muscle cells. These potentials can be monitored, amplified, and transmitted by telemetry, so that a dancer's muscles can be monitored while the dancer is free to move, unencumbered. These electrical signals, which are directly related to the dance movements, can be interfaced with 1) a computer-controlled color video system, 2) an electronic music synthesizer system, such as the ARP, Putney or Moog synthesizers.

With this arrangement, the dance itself generates the musical-visual environment, rather than the dancer responding to pre-programmed music. The computer video system provides an extremely flexible set of possible formats, such as keying a view of the dancer against a kaleidoscopic background which is controlled by muscle potentials.

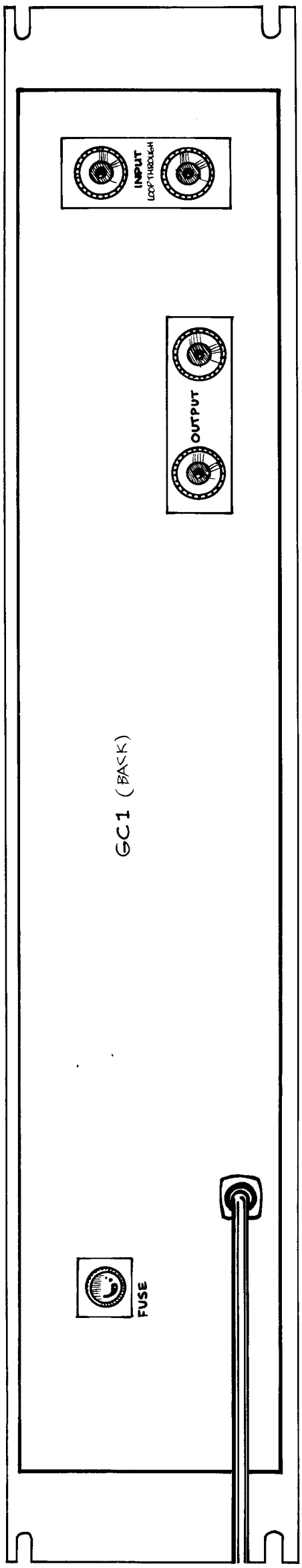
from Environetic Synthesis
Richard Lowenberg



The Barbers Association of Japan has purchased 6,000 Panasonic VTRs model NV-3120 to keep their many customers busy watching video while waiting to have their hair cut.

24 VIDEO TOYS

CTL VIDEO TOOLS #2



GC1 (BACK)

colorizers

●Black-and-white camera plus colorizer does *not* equal color camera. The colorizer works on a principle of converting different gray levels into different areas of the color range. This range is manually adjusted to suit, so that according to the position of a knob, one might affect the colors, so that the well-lighted areas were red, and the shadows blue, or that the light areas were blue, and the shadows green, &c. The simplest colorizer has four controls: one is straight voltage, to control saturation level. Then there is one for the red, one for green, one for blue. Color television works on the principle of combining colored light, not pigments. Therefore the three primary colors are red, blue and green--not yellow. One achieves yellow by mixing red and green.

The effects of the colorizer look like a psychedelic poster. You soon get to thinking about what was supposed to be so wrong about the color television receiver, with the colors misadjusted. Why is it that with all of the many possible combinations, there should only be one correct setting, and that the others are all incorrect? Nevertheless, a poor colorizer soon grows to be boring. If the saturation is turned too high, it makes the color break up into red, blue, and green bands, with no correspondence to the picture, or it can be difficult to use all three colors simultaneously. However, I have worked with excellent colorizers, in which there is a chroma-keyer, allowing different colorizer settings, which one can switch into instantly. Also, with the keyer, it is possible to colorize two different signals separately, so that very close areas, of similar light level, can be colorized individually.

I usually don't colorize an original tape, because a colorized tape will not look as good on black-and-white monitors--there is a polarizing effect that decreases the detail. Also, for an original, a colorized tape will not copy well, whereas a black-and-white tape can be copied a number of generations successfully. Therefore, I generally prefer to colorize a tape live, or to colorize each copy individually, as opposed to trying to copy color.

Dimitri Devyatkin
324 E. 19th Street
New York, N.Y. 10003

We have duplicated colorized tapes with no problems, so it can be done. CTL

CTL

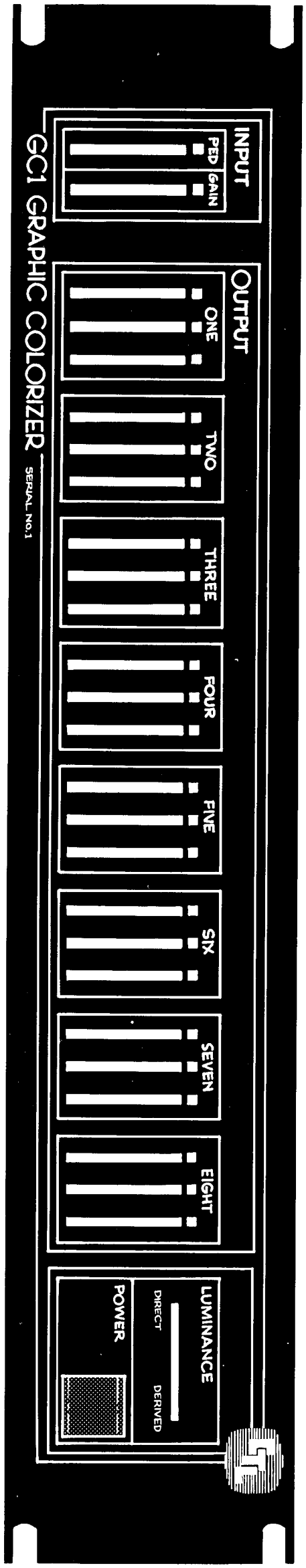
●The *CTL Graphic Colorizer* (CTL GC-1) is here. Developed by ace engineer George Brown, the GC-1 is an 8-step colorizer. Each step is discrete with separate red, green and blue color controls.

The input gain and pedestal controls allow assignment of gray levels to varying input signals. The clusters of Red, Green, and Blue sliders allow infinite color selection for eight mattes which are keyed into the eight gray levels of the original video. The direct/derived control allows mixing of original and synthesized luminance.

The GC-1 is especially effective in the control of feedback loops because output levels can be shifted infinitely from white to black. The discrete nature of the output signal improves regeneration allowing a camera-monitor loop to be used for short term storage.

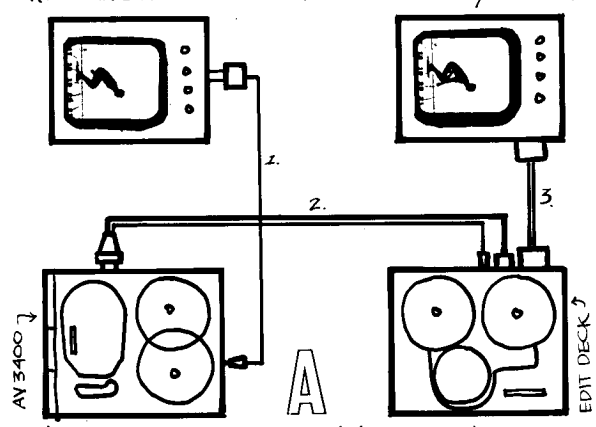
Another use of the colorizer is for shooting titles from monochrome artwork, freeing a color camera for studio shots. The GC-1 can add color to selected portions of black and white photographs and negatives. With the colorizer, low resolution material (such as medical x-rays) can be processed for greater clarity. The optional key driver output allows you to insert video using another keyer.

GC-1 video in - loop through - UHF
video out - 2 NTSC 75 ohm
RGB output - optional
key driver outputs - optional $1495.00

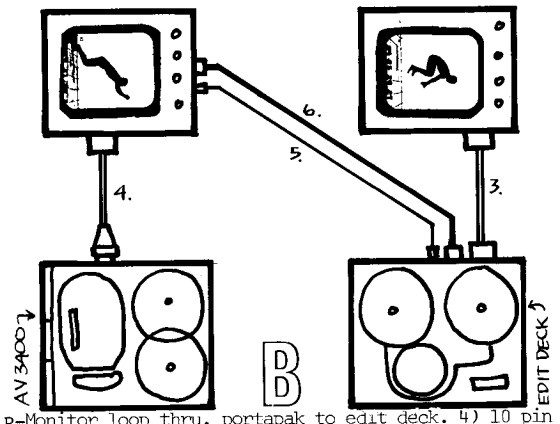


E D I T I N G

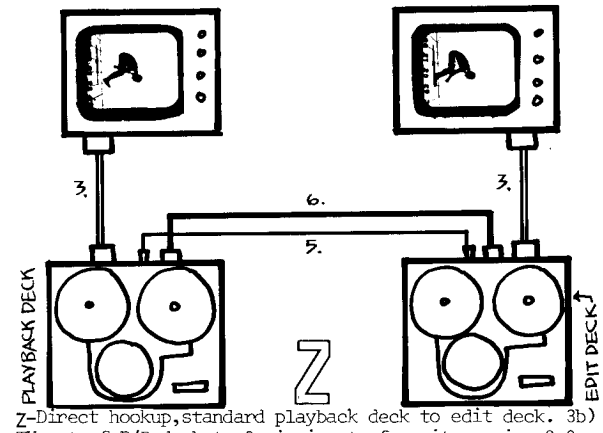
1. RF CONNECTOR 2. 10 PIN TO VIDEO IN / AUDIO IN 3. 8 PIN TO 8 PIN 4. 10 PIN TO 8 PIN 5. AUDIO CABLE 6. VIDEO COAX CABLE - UHF CONNECTORS



A-Direct Hookup, PortaPak to editing deck. 1) RF out of portapak to VHF lugs of TV set. 2) 10 pin out of portapak to video in and aux. in of editing deck, using Woody cable or VMC series cables. 3) TV out of editing deck to 8 pin input of monitor using 8 to 8 pin cable (or RF out to VHF lugs of TV, not shown).



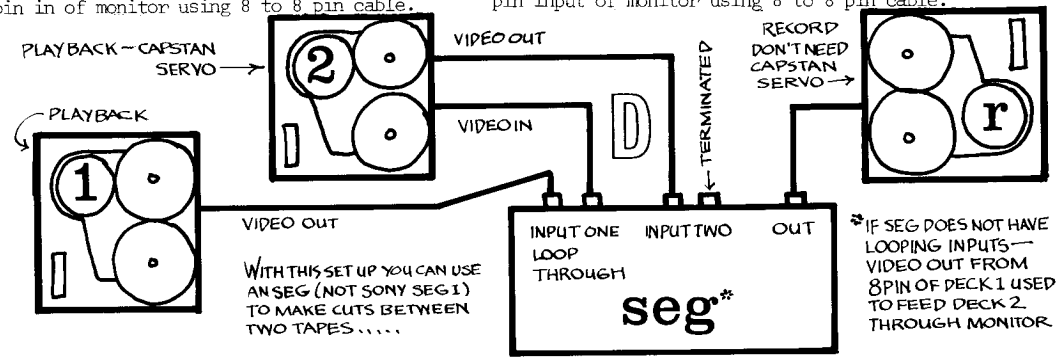
B-Monitor loop thru, portapak to edit deck. 4) 10 pin out of portapak to 8 pin in of monitor, using 8 to 10 pin cable. 5) Monitor line out to aux. in of edit deck using audio cable (mini-mini for Sony decks, mini- RCA for Panasonic). 6) Monitor video out to video in of edit deck using coax w/ UHF connectors. 3a) TV out of edit deck to 8 pin in of monitor using 8 to 8 pin cable.

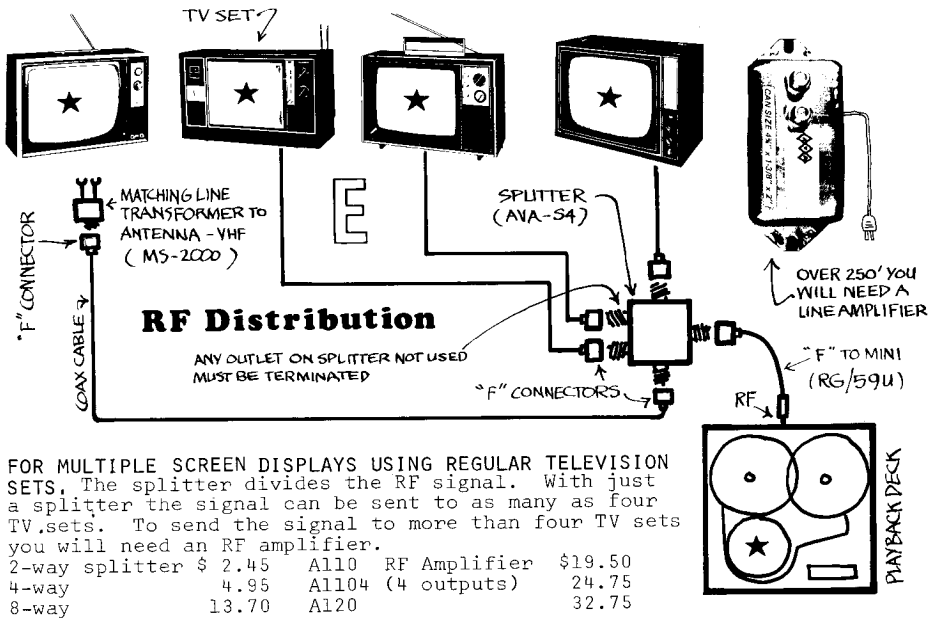


Z-Direct hookup, standard playback deck to edit deck. 3b) TV out of P/B deck to 8 pin input of monitor using 8-8 pin cable. 5a) Audio line out of P/B to aux. in of edit deck using audio cable w/ appropriate connectors. 6a) Video out of P/B deck to video in on edit deck using coax w/ UHF connectors. 3c) TV out of edit deck to 8 pin input of monitor using 8 to 8 pin cable.

EDITING SYSTEMS

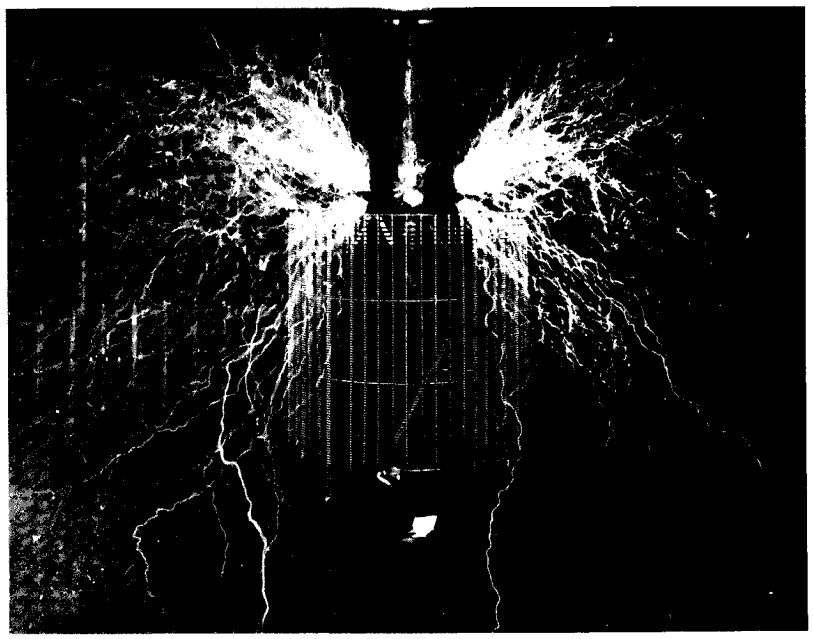
FAIR	Sony AV-3400	Sony AV-3650	Panasonic NV-3130
	Portable VTRs are not stable playback decks.		
GOOD	AV-3600	AV-3650	NV-3130
	Sony AV-8600	NV-3130	for color editing.
BETTER	AV-3650	NV-3130	AV-3650 or NV-3130
	Two servo capstan decks will give you an easier shot at good edits.		
BEST	AV-3650	NV-3130	Sony 1" EV-320F
	(see editing page, 9 for info on 320F)		





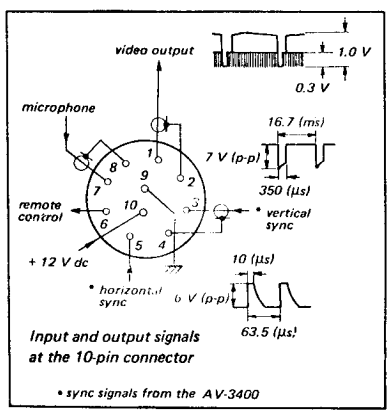
FOR MULTIPLE SCREEN DISPLAYS USING REGULAR TELEVISION SETS, The splitter divides the RF signal. With just a splitter the signal can be sent to as many as four TV sets. To send the signal to more than four TV sets you will need an RF amplifier.

2-way splitter	$ 2.45	A110	RF Amplifier	$19.50
4-way	4.95	A1104	(4 outputs)	24.75
8-way	13.70	A120		32.75



DRAMATIC PHOTO, taken at the Colorado Springs laboratory in 189... chalantly seated below a flamelike electric discharge from a tuned he... mary of a giant oscillator. This oscillator was the largest "Tesla coil... sented the inventor's attempt to transmit wireless power by changing... the earth. Its true secondary, which could produce sparks 41 meters l... rounding the helix in the background.

SONY 10 pin cable CCJ



1 Hot, 2 Ground > yellow/gray-video out

3 Hot, 4 Ground > red/gray-vert. sync -common ground

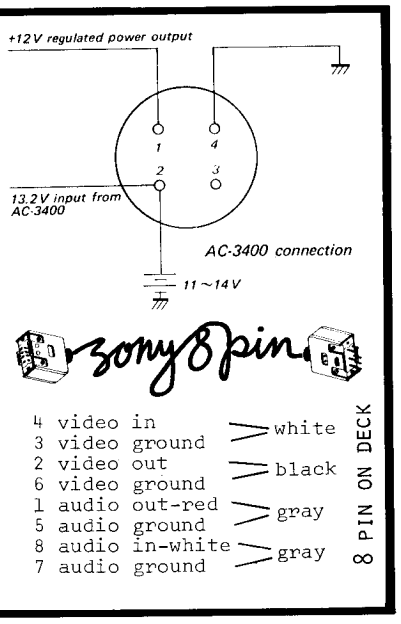
5 Hot > blue/gray-horiz. sync

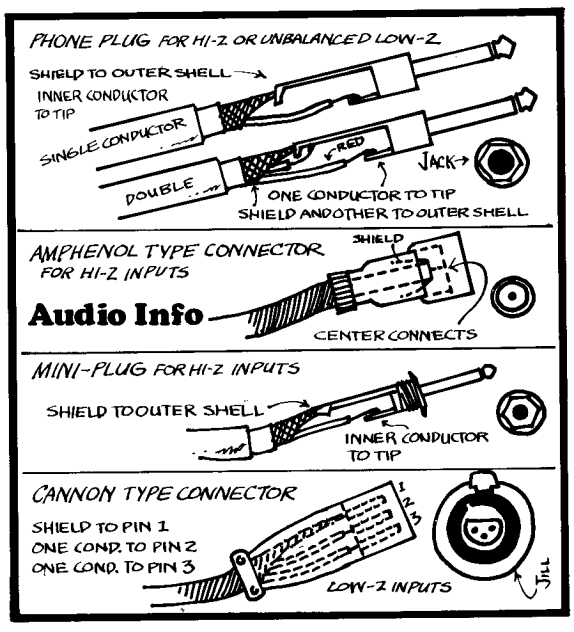
6 White-remote control

7 Hot, 8 Ground > green/gray-microphone

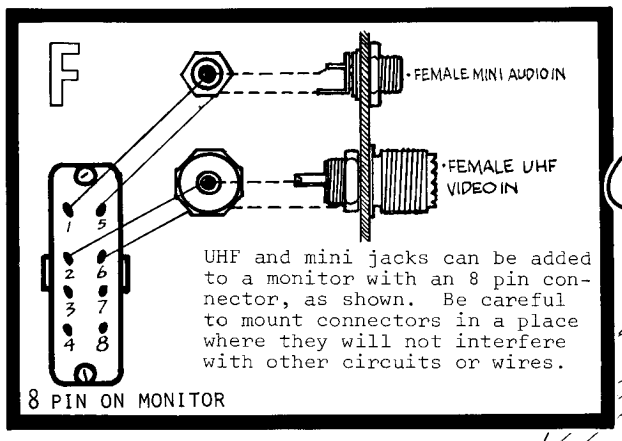
9 Purple - Ground (-)

10 Red - + 12 v dc





26 WIRING DIAGRAMS



UHF and mini jacks can be added to a monitor with an 8 pin connector, as shown. Be careful to mount connectors in a place where they will not interfere with other circuits or wires.

WV-340P STUDIO CAMERA

PLUG INTO INTERCOM JACK

2

SPACE CITY VIDEO

CAMERA

EXTENTION CABLE A

MINI-MALE

MINI-FEMALE

TAPE

GRAY WITH GREEN

HEADPHONE

REMOVE MICROPHONE LINE (PINS 7 AND 8) FROM CABLE A - ADD FEMALE MINI - PUT MALE MINI PLUG ON HEADPHONES - SECURE CONNECTOR TO CABLE WITH GAFFERS TAPE/FOR SAFETY TAPE HEADPHONE CABLE TO 'A' WHEN IN USE ——

ROVER CAMERA

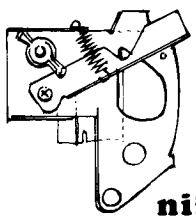
1

3

HEADPHONE

WELL PADDED

VOLUME CONTROLS



nifty

BT LABS MODEL S1
WIRE STRIPPERS $5.

EXTENTION CABLE A

MICROPHONES

POWER

EXTENTION CABLE B

CMA

CMA MICROPHONE LINE OUT USE AS INTERCOM HEADPHONE INPUT

VIDEO IN

CABLE C

HEADPHONE DISTRIBUTOR

SEG

MIXER (MX-12)

INTERCOM MIC.

STEREO AMP LEFT FOR INTERCOM RIGHT FOR AUDIO MONITOR

AUDIO OUT

AUDIO IN

PORTABLE MONITOR

FOAM RUBBER

PVM400

SEG

L

1 2 3 P

EQUIPMENT RACK

⊙BUILD IT YOURSELF ALUMINUM PORTABLE RACK

ONE PIECE ALUMINUM CHANNELING KNOTCH AND BEND TO FORM HANDLES AND RACK —— ADD REAR BRACE (X) - RUBBER FEET — FOAM PADS - DRILL AND MOUNT EQUIPMENT TO FRONT

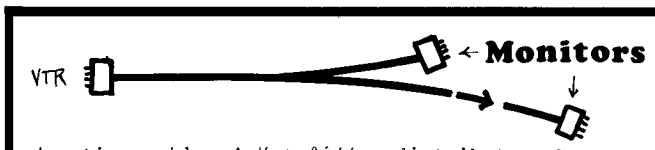
• FOR MORE INFO. WRITE PAULA

VIDEO

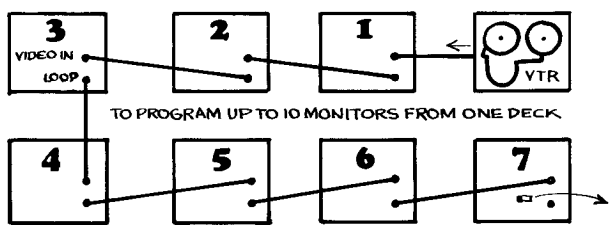
PANASONIC 3130 OR SONY 3400

SPACE CITYS PORTABLE STUDIO SYSTEM: CAN BE BROKEN DOWN TO USE JUST RACK-2 ROVER CAMERAS AND PORTAPACK DECK WITH SEG OPERATOR MONITORING SOUND. WE HAVE REMOVED ROVER CAMERA CABLES JUST BELOW HANDLES AND MADE THEM INTO EXTENSION CABLES B — WHEN USING CABLE A WITH PORTAPACK USE AN EXTERNAL MICROPHONE ~~ GOOD LUCK - DEE, MIKE, RICHARD, MITCH AND BILL ——.

Bill says "extension should be spelled extention".

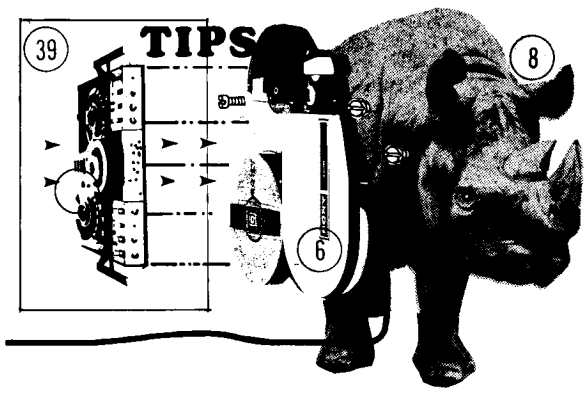


Junction cable. A *Y-splitter* distributes the video signal from a deck to two monitors. Only one of the branches of the cable can be longer than 15 feet, and the monitor at the end of the long cable must be terminated. (The same applies to the use of a *T-connector*.



Termination. A video signal travelling in a coax cable can go in two directions. If the signal bounces back through the system it can cause *ghosts* or multiple images, and a noisy picture. A 75-ohm resistor is put onto the end of the line to absorb the signal energy so it doesn't reflect back to the line.

The 75-ohm switch on the end monitor is placed in the *on* position.



SOME PREVENTIVE CARE TIPS
FOR NON-TECHNICIANS

1. A large proportion of equipment breakdown comes from the fact that most video groups subject their half-inch gear to much more continuous use than it was built to take. So there is an extra incentive to minimize dust, dirt, ashes, excessive vibrations and jolts, unnecessary handling. Be particularly careful when packing gear for travel and when working in crowded situations.

2. Annoying minor design problems in the Video rover: the camera eyepiece hinge and the deck's control levers are liable to break off if treated roughly.

3. Other vulnerable areas: cables and their connectors. Always place multi-pin connectors in their sockets very gently. They can be forced in incorrectly even if there is only one comfortably fitting position. When disconnecting, never pull on the cable itself. Particularly susceptible to damage from this are the 10-pin camera connector and the 8-pin. Make it a habit to wrap up cables in a smooth loop: no knots or twists; a break in the middle of a cable is much more bothersome than a loose connection.

Miscellaneous Information

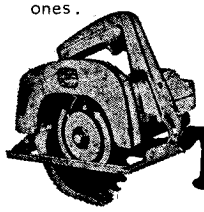
4. Clean the heads and tape track as a daily routine, as well as before particularly heavy use. Many taping or playback disasters result from dirt on the heads or in the brushes. Never use Q-tips to wipe off head dirt after the cleaner has been applied -- they usually aggravate the original problem.

5. Thread the tape quickly but never in a hurry. Wind it smoothly around the take-up reel. Never thread while the heads are still spinning, or when the VTR is in anything but STOP position. (Remember that under certain conditions a misthreaded Porta-pack will still record properly but only play back that tape if it is re-misthreaded in exactly the same way -- so double check visually.)

6. To preserve video tape, store it in cool, low humidity locations. Always store tape on end, one next to the other, like a shelf of books, since stacking them flat, one on top of the other, deforms the plastic reel and damages the edges of the tape.

7. Batteries will perform optimally if they are kept well charged. Make it a habit to put your batteries on charge after every shooting. If you are using a modified motorcycle battery, get a technician to make sure it has been connected properly -- the contraptions are notorious for blowing out fuses and worse. Learn how to change the fuse in a Sony Porta-pack; the other decks have easily accessible ones.

Shridhar Bapat



TOOLZ

There is a basic minimum tool kit that no video person who wants to stay operational more than a block from the repair shop would be without. It includes:

1) A good soldering iron. (Unger makes a good one -- the model is called an "imperial" and the tip is replaceable. I like a thin "shovel" tip.)

2) Resin core solder. (Kester "44" is as good as any. A proper diameter is .032.)

3) A pair of needle nosed pliers, preferably with plastic around the handles.

4) A pair of regular pliers.

5) A thin slotted or regular screwdriver.

6) A good phillips head screwdriver. (Make sure you get a good phillips, i.e. one with a well made tip (no burrs, etc.), a shaft of a strong metal and one that's all one piece, not with interchangeable shafts. It wouldn't be a bad idea to take your portable recorder with you when you go to the hardware store to buy these things and make sure, for instance, that the phillips head fits snugly into the screws on the deck.)

7) A set of jeweler's screwdrivers with interchangeable shafts.

8) A spool of "hook up wire." (This is just any kind of thin wire with a plastic casing.)

9) Fuses for the various types of equipment you're using (3 amps - 250 volts for the Sony AV 3400 -- but the regular type NOT SLOW BLOW FUSES).

10) A roll of plastic electric tape.

11) A jackknife with a sharp blade.

12) Splicing and cleaning paraphernalia (provided with most VTRs, but which can be augmented with spray cleaner, a chamois cloth and a head degausser).

13) A multi meter. (Lafayette Radio Electronics makes a whole line of inexpensive, easy to use meters, as do a number of other companies. Unless you want to play electrical genius, you don't need to invest more than $10 or $15 at the most in a meter, but if you want to do much repairing at all, you'll need a meter.)

14) Diagonal wire cutters (called dykes).

15) A "cube tap" -- 3-way A.C. plug.

16) Spare audio & video connectors.

There are a lot of techniques that are applicable to special situations but soldering and screwing, well, they'll get you a long way.

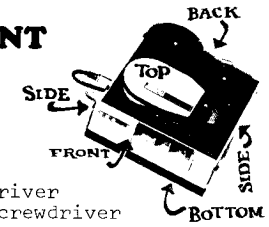
Parry Teasdale
(of the Videofreex/Media Bus)

DRUM SPEED CHECK FOR AV-3400

Tools
- 1 television or monitor/receiver (in TV setting) which gives strong signal
- 1 monitor
- 1 pre-recorded tape

Put the monitor and TV next to each other, touching. Turn on the television and play your tape through the monitor. On the monitor you will see a line across the screen. If the speed is proper the line will be stationary (a slight drift is acceptable). If it is moving up or down the screen, you should adjust the speed.

SPEED ADJUSTMENT



Tools
- same as above
- small philips screwdriver
- very small slotted screwdriver
- cup to hold screws

Remove the BP-20 and RF adapter. Keep the tape on the deck; remove the cover completely, stand the deck up on its back so that the bottom is facing you (tape, drum, &c. away from you). Remove the screws from the back, front bottom, and front sides (*do not remove the tiny screws!*). Now you should be able to pull the works out of its case by the handle. Find a piece of orange paper behind where the BP-20 goes. To remove it just loosen the screw on the right, bend the paper slightly and slide it out. You should now see a circuit board in the center of which there are two tiny screws. The *upper* one adjusts the speed. Start running the tape and turn the screw gently until the line across the monitor is relatively stationary.

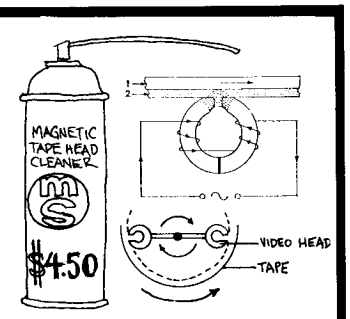
VTR Service Department
SONY CORPORATION OF AMERICA
47-47 VAN DAM STREET
LONG ISLAND CITY, NEW YORK 11101

Model: **ALL VTRs**

Subject: **HEAD CLEANING FLUID**

Date: March 2, 1970

VTR head-cleaning fluid previously stocked by our Parts Department is being replaced by M/S brand magnetic tape head cleaner. This item will be supplied in 16-oz aerosol cans with a 6-inch extension and may be obtained through your regional parts depot. The price per can is $4.50, less appropriate VTR discount. To order, refer to "S-200, M/S Head Cleaner."



FROM THE MAKERS OF GAFFERS TAPE

TACK RAGS...40¢ 3 for $1.00

John says "Use these for dusting around equipment, the adhesive catches the dust and keeps it out of the heads."

keep a clean head....

SECURITY INFORMATION Unless you have a new AV-3400 *do not set the deck on its end* (vertically) *with the tape turning on the reels.* Pressure from the cover will cause the reels to stop, resulting in tangled tape around the capstan. What Sony did recently, you can too. Put a bracket on the deck so that the cover can't be pushed against the reels.

Paula - Here's all I have on file on the fuse replacement thing. Please credit copy as follows: " By Larry Gadd/Videoaids, reprinted from Magnetoscope "

Let me know if you need anything else.

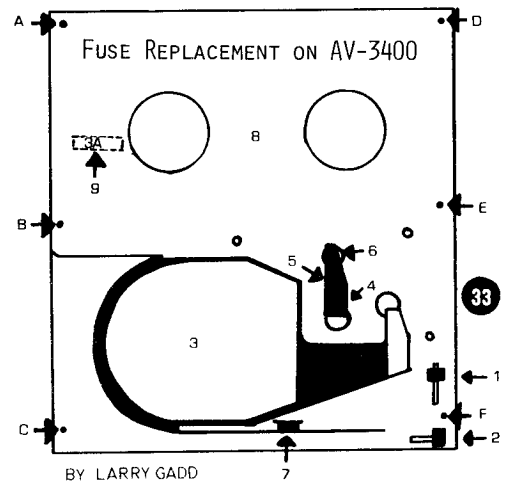
Best,

REWIRE YOURSELF

●Sony's excuse for hiding the fuse under 6 screws and the top plate is that you must use a three amp fuse only. They assume that if you know enough to take off the top plate, you will put in the correct fuse. DO NOT USE A SLOW BLOW FUSE.

Remove still knob (#1)-pull up and off.
Remove sound dub knob (#2)-up and off.
Next remove the head cover (#3)-up and off.
Remove screw from T bar (#4)-then T bar (#5).
Now remove white plastic roller (#6)
Remove screws A,B,C,D,E,F.
Pull foam pad (#7) back with very light pressure.
Lift up full top plate (#8).
Pull out fuse (#9) and replace it with a 3A fuse,only.
Then put it back together.

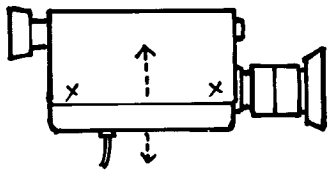
VIDEO WHITE LIGHT®



BY LARRY GADD

TURN CAMERA OFF

●To remove the top cover of the camera, remove the two screws on each side along the lower edge of the gray. Then pull straight off and a ⊓ shaped piece of metal will come off, exposing the camera circuits.



The bottom plate is covered by the hand grip, so take that off first. Then remove the two small small flat head screws underneath. The bottom plate will slide down and dangle on camera cable. The hole is large enough to permit removing it from the cable over the 10 pin connector.

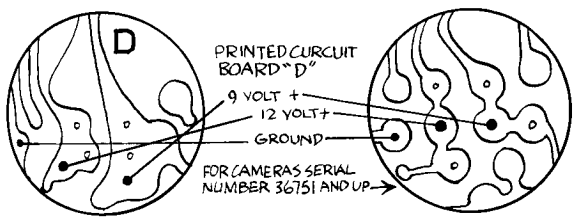
TURN CAMERA ON

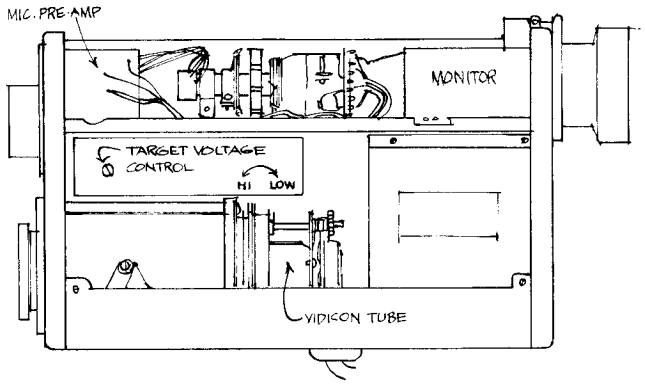
9 VOLT SET

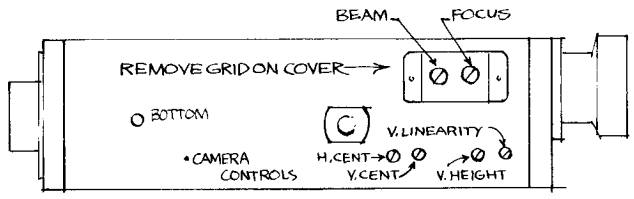
METER REQUIRED

●This adjustment effects operation of the entire camera so check this first if your camera shows problems, especially poor viewfinder focus, lag, blooming. Set with accurate volt meter (check the meter with a fresh 9v transistor battery). Probe the + and - (ground) points with the meter.

If the camera is running and you have applied the test probes correctly the meter will show a positive voltage of about 9 volts. If the voltage is around 12 volts, recheck the location of the test leads. (The small island immediately to the left of 9 volt island is 12 volts.) If the voltage is not 9 volts, use a small screwdriver to adjust the 9v set control for the exact voltage. The camera comes from the factory with white paint on the screw to prevent vibrations etc. from changing calibrations, you will have to break the paint to adjust it. A dab of nail polish will resecure the screw when you finish. If the voltage was way off, your camera should show immediate signs of improvement.

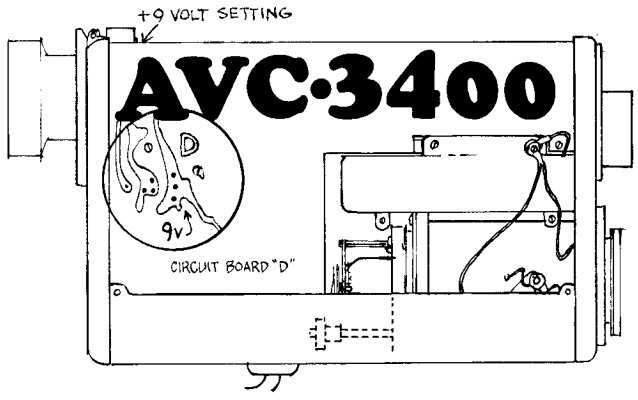


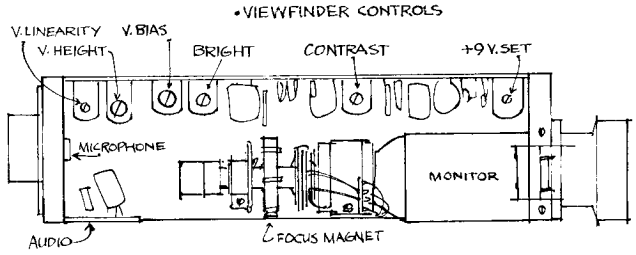




BEAM AND FOCUS ADJUSTMENT
You will know there is a problem with the beam when you see cometing (or lag) on bright objects.

Electrical focus adjustment should be made for sharper detail (focus shapes the beam) .





BE GENTLE

BEAM & FOCUS

CAUTION

The beam and focus controls are part of the high voltage board, so be careful when sticking a screwdriver inside for adjustments. There are voltages up to 3000v on the H board, and although the current in the camera is too low to cause permanent damage to humans, being thrown across the room by a shocked human can cause permanent damage to the camera. Wrapping the shank of the screwdriver with a layer of Scotch # 33 brand black electrical tape will help protect both the adjustor and adjustee from accidental short circuits. If your camera is being used by yourself and other persons who have read this warning, cutting out the grill in the bottom cover (see diagram) will save time in making beam and focus adjustments. The electron focus control is adjusted while observing the picture on the viewfinder or (better) a monitor. Adjust both the focus control and the lens until the sharpest picture is obtained.

The beam control is turned fully clockwise and then turned slowly counterclockwise until blooming (big blobs of light areas) disappears. If the beam is adjusted for shooting brightly lit scenes, lag (trails) may appear when shooting in low light, backing off the beam control slightly will help.

VIEWFINDER

●The viewfinder brightness and contrast controls are similar to those in a TV set. If you adjust for best image when shooting in low light, the viewfinder will be too contrasty when you shoot in bright light, so you should readjust according to the shooting you will be doing.

Viewfinder vertical height, vertical linearity and bias should be adjusted only if a monitor known to have good linearity is available. A tripod is helpful, compare the picture in the viewfinder to the one on the monitor and adjust until equal. The three controls interact, so don't try this if you have a shoot in 15 minutes.

The other adjustments require special equipment for proper adjustment.

TURN CAMERA OFF AND REPLACE COVER

Notorious for falling out are the screws on the 10 pin connectors (on the camera cables) these should be checked often and tightened with a jewelers screwdriver. Then seal with nail polish.

●When you see white or black spots or lines in the viewfinder, you have either :

Dust on the vidicon face, (unscrew the lens and clean with a Q-tip). or
Burns on the vidicon.

To remove temporary burns, turn on the camera and aim it at a brightly lit white surface for about a half hour. If this doesn't correct the problem, the burns are permanent.

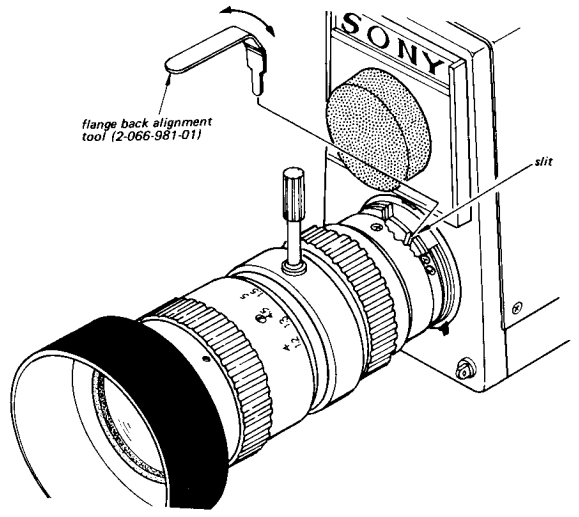
VIDICON

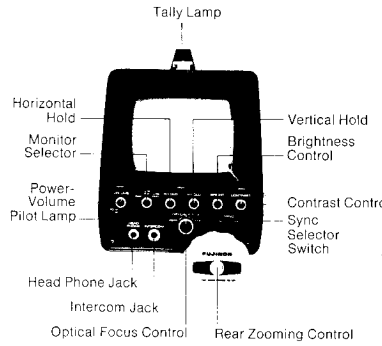
Replace with #8844 2/3" tube (see page 16).
The vidicon should be replaced when it shows poor contrast, graininess or permanent burns.
1) Turn off camera, remove top and bottom cover from camera.
2) Remove lens.
3) Turn ornamental ring counterclockwise and remove.
4) Remove 3 large screws from vidicon retainer and lift off.
5) Push the vidicon out from the socket in the back and pull straight out through the front of the camera

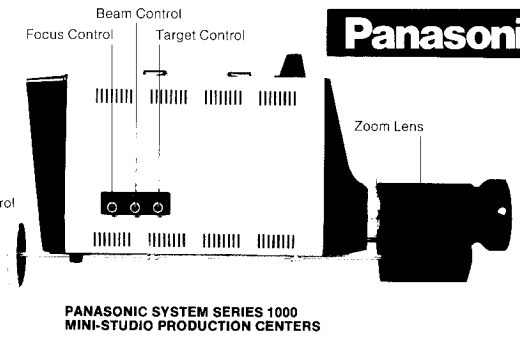
DON"T TWIST THE TUBE AS YOU PULL IT OUT.
6) Observe the location of the missing index pin as you remove the vidicon.
7) Line up the index pin on the new vidicon so that it faces the same way as the old tube.
8) Slide new vidicon into the camera. Wear white gloves to protect the face of the vidicon from fingerprints.
9) Replace vidicon retainer and 3 screws.
0) Replace ornamental ring.
1) Replace lens.
2) Turn on the camera, adjust beam and focus if necessary.

BACK FOCUS

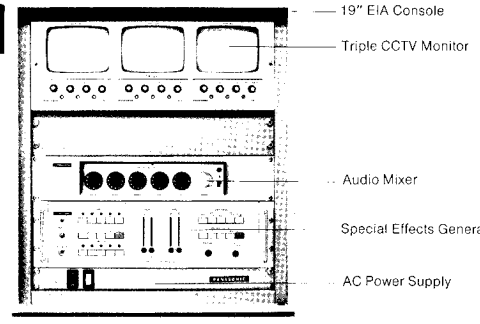
●When an object goes out of focus during a zoom, the back focus (also called flange back) requires adjustment. Make a flange back adjustment tool by bending a small screwdriver. Or order Sony part # 2-066-981-01 ($7.).
1) Remove lens.
2) Remove ornamental ring
3) Replace lens.
4) Insert the tool into the slot under the microphone.
5) Zoom in on an object about 10' from the camera, adjust lens for best focus.
6) Zoom out without changing focus.
7) Push the flange back tool sideways to focus. Reinsert if necessary.
8) Repeat steps 5-7 until camera stays in focus throughout zoom.
9) Remove lens and replace ornamental ring.
0) Replace lens.

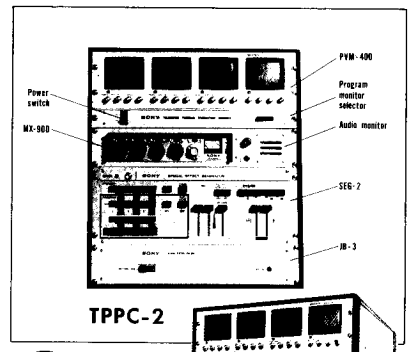






PANASONIC SYSTEM SERIES 1000
MINI-STUDIO PRODUCTION CENTERS





TPPC-2

VY-922

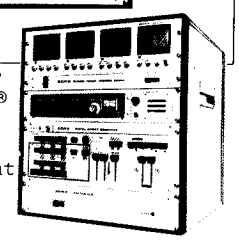
WJ-540P

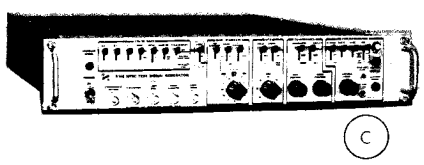
System number designation	1100/10	1100/15	1100/20	1100/25	1200/10	1200/15	1200/20	1200/75
Special Effects Generator (1)	WJ-540P	WJ-540P	WJ-540P	WJ-540P	VY-922	VY-922	VY-922	VY-922
Cameras (2)	WV-340P	WV-340P	WV-360P	WV-360P	WV-340P	WV-340P	WV-360P	WV-360P
Lenses (2)	H5-14P	H10-11P	H5-14P	H10-11P	H5-14P	H10-11P	H5-14P	H10-11P
Monitor (1)	TN-633	TN-633	TN-633	TN-633	TN-633	TN-633	TN-633	TN-633
Audio Mixer (1)	SHURE M68FC	SHURE M68FC	SHURE M68FC	SHURE M68FC	SHURE M68FC	SHURE M68FC	SHURE M68FC	SHURE M68FC
$	4293.	5021.	4576.	5304.	4431.	5159.	4714.	5439.

SONY®

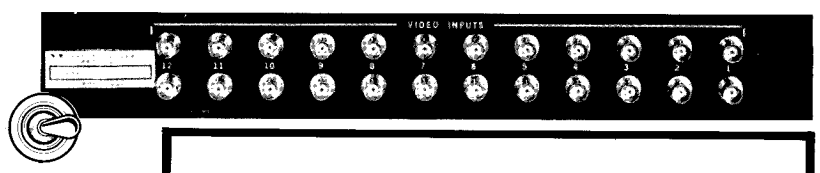
PVM-400 (4) 4" monitors
Program monitor selector
MX-900 mike mixer, 4-input
Audio monitor
SEG-2
JB-3

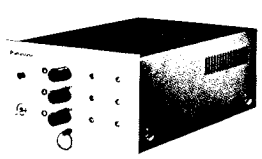
$3186.00



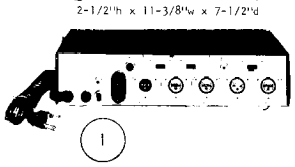


C

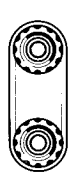


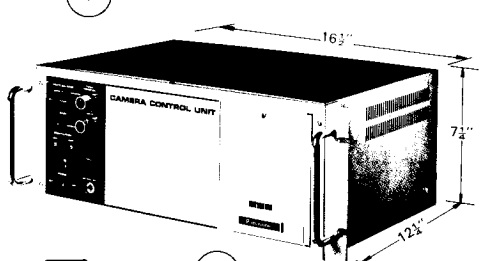


D

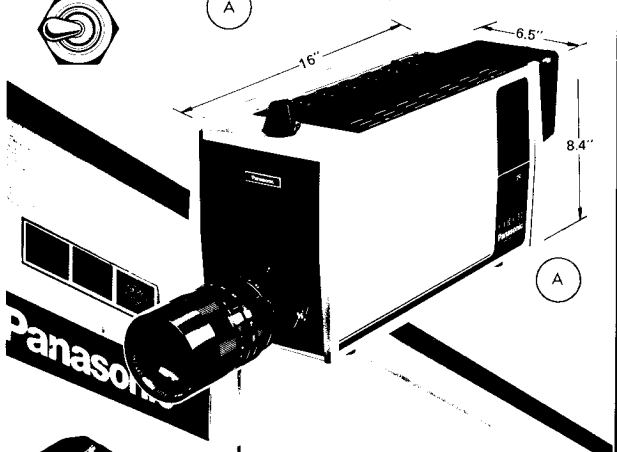


I





A



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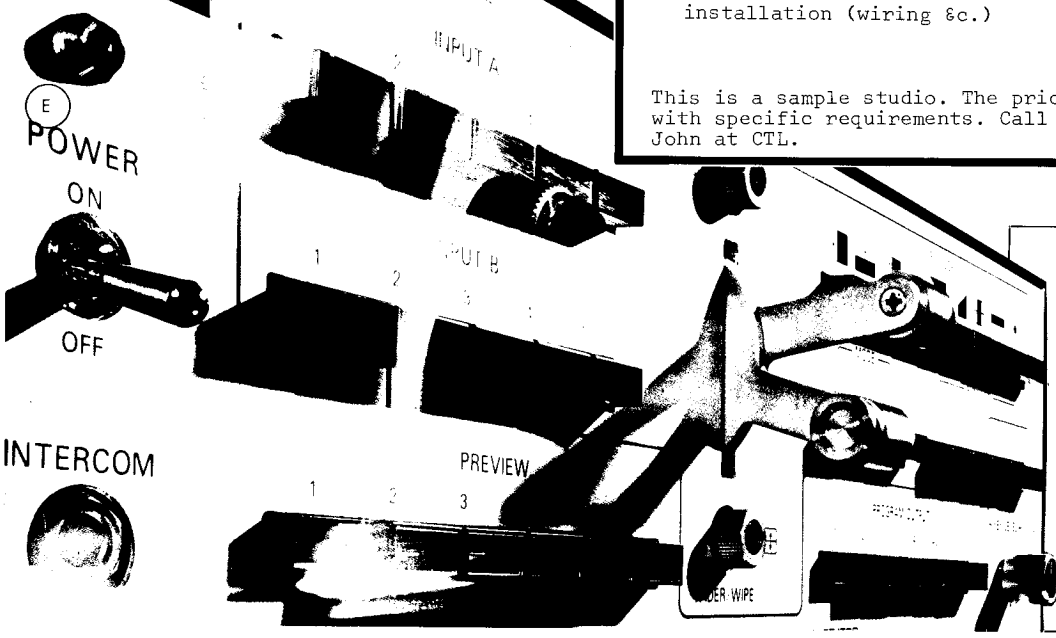


CTL CUSTOM CABLE COLOR

A 2 color cameras - WV-2100P/8200P (control unit) with pushrod lens 18-105mm and 25' cable.

B 2 tripods - Davis & Sanford AGW/CS

C 1 color test pattern and sync generator with genlock - Tektronix 146

D 1 subcarrier phase shifter - D.A. WJ-1700P

E 1 color SEG - WJ-5000

F 2 triple monitors TN-633

1 calibrated 12" color monitor (Trinitron tube) Tektronix 650-1

G 1 NTSC vectorscope - Tektronix 602

H 1 waveform monitor - Tektronix 545

4 racks, including 1 console, 1 patch rack

I 1 microphone mixer - Shure M67

J 4 intercom headsets

K 1 camera-B & W- colorizer input-WV-240M

1 tripod - Davis & Sanford CGW/C4

1 junction box - WJ-900P

1 camera cable - 10G25

2 lighting kits - Colortran 150-018

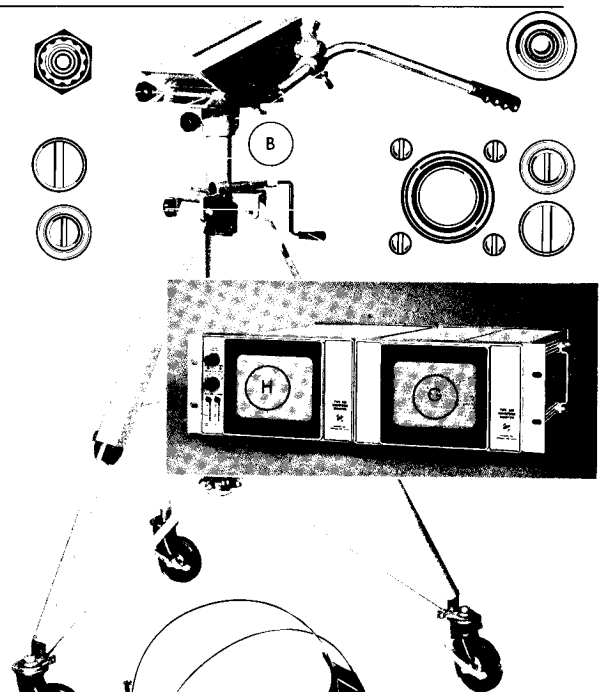
1 colorizer - CTL GC-1 (see pg. 25)

cable harnesses

installation (wiring &c.)

$30,000.

This is a sample studio. The price will vary with specific requirements. Call or write to John at CTL.



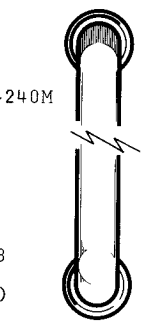
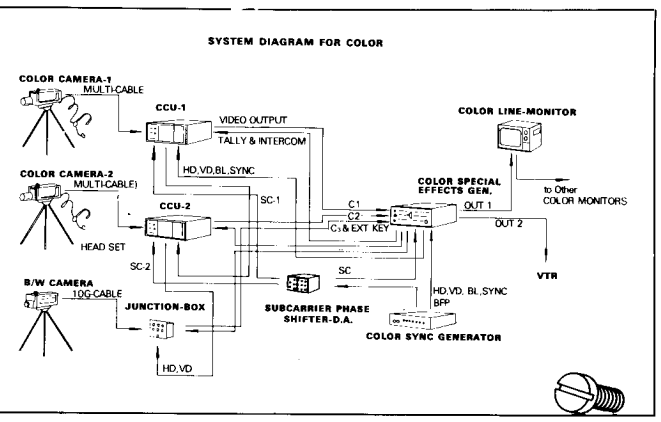
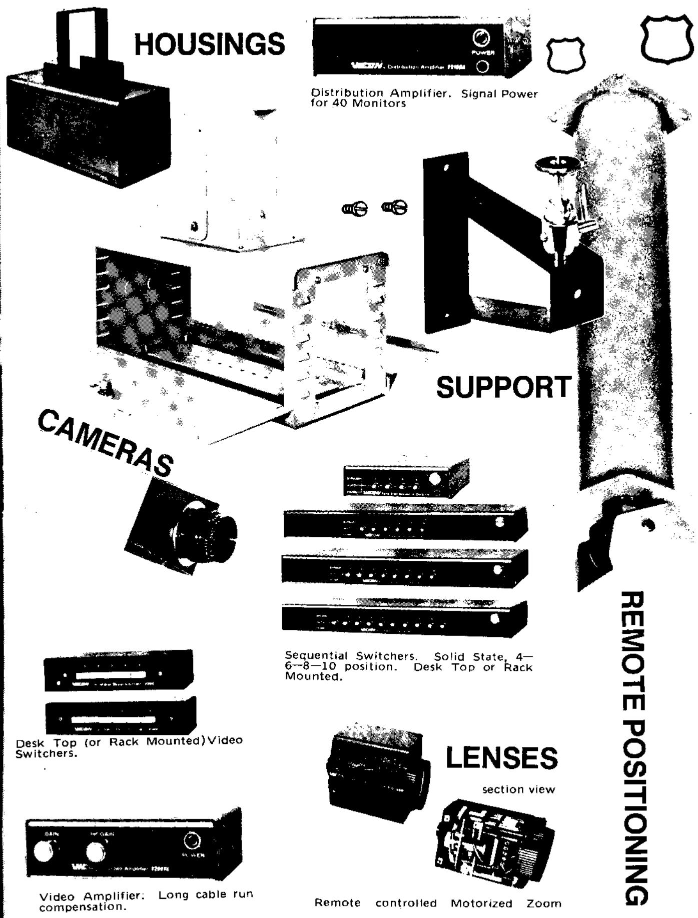


Figure 3



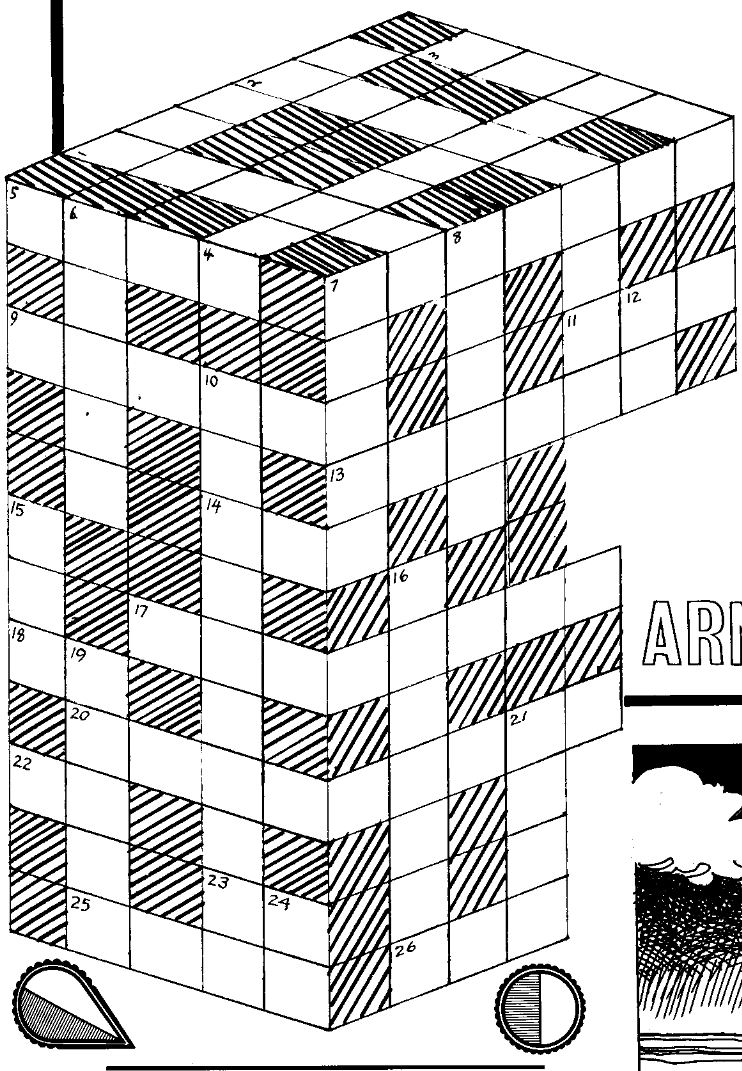
30 STUDIO SET UPS

CTL VIDEO TOOLS #2



●There are basically two types of CCTV surveillance systems. The RF systems use camera signals modulated onto standard channels. RF is mostly used in conjunction with cable or master antenna systems in a-apartment buildings. In industrial systems, unprocessed video signals are carried directly to special monitors which offer improved resolution.

CTL designs and installs custom CCTV surveillance systems. Call Jack at CTL for an estimate based on your specific needs.

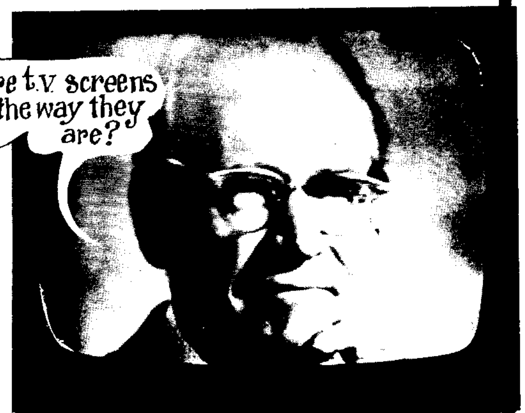


DOWN

1. two-channel audio
2. iron-oxide coated Mylar ribbon
3. electric spinning wheel
6. remove information
7. it combines video or audio input, eggs, flour, etc.
8. number tube
10. one whole turn or social upheaval
12. cable width (abbr.)
15. popular video connector
16. competence
10. non-plus
21. ready-to-edit points
24. battery power

ACROSS

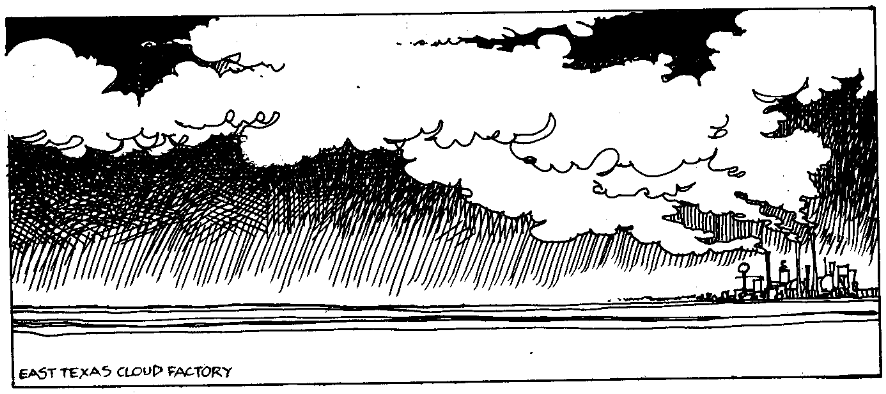
1. servo-controlled deck, when editing
4. figure out a formula (2 wds.)
5. the reel that gives
7. veiwing box
9. dimentional circuit
11. snap, crackle, _____
13. re-arranged and reconfigured
14. instant replay machine
17. record/___________



PHILO TAYLOR FARNSWORTH

18. variable cps.
20. random or 2:1
22. /off
23. fatal excess
25. timing pulses
26. affirmative

ARNSWORTH MEMORIAL television crossword

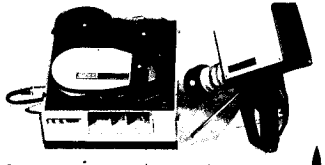


Answers to F

acrossvisu
1. slaveal*n
4. derive it
5. feedoise*
7. monitorca
9. matrixn*o
11. popccur*i
13. editedn*a
14. VTRny*sys
17. playbackt
18. FMem*in*f
20. interlace
22. onormatio
23. ODn*of*co
25. syncntent
26. yesand*by

downits*ef
1. stereofect
2. videotape
3. rotoralter
6. erasethe*r
7. mixerecons
8. nixietruct
10. revolution
12. o.d.(outer diameter)i
15. UHFon*of*m
16. abilityean
19. minusing*m
21. cuesaking*
24. DCit*hard*
to*understand

ACCESS/N.Y.

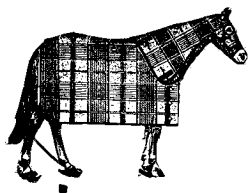


●There are two public access equipment centers in New York City. These have been funded by Teleprompter and Sterling-Manhattan, the two cable companies that hold the franchise for Manhattan.

Neither have enough equipment to properly service their areas, but they are open to anyone who would like to learn and use video equipment.

Video Access Center
528 LaGuardia Place
NYC
(212) 598-3586

TelePrompTer Public Access Studio 1
60 W. 125 St.
NYC 10027
(212) 831-9366



The Video Access Center

Hello,

It's time we get together. We are all basically in the same boat. We are trying to link our communities through public access television.

●The Video Access Center opened on September 15, 1972. It was set up through the Alternative Media Center at NYU. AMC contracted with Sterling-Manhattan Cable Television Co. for the donation of equipment for the use of an access facility. About $15,000 worth of equipment was provided, including 4 portapaks, 2 AV-3650 editing decks, 1 AV-3600 and a special effects generator. Sterling-Manhattan agreed to maintain this equipment and also provide the center with 75 half-hours of 1/2" tape with a new reel to be substituted for each tape used more than five times.

In order to actually set up the center, AMC had to find other funding. This came from a grant from the Fund for the City of New York. This was enough for the rental of a storefront and salary for one fulltime staff member.

At the beginning, a group of about 15 people volunteered substantial amounts of time. Meetings were held regularly to develop policy and procedure. One of the first decisions was to limit the use of the center to people living in the Sterling-Manhattan area. Classes were started immediately to train people in the use of the equipment. By the end of three months, close to 300 people had been given cards designating them as qualified to check out equipment. This began to put a tremendous strain on the 4 portapaks; one of the four was almost always in for repair.

The volunteers then decided to work for quality, with the hope of getting more and better tapes for the cable. An emphasis was put on longer training periods and on-going projects. People who are unable to get into classes are encouraged to volunteer, give time and energy to the center.

Now, after six months of operation, the Center is looking for more funds. Applications are in to the New York State council on the Arts (which has necessitated becoming incorporated as a nonprofit institution) and other grant givers.

The Video Access Center, 528 LaGuardia Place, NYC 10003, is starting a mailing list for its newsletter. If you want it, a $2 contribution will assure you a copy.

●The municipal channels (A & B) will start operating this May. The city in the role of executive producer is expecting their programs to come from city and state agencies. The New York State Council on the Arts, the Cultural Affairs Department, the Human Resources Administration and others will get into TV.

It appears that the city intends to avoid putting any money into this project, but will instead involve organizations that are government-funded which already have TV equipment.

HOW IT WORKS

A CATV system has four basic components: the head-end, the antenna, the distribution system, and the drop

The antenna receives broadcast signals just as the home rabbit-ears does. It is placed to receive the maximum number of channels with clarity. The antenna is usually centrally located to make distribution of the cable easier

From the antenna, the signals are sent through a wire to the head-end
At the head-end, the signal is received from the antenna and is prepared for distribution to each subscriber's TV. Interference is filtered out and the signals are brought up to proper strength. Some signals are converted to more useable frequencies. Then the signals are prepared to be sent over the cable. In addition, the head-end monitors all of these functions to insure that signal quality is maintained

1. Filter out interference
2. Boost signal strength
3. Convert signals
4. Prepare signals for distribution
5. Monitor all functions

To insure signal quality throughout the system, space must be left between the cable and other utility lines

The wire that connects the head-end and the subscriber's TV set is called coaxial cable. In a CATV system, there are three different types: trunk lines, distribution lines, and feeder lines

The trunk lines carry the signals for long distances with no taps or drops. By avoiding direct connection with the subscriber's TV, the trunk cable can carry the signals with relatively little interference. Amplifiers are used to boost the strength of the signals whenever it falters

Distribution lines carry the signal from the trunk lines to the feeder cables through distribution or bridging amplifiers. These amps guard against signal failure on the distribution cable and prevent interference from reaching the trunk line

The drop line carries the signal into the subscriber's house

A cable is then installed leading directly to the subscriber's TV

A cable TV system is, most simply, a way of connecting two or more places with a wire. Today, that wire is being used to distribute broadcast TV signals. It can just as easily be used to receive any message, or send any. In short, it is a small communications network. Presently, the only people using it are cablecasters

Founders Annex Public Service Project, Inc.
Box 388
Dedham, Mass. 02026
(617) 329-1135

◀ *Bill says* "Cable TV is like your sewer system, except it runs in reverse.

TRUCKIN' ARMADILLOS

●Austin, Texas, the state capitol, was cabled in the mid 60s to provide television reception to the hill country in this part of the world and now claims 25,000 primary and 20,000 secondary subscribers. Or about 70,000 eyeballs.

Capitol Cable Co. (owned by Lady Bird Johnson) was approached recently by Austin Community Television, to start doing something with public access or real program origination. Because the company is a grandfather system, they aren't required to do anything about public access until 1977. But amazingly, they agreed to give prime time on an ABC channel. Up until now, Capitol got ABC from San Antonio and from Austin. Now, the St. Anton' ABC station will go off from 7 to 10 p.m. for public access programming, then return for 30 minutes of network news and be returned to ACTV for the remainder of the night. The cable co. will provide the means of getting the p.a. signal to their head-end (microwave or cable) from its origination point. An advisory board has been set up that will be responsible for getting and keeping the armadillos fed. On this board are representatives from the Texas State Council on the Arts, who will hopefully provide funds for the project. Also community and university representatives and Space City Video, an independent group from Houston.

Taped programming is already being produced and will start as soon as an origination point is decided upon and the signal is fed into the system. Because Austin is a college town (60,000 students, 1/3 the population), they are pushing to be operational by the new school term, this fall.

Although none of the major Texas cities are cabled, Houston, Dallas, Ft. Worth and San Anton' are all in the process of drafting and awarding franchises. Whatever happens in Austin will have a great effect on the way things are set up in these other cities. Any information you can pass on will be greatly appreciated. We would also like to establish a tape exchange network with access elsewhere. Please contact Mike Tolleson/Armadillo World Headquarters, 525 1/2 Barton Springs Rd., Austin, Texas 78704.

MINIMAL SPECIFICATIONS FOR A COMMUNITY CABLE SYSTEM

1) That the system be under direct administration of a community-elected board which will regulate rates, hear complaints, make channel allotments, and enforce with legal power the terms of the franchise contract.

2) That the system be a multiple ownership, consisting of at least five separately-owned neighborhood sub-systems.

3) That priorities be given to nonprofit cable companies and Wisconsin-owned companies if feasible.

4) That the Milwaukee system anticipate long-term development, providing at least sixty channels with additional capacity, provide for a wide range of auxiliary cable services, such as computer tie-ins, radio and digital transmission.

5) That each neighborhood system have cost-free common carrier public access channels and one inter-connected city-wide public access channel.

6) That each neighborhood system have cost-free access to facilities providing videotape production and editing equipment and training.

7) That there be established absolute respect for the civil liberties of the subscribers, prohibiting any unsolicited monitoring of subscriber activities or program selection.

These are just a few suggestions recommended by Input: Community Video Center. Certainly there are many more to be considered. Interestingly, not one of the above recommendations has been included in any previous draft of the Milwaukee ordinance.

INPUT Community Video Center
1015 W. Mitchell St.
Milwaukee, Wisconsin 53204
(414) 647-2384

Input has published *Citizen's Handbook on Cable Communications in Wisconsin* 24pp. 50¢

Community Involvement

●A look at citizen and institutional participation in Massachusetts cable development would never reveal that cable is one of the most important elements in the future of schools, hospitals, libraries, banks and other businesses. Decisions about the town's new wire have traditionally been made only by the local government and the cable company. The whole subject has usually received less attention than contracting for garbage collection or locating a little league field, unless reception of the Bruins was at stake.

It is possible to determine in advance how much money a cable system could make in any community. By combining this knowledge with a needs assessment of the community, the local government will know what it can reasonably ask for at the beginning and in the future. Any city or town which knows its wants, needs and potential before granting a license is bound to bargain for a better deal. For instance, a city might request use of a channel to interconnect all of the doctors in the city instead of permitting that channel to be used for made-for-TV movies. Drawing up the license in advance and advertising for applicants who meet the city's standards will benefit both the city and the company. Each will know the other's expectations and limitations before they are legally bound together for 15 years.

Institutions and special interest groups have been very slow to get involved in cable licensing. Schools, for instance, have much to gain from a system designed to meet their particular local needs. Yet it has been very rare for a school official to ask to have a voice in any decisions which get made. We know of very few special interest groups or community service organizations such as hospitals, fire and police departments, housing developments, or homes for the elderly which have sought to participate in the decision or even voice an opinion.

Public hearings have reflected the lack of informed and concerned community participation. Attendance is low, and those who do speak do not generally have anything constructive to offer. More is heard about the Bruins than education. The recent preliminary hearings for Boston were an exception: the 30 or 40 people who attended came from nearly every cable research group, academic study committee, and cable company in the area. Only the public was not represented.

Founders Annex Public Service Project, Inc.
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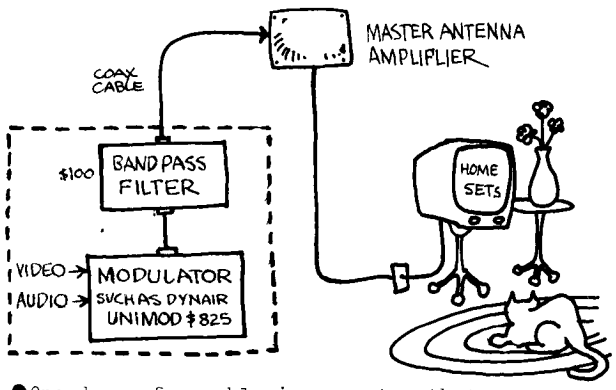
Dedham, Mass. 02026
(617) 329-1135



●One dream for cable is a system that services the community, a maximum of 10,000 people. Orthovision in Forest Hills, Queens, is programming daily to 1,350 families (approximately 5,000 people). Talent and crew come mostly from Parker Towers, the three buildings that are linked through their master antenna. Orthovision was started by Al Simon in August of 1972. He had for many years sold and installed master antenna systems.

Programming is loosely structured. Almost all of it is live from a small studio (approx. 13' x 13') with one Shibaden camera, a Smith Victor lighting kit, two microphones and a Shibaden VTR for their occasional use of prerecorded material. They have recently purchased a Sony (AVC-3400) portable. Their cable station is supported by advertisements taken by local merchants--a sale on meat at Moishe's (the corner) butcher store, etc.

Al Simon
Orthovision
18-10 26 Rd.
L.I. City, N.Y. 11102
(212) LH5-8822

This photograph was taken after the Great Blizzard of 1888, at the corner of Broadway and Twelfth Street. A law had been passed in 1884 requiring all telegraph, telephone, and electric wires to be removed from the streets; the first underground conduits were laid in 1886. The blizzard helped speed the process of cable-laying.

Getting it on cable...

●Since you are reading this issue of VIDEO TOOLS, you must be interested in producing videotapes in your community. The time will come when you will want others to see your tapes. The logical place to show your tapes is the cable system in your town. The cable operators, however, may not share your enthusiasm. So, "How do you get your local cable operator to provide access to you and others?"

If the system is owned by a parent corporation like Teleprompter, you will be dealing with a local functionary that can pass the buck. "Well, we gotta check with the home office." You are most likely in luck, if American Television and Communications Corp. owns your system. About a year ago, a project was started on the ATC cable system in Reading, Pennsylvania that is rapidly becoming a national model. ATC asked the Alternate Media Center to come in and hold community portapak workshops in Reading. One of the workshop participants was later hired to be the public access community liaison. He was paid a salary by the cable co., but was free to set up workshops and lend out the portable hardware provided by ATC free to anyone. The tapes were then played (without prior censorship) on the origination channel of **Berks Cable TV, Reading, Pa.** Over 100 people have participated with over 100 hours of original programming coming out of the community. The community workshop project has been so successful on the Reading system that ATC plans to provide the same community service on several other systems. Cypress-Warner are now copying the ATC success and initiating video workshops with free loan equipment on 7 of their systems.

I suggest that you write to Berks Cable TV, Muhlenburg Street, Reading, Pa., and get a free copy of their booklet, "A Story About People," which details the Reading success story. Then tuck the booklet under your arm and head for the office of your local manager. Sell him on the workshop access idea.

So what to do if he's not sold? The FCC now requires a public access channel to be provided free on all cable systems located in the 100 largest markets. But if they were operating before 3-31-72, they have until 1977 to provide the public access channel. At that time they must also get a Certificate of Compliance from the FCC by demonstrating that they are in compliance with the new requirements. Many cable companies are interested in importing a distant signal from another part of the state. They may *not* add a new signal until they get the Certif of Compliance. When the cable company applies for the certificate, the public has 30 days to file an objection. The application must also be on public file at the local cable office. Let's block those certificates until real access commitments are made!

The fastest way to get a favorable response for access is through economic pressure. Start subscriber boycotts. In Santa Cruz, we have been trying to get public access for a year and a half. The cable here has 85% of the homes subscribing because without cable you get poor TV reception. The cable manager has the city council in his back pocket. Locally, we had a few levers. But we also know that Teleprompter (TPT) is applying for new franchises in communities not yet cabled. We went to Saratoga, Cal., and asked the council to refuse TPT's application because of their poor service record in Santa Cruz. We produced two pages of documented service abuses suffered by Santa Cruz subscribers. The Saratoga franchise was awarded to someone else.

We sent a collect telegram to the president of Teleprompter, William Bresnan, stating that they would continue to lose new franchises until they came to Santa Cruz and provided a satisfactory access solution. Two weeks later, the vice president flew to Santa Cruz to negotiate. At this moment, access in Santa Cruz looks promising. Until a commitment is made, we'll be opposing their franchises wherever we can. If your community is opening for bids from cable companies soon, write me and I'll send you a copy of the Santa Cruz service abuses. It gives communities insight into things they should protect themselves from, especially if Teleprompter wants the franchise.

You should also get a copy of the franchise granted by your city. Look for violations of requirements. See if your city reserved the power to amend. If the city did, try to get them to require public access now. San Francisco amended their franchise before it ran out and increased the tax the cable company must pay to the city. So it can be done. A ray of hope is slowly beginning to shine through. The Reading project has demonstrated to the cable industry that support for access is one of the best public relations devices they can develop.

Johnny Videotape
695.30th Ave., E.
Santa Cruz, CA 95060

$3 will get you a really nice book. Community Access Video
H. Allan Frederikson --pp.

the future....? Broad Band Communication

● The cost of paperwork created by business in the United States is estimated at tens of billions of dollars annually. Should this more than double within the next decade as expected, this mass of paper will be sufficient to block communications channels as they now exist. If we assume a continuing proliferation of Third Class mail to consumers superimposed upon the business volume, it becomes apparent that physical transfer as we now know it will become impossible...

The use of computers has largely been confined to in-plant operation, but time sharing of centralized computers is now becoming a widely accepted practice. The next phase of the development is expected to be greatly increased use of communications channels to tie high-speed computers together. Broad-band [Video is broad-band] networks will be vital to these functions...

By 1980, the development of interactivity will foster the application of man-machine systems for shopping, banking, self-educating, and utilization of information services from the home. These computer-like display devices will require the use of a wideband communications network for distributing data from a central source to a community of users. Every user is to have the capability to select and control the information desired by means of a narrow band link back to the center of distribution. These services can only be supplied by an equivalent to current CATV distribution systems modified to provide narrow band transmission capability back to the "head end"...

The ability of local law enforcement agencies to cope with the growing incidence of crime can be expected to decrease steadily, unless alternative means for supplementing the man on the beat can be applied. The application of modern electronic techniques for surveillance and detection will provide this supplementation *but only if the electronic devices are systematically interconnected by broadband communications networks.*

excerpts from *The IED/EIA Response The Future of Broadband Communications*
Industrial Electronics Division
Electronic Industries Association
2001 Eye Street, NW
Washington, D.C. 20006

Leonard Crow Dog at the Synapse dedication ceremony:
...Let the people hear, let the people know...

●In December 1972, applicants to the Creative Artists Public Service Program (CAPS) were invited by Cy Griffin (CAPS video consultant) to attend a ten-day get-together at Syracuse University. *Videostream*, as the gathering was called, would provide the grant applicants the opportunity of learning about each other's work and proposed projects, as well as about the operation of a cable system.

Several people had negotiated with the University to finance a cable system which would wire up the campus. When bids from commercial cable companies were submitted, they decided to build the system themselves. All last summer, this core of about ten people pulled cable throughout the campus, and in November, they opened the Synapse one-inch color studio. At the dedication ceremony, Wallace Black Elk and Leonard Crow Dog of the Rosebud Reservation in South Dakota blessed the cable system and urged that *the people that are responsible for all this radio and television and communication send messages, good messages, to our American people.*

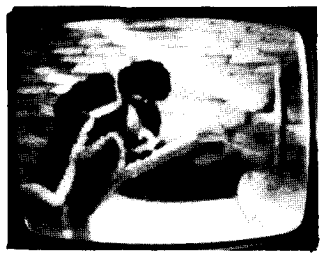
Synapse provides open access to their one-inch color studio--which includes the slide, film and message chains, a color effects board, and half-inch equipment (nine portapaks and more). They also provide a chance to find out firsthand how a cable system works. They want people to come there to share information *with* them, so that their system is a constantly flowing information pool. This includes increasing their video library and trying to find ways to make tapes available--both through information retrieval systems at the University and through the creation of distribution networks.

One of Synapse's major tasks has been to create an audience. When there's no feedback from the community, it's an enormous job to do interesting programming. During the week we were there, the cable was being used to show the CAPS tapes, and that was the most continuous programming that they had ever had--but still no real community involvement.

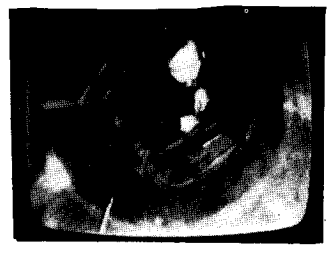
Saturday night, we started doing some cablecasting ourselves, figuring out a schedule of tapes, announcing the next program and punching it up. Just trying to keep a program going. It was good to realize that all the information we had been trying to absorb during the week culminated in doing what Synapse meant for people to be able to do all along...to come in, to learn basically how things go...how the information travels, and how it gets out of the control room to the monitors on the cable. Then you start feeling that need for some feedback...*please somebody call and say I just saw a tape* or *I'd like to request something...*

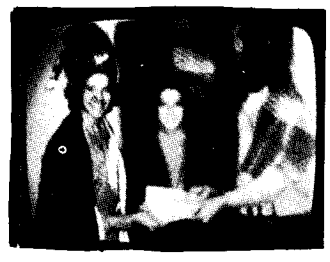
We thought that the experience of seeing eighty people putting their ideas on videotape was like saying that everybody is different, everyone sees the world differently. And it was interesting, after viewing the tapes, to see what the applicant was proposing to do. Lynda's tape of last year's CAPS panel deciding on who would get grants caused discussion. We decided that it was impossible to guess who would be awarded commissions this year--the panel members change every year and the decisions are based on their individual feelings about the tapes entered. That's why Cy always told people who didn't receive commission one year to apply again the next. As an experiment in information exchange, Videostream was very successful, and we hope that it will be a continuing tradition. Susan Milano + Lynda Rudolick

Susan & Lynda in studio

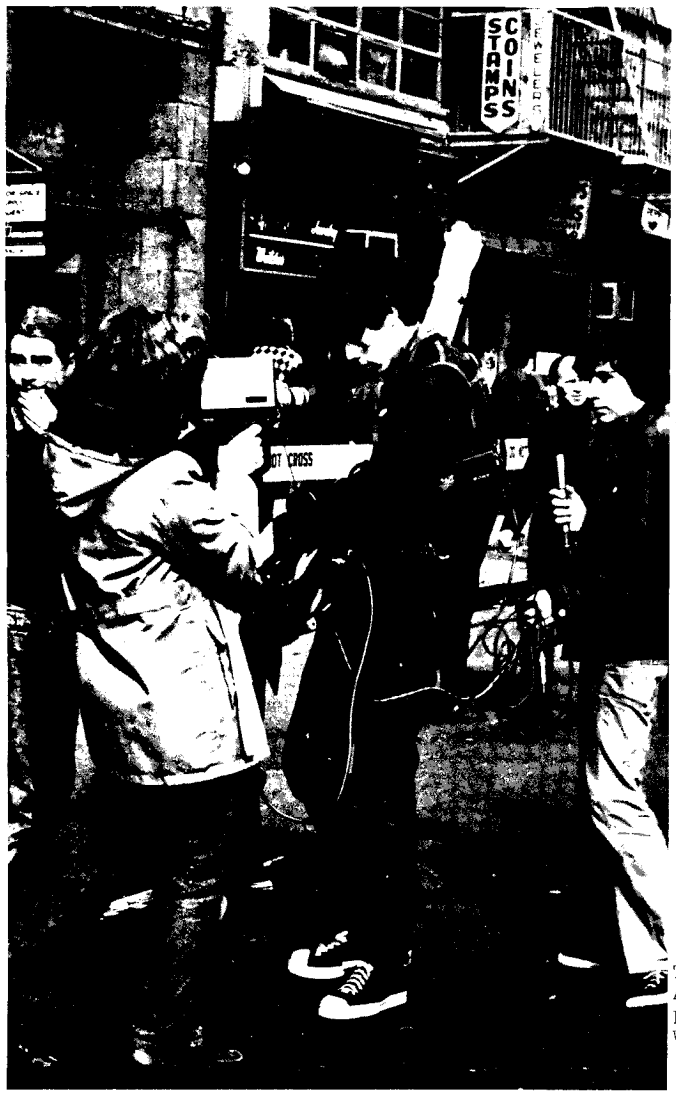


Lynda at the manhole
Learning about cable from the bottom up





Quasar and *Fluoride* from Synapse's version of *Star Trek*



teenage video

Rick Shain

●The camera as pen, a concept which so excited Alexander Astruc in post-war France may well turn out to be a Sony 3400 unit rather than a movie camera. At least, my experiences working in media with teenagers lead me to think so.

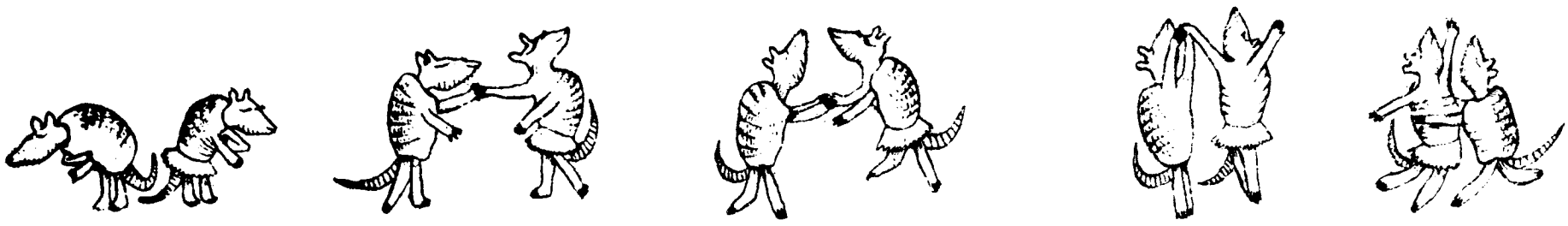
At the New York Public Library Videotape Workshop for Teenagers at the Inwood Branch in upper Manhattan, run in conjunction with the Media Equipment Resource Center last spring, from the eight kids or so who stuck with the project there, emerged at least 4 definable approaches to video. Jeffrey, hyperactive and ebullient, invented a nervous high-energy style, embellished with rapid zooms and swooping hand-held camera which frequently ignored the subject at hand. Anthony, dapper and self-contained, produced work full of elegant, understated pans, steady and unprepossessing. Reliable Danny, the technocrat of the group, always came up with a clear, concise image--the necessary information and no more. Margaret, the last to mold her own approach, devoted a certain poetic intensity to the problems of framing and camera placement. David, Kevin, Hector, Lenore and Michael, by the workshop's end, had also taken steps toward defining their feelings about their visual environment. The eight, with one exception, were neighborhood kids, not particularly media conscious and not particularly wealthy. Although the students in the project never coalesced as a group and only three expressed any interest in continuing with video, generally they were enthusiastic and pleasant toward each other. Video for them (much to my satisfaction) often became an extension of play, as when they made a war "movie" or a tape of a punch-ball game.

This fall I worked with a group of students at a posh Long Island high school. Rather than bending video to their own needs, they sought to achieve an amorphic professionalism (with amateur equipment and knowledge), as if there existed some platonically "right" image to emulate. Meaningless technical jargon obscured their language while Rube Goldbergesque systems squelched any degree of spontaneity (and efficiency). In the morass of cables and headphones and what-not, such basic chores as cleaning heads were ignored. Out of four hours of taping, only one hour was presentable. The students were over-privileged and overly-familiar with media. One, in fact, had worked in a cable station the previous summer. Yet none of them had the slightest inkling of style, of the nature of video (whatever *that* is). Their behavior toward each other was nasty and arrogant; their work stolid, low-octane stuff.

I concluded that the environment in which they functioned wasn't conducive to 1/2" experimentation; that rather than becoming an extension of play, video superseded it, becoming a tool for aping adults (at their worst, I might add), instead of a means for self-exploration and expression. Or, in double-speak: "Knowledge can be ignorance."

The New York Public Library's Office of Young Adult Services and Film Library has been exploring the possibilities of videotape workshops with teenagers, operating out of a library.

reprinted from the Film Library Quarterly, 1972



●April Video Cooperative is a cooperative of groups and individuals working in community video and public access/local origination cable all around the country. Formed April 1972, during a video conference at New Brunswick, N.J., the network has been working at maintaining an open flow of information with the National Cable Television Association as well as other national associations interested in the use of video. It hopes to serve video producers as a clearinghouse for access-oriented information, including cable contacts, tape distribution, etc. while allowing people to work in a decentralized fashion. The Downsville collective is currently serving as a coordinating group while also relating to local cable and video activities. If you would like further information or would like to help, contact them. They also publish an open-access periodical for video, cable, and other media people. You can plug in by sending information, questions, tape catalogs, whatever, in camera-ready format, 8 1/2" x 11" or smaller, to the address below. Subscription donations are $5 per individual, $10 for institutional or business use.

April Video Cooperative
Box AK
Downsville, N.Y. 13755

Video Alaska

●Applications of 1/2" video are limited only by imagination. The assets of cheap production cost and the widespread availability of 1/2" video playback equipment in Alaska have resulted in extensive use of 1/2" video gear by the Alaska State Museum. We are involved in production as an essential part of the Alaska Multi-media Education Program, a division of the Museum system. Much of our production work is not uncommon in terms of application; we produce programs on Alaska's cultural heritage, history, and environment. It is in the application of video for environmental field-work which is relatively unusual and has resulted in several modifications of equipment and techniques in order to function in the harsh Alaskan environment.

Using VTR equipment in the winter in Alaska presents some very challenging problems. If the temperature is less than 10 above zero, it is almost impossible to work. Not only does the equipment fail to work correctly due to cold batteries and thus decreased voltage, but condensation and moisture from breath make work all but impossible. If the equipment is taken in from the cold, there is always condensation formed on tape guides which results in slowed-up tape speed with resultant distortion. The way to avoid this is by putting the equipment in a sealed plastic bag before entering a building.

The greatest asset in using videotape for environmental education production is the tremendous sense of immediacy and dimensionality which videotape imparts. It makes a viewer *feel* what he sees more than film. And it is cheap.

We found that it was necessary to design camera covers which are waterproof, thus allowing us to work in the rain. We made these ourselves and they worked extremely well. Long hikes through rain forests and glacial moraines taught us the best way to pack equipment. The videorecorder (Sony AV-3400) and camera were put in large packs. The packs must be of very high quality in that the weight of sleeping bags, food, tent, and extra lenses and accessory equipment amounts to a substantial pack. Our packs, fully loaded with VTR equipment, camp gear, food, and gun and knife, weighed in at about 80 pounds.

Another perpetual problem is batteries. We used three-hour batteries. Due to the temperature, these batteries seldom, if ever, lasted three hours. An hour and a half was maximum. More often we averaged about an hour, including very brief spot checks on quality. As a consequence, we carried several three-hour batteries. In planning for work of this type it is necessary to have more batteries than you think you will need. Nothing is more frustrating than to have a great shot, miles from the nearest source of electricity, and run out of power.

A small kit of screwdrivers, portable soldering iron, and solder is an absolute must, along with a supply of video head cleaners and fluid, and lens tissue.

A persistent problem is determination of f-stops for different lighting situations. Sun reflection from snow or water can easily cause burns unless care is taken to maintain motion in shots. We burnt out one camera by inadvertently pointing it at the sun. Generally we shot at F11 in the sun, F16 in areas of high glare or reflection, F5.6 under cloudy conditions, and wide-open for low light conditions.

The major problem with working VTR gear in wilderness environments is the delicacy of the equipment and the necessity to maintain continual preventative work against dirty heads, capstans, or tape. Although we fell on the Rovers several times without incident, other accidents which were seemingly much more minor resulted in greater damage. It is necessary to avoid severe shocks to the cameras. And the video heads must be cleaned at least twice a day.

We used a battery of lenses; from a 500mm mirror lens to a macro-lens. The primary problem to be avoided here is the fact that changing lenses invariably results in dirt particles on the rear elements of the lenses. In a 35mm camera this does not have as significant an effect as it does on a video camera. What happens is simply a collection of dirt specks recorded on the tape. These are extremely annoying, particularly on a large monitor. Consequently it is always necessary to clean the rear elements of the lenses before putting them on and to carefully brush off the photosensitive surface in the camera. When this is done the results are extremely good--in the field it is necessary to have access to many lenses and the benefits, visually, are in the quality and diversity of shots.

Overall, however, videotaping proved to be a viable format for fieldwork. The primary requirement is that necessary precautions be taken and that the equipment be adapted for use in a specific environment. The promise of this kind of production is unlimited, both in Alaska and elsewhere.

Dan L. Moore
Education and Media Coordinator
Alaska State Museum
Pouch FM
Juneau 99801

Video as an Organizing Tool

●For the past two months, we have been traveling across the country for the Youth Citizenship Fund of Washington, D.C. We were hired to do a video documentary of their voter registration activities with youth in minority communities, as well as experiment with video as an organizing tool.

The video usually served as an entree to the various communities that we visited. It gave us a way to talk to people who ordinarily would have been hostile and uptight with outsiders in their community. But what interested us the most was the community's response to video: people always became excited about having equipment for their own use, especially for political education and organizing. People saw for the first time how media could help serve their own interests. Communities were especially interested in using video as a way to exchange ideas and information with other people around the country who share their problems.

We used all Panasonic equipment. We shot with a WV-8080 [old portable, no playback], which weighs 5 1/2 pounds, and the deck, NV-3080, weighs 15 1/2 pounds. The relative weight difference as compared to the Sony AV-3400 became an important factor. It allowed us to shoot handheld and carry the deck for two and three hours with consistently steady camera work and without a brace. Although the Panasonic deck did not have the capabilities of the Sony 3400, the camera was in every way comparable. Apparently the Panasonic deck and camera about to be put on the market meets all Sony features while retaining the weight difference. We were also satisfied with the durability of the equipment. We transported the portable deck, along with our editing decks, a 3020 and a 3020SD, to California and back by every conceivable transportation: van, train, bus, plane, and car, with not one breakdown in equipment. We also shot in all climate conditions and, except for the need for a longer warmup in colder weather, the equipment was not affected by weather. We shot some very interesting tapes which were edited at the Egg Store. The tapes will be used for political education as well as to convince political officials of the necessity of changing the registration system of the country.

Rita Ogden
Mary Feldbauer
Women's Video Collective

"WHAT WILL WE DO WITH THOUSANDS OF HOURS OF

Dear People:

●I'm writing this letter for many reasons, mainly, to become a member of the CTL video club ($10.00 enclosed). But, since I am also a member of San Jose's *Focus on Media* group, I was going to mention a few of the problems we are having, getting off the ground, and was wondering if you might be able to make a few suggestions about them.

1. Equipment is one of our main problems. Portapaks go for $1695 in this area--no exceptions! No used equipment seems to be available without a trip to Los Angeles. We had borrowed a portapak from Santa Cruz (Johnny Videotape), but it was returned for their use. It is really frustrating. Right now we are thinking about sending someone to New York to see what is available--in our budget range. There is, however, a large amount of CV series equipment here, up for grabs. We were wondering about converting it to EIAJ-1 format...is it possible or even worthwhile???? [*Paula says:* There is no way of converting CV equipment to EIAJ standard. Too bad, eh!] Units are selling for about $250 each. One reason for the high prices here, seems to be the difference between the "fair trade" regulations in New York and California.

2. Another problem is money sources. Groups like Project One, in San Francisco, are financed by government grants, due to the large variety of trips they are into. So far the best we can do is writing letters to anybody for contributions. Which brings us to the last and final problem:

3. San Jose has *one* newspaper, *one* TV station, and *one* cable TV company--all are either owned directly or indirectly by Ridder Publications (which also owns 15 other newspapers and part of the Minnesota Vikings). We have just barely managed to get access to the community access channel on cable TV, and were refused use on the local TV station (to show videotapes), for "technical incompatability of equipment." Coupled with this, is the education about cable TV that is severely corrupted in this area: people still remember the Subscription Television fiasco (pay TV) that was going to invade this area in the early 60s, that supposedly would have made cable TV a luxury enjoyed only by the rich. Well, the cable TV company here has only managed to wire 5% of San Jose in two years--the high income 5% of course! (San Jose has over 500,000 pop.). And when the "two-way capability" of cable TV is mentioned (FCC regs) the anti-cable sentiment is highest; nobody wants their home monitored by Big Brother (They think their TV set will be watching *them*, if a cable is installed). Naturally, the main source of news here is via Ridder Publication Media.

I think I have dumped enough crap on you about San Jose. If we can just get it together enough to start, we should be able to make a dent in the machine...but to start seems to be the problem.

Enough of the community groups are interested in using videotapes, and were trained in portapak operation. But few, if any, can finance the equipment. Of course, the San Jose Police Dept. has three portapaks, which appear at any demonstration or rally that may occur.

...I don't really feel that People's Media is going to make it in this town for a long, long time...

A.F. Bischoff
411 Lewis Rd. #188
San Jose, CA 95111

L.A. Public Access Project

●I am writing to you for the L.A. Public Access Project. We have evolved in the last few months from a loose coalition of "concerned video citizens" to a formal collective operating with money granted to us by the General Youth Convention Program of the Episcopal Church. Our major projects include 1) Finalizing Public Access agreements with Theta Cable of California and TesCo of Topanga Canyon. 2) Publication of a Public Access pamphlet for the L.A. area. 3) The establishment of a community editing and tape production facility. 4) Setting up educational programs about video for area groups and individuals.

On November 29th (1972) we bought our first pieces of hardware after a long and exhaustive search for the "best deal in town." We got the *new Panasonic portable NV-3082* (we were told we got the first in the country) and the *Panasonic color editing deck NV-3130*. We have plans to get another NV-3082 and another Panasonic deck to complete our editing setup. It is really too early to make a real statement about the new portable, but let me say that by the looks of it...that is, if it operates in the long term as well as it has in the short time we have had it, it is going to blow Sony's 3400 out of the market.

I'm sure nothing needs to be said about the 3130 as it seems to be recognized as the best 1/2" editing deck on the market. We only wish something could be done about the audio pop. (*see Editing Systems, page 9.*)

We found a slightly better deal on Sony equipment, the reason we decided to go with Panasonic (besides liking their hardware) was that we were able to meet with management-level personnel who seemed open to working with us and establishing a good long-term relationship. They have already promised us donations of tape and equipment and they may be able to get us some promotional money.

If you are interested in knowing about what's happening with video in Los Angeles, I think we are the people to contact.

John Birchard
L.A. Public Access Project
1802 Berkeley
Santa Monica, Calif. 90404

●Movideo, Incorporated was founded in March of 1972. The name is based on our letterhead's description of the work we do: "Motion Pictures on Film and Videotape."

Our earliest efforts were, and our prime source of revenue still is what we call "special event" filming. We cover weddings, Bar Mitzvahs, anniversaries, "love-ins" and anything else which people want to record in motion pictures for their personal use.

The customer gets an edited, finished film complete with animated titles and special effects

Up until recently, our work had been limited to film, but we had video on our minds long before we put it in our name. One drawback in getting into videotape had been that we were only offering black-and-white coverage.

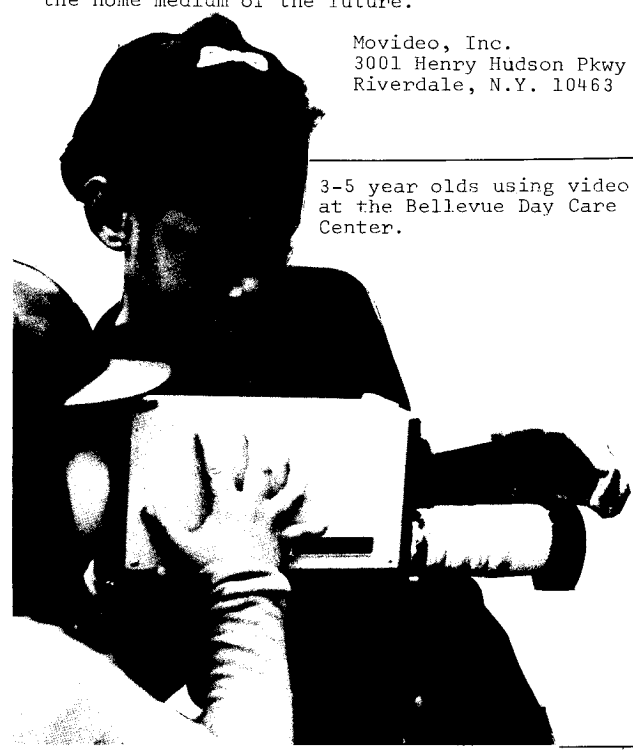
Then, in December, thanks to the expert technical consultation and facilities of CTL, we developed location color capability and shot what we believe to be the *first* color videotape of a Bar Mitzvah.

The affair was shot and edited on 1/2" tape and then transferred to Sony Videocassettes for delivery to the customer. The present limitations of 1/2" technology precluded as polished a job as we're able to put out on film, but the tape has that feeling of immediacy--of happening *now* that can only be captured in the video medium. We feel that the immediacy is a very exciting compensatory value in exchange for some of our filmic trickery.

We're not fantasizing an overwhelming flood of color tape orders in the *immediate* future. The cost of equipment, both recording and playback, is geared more to industrial than to private usage. (Movideo's commercial division has already lined up several prospective clients.)

What we do envision, however, is that with the advent of standardization, increased marketing competition and the resulting consumer-oriented pricing of videocassette home playback systems, it will be very few years until videotape almost completely replaces film as the home medium of the future.

Movideo, Inc.
3001 Henry Hudson Pkwy
Riverdale, N.Y. 10463



3-5 year olds using video at the Bellevue Day Care Center.

ELECTRONIC VISION

99 huh? □ WEINBERG/RODOLITZ

Denver Community Video Center

●So far our experience has been that while there are a few video groups around that have "made it"--they have equipment and at least a little bread--most, especially in Colorado, have not. We are still struggling at a pretty basic level. In order to staff an office, buy video tape and stamps--a minimum amount of bread is required--trying to knock down that little bit takes about as much energy as trying to get the big money--is there any? However, you have to do both at the same time--and you've still got to survive. People in similar trips--non-profit orgs not video groups estimate it takes a month of their time to raise the bread to continue for another year. Moral: Video groups try to find a community organizer/scrounger--his/her input will be invaluable. We've found that group support personnel is as important as production freaks and electronic freaks. Oh, yes, it is nice to have somebody who can strip down a portapak blindfolded so you don't have to pay to have equipment fixed when all that is wrong is a blown fuse. Save the jack for the big problems.

Many folks attracted to community video seem to have had little or no TV or film experience. Which is good and bad. We've been getting many of the local video production/hardware companies in town to run workshops for us. It really is a big help--gets your people in touch with the jargon and reality of 1/2" production. A good source here is Steve Dock's new column in *Filmmaker's Newsletter*. Also plug into *Workforce* (formerly Vocations for Social Change), Box 13, Canyon, CA 94516--will give a good idea of what other community-minded folks are doing--it's good reinforcement.

MONEY--eeek--a major hassle--just to keep going try church, civic, etc. groups. Also try to get into college, community college to teach community video production courses--use their equipment.

Talk to hardware people--see if they will loan equipment on a scheduled basis. Write to video tape companies for evaluation samples of video tape. If the cable has arrived in your area, try to get support from the cable company--if they are not helpful, put some community pressure on them.

Go non-profit/get tax exempt status--go to local foundations--rap/scrounge/rap some more --talk to everyone and anyone--then decide whether you want to talk to them again--get names and go to the top people in organizations--be specific--organized--up front--but you don't have to say everything--be sensitive to others' needs, fear, desires--also don't forget your own.

Bill Pratt
Denver Community Video Center
1400 Lafayette
Denver, Colorado 80218

●*THE KITCHEN* is a multi-use media theater, part of the Mercer Arts Centre complex of theaters and workshops located in the southern part of Greenwich Village in New York City. With the support of the New York State Council on the arts, we have opened the space to artists working in all aspects of the electronic media, from experimental music to live and taped half-inch video. The presentation and workshop space has also been the scene of events in a number of other intermedia areas including light art, slide shows, cinema, dance, bio-feedback works. Most of these events are free, some ask a small contribution. [*Paula says*: The Kitchen is the only regularly functioning video theater in N.Y. where anyone who can get a show together, gets the space and equipment. Get on their mailing list, for a monthly calendar.]

●WBAI, the listener-sponsored Pacifica station in New York has been exploring the possibilities of using video. Some people at the station see video as a new tool for the kind of free and open personalized communication that WBAI has tried to provide to its community. The WBAI Video Benefit, on March 17-18 at Automation House, was the station's way of introducing the (tenuous) relationship between WBAI and video. Although the event received little support from the station members and there seems to be no follow-up in their programming and publications, the event was a great success for the video community and the thousands of New Yorkers who swarmed through Automation House. People got involved in all phases of the video process. They could make their own tapes on the Porta-Paks and the SEG setup, on the first floor. Tapes were shown in two continuously programmed viewing environments on the second floor. The downstairs multitorium was the scene of a two day taped production (which was shown on public access cable TV)-- this included a two-way interactive panel discussion on public access and a store of music, dance and theater groups.

The Pacifica network has formed a committee to explore the possibilities of listener-sponsored TV. They have decided to use video in their communications distribution chain, but are still questioning the methods of making it a reality. One of the most positive signs is the Houston Pacifica station KPFT working with Space City Video, an independent video group. *Bill says* that Pacifica is trying to develop funding for tapes to build-up a tape library, airs a weekly program *Taking Over Television*, and runs monthly columns in the Radio Guide devoted to alternative TV.

Although Houston has granted no cable franchise yet, KPFT has been forming a community coalition to help draft plans for the uses and development of public access.

FROM ARTHUR GINSBERG & SUKEY WILDER
VIDEO FREE AMERICA

●New Line Cinema, in a joint effort with Video Free America, will be distributing half-inch videotapes on a nationwide scale by September 1973, under the title New Line Video Link.

New Line Cinema distributes films to over 300 colleges, museums, theaters, galleries, and high schools in the USA, Canada and Europe. The properties they represent include Godard's *Sympathy for the Devil*; *Reefer Madness*; *Coming Apart*; Warhol's *Women in Revolt*, &c., &c. Also the personal appearances of Norman Mailer and R.D. Laing (we were impressed).

To the New Line Video Link, video distribution (up to now a phantom phrase) will mean simply that as much video software that we feel is worth seeing will be seen by as wide an audience as possible, with substantial financial benefit to both the producing artists and, of course, ourselves.

Distribution can't be accomplished by the exchanges, information banks, and listings that service the video community alone (the dream is over). It will take creative programming, convincing, attractive promotion material, aggressive, organized sales efforts, and, most of all, an established, functioning distribution network--all of which New Line Video Link will provide.

Drawing, then, on these resources, our own experience as active experimenters in the display of video software in theaters and environments, as well as a number of conversations with fellow tape makers, we've adopted the following strategy for distribution.

Initially, to assemble 20 hours of tape--acquisition will be an ongoing, year-round process. Then, to organize this material into a half-hour, modular, distribution library, which, rather than offering fixed packages, will provide subscribers the freedom and flexibility to build their own shows, series or festival, according to their peculiar interests, needs, and fantasies.

Suggested formats for programming will, however, be an important aspect of the New Line Video Link promotional effort.

Also, we'll be producing a regular video magazine, featuring short tapes recently acquired or commissioned during the year.

The entire New Line Video Link effort will be characterized by contact and communication among the tape makers, tape show-ers, and tape watchers. The promotional literature will contain thorough, accurate descriptions of the tapes, feedback on programs and suggestions for programming will be requested from audiences and subscribers; those who are producing tapes will be invited to submit work for possible inclusion in the library. And we'll be promoting and booking appearances, lectures, workshops, and performances by the tape makers whose work we distribute.

A brief word on economics. At this time, we anticipate the rental per hour of tape will be $150 for one day; $250 for one week; sale price will be individually set (with rental applicable) with reductions for extended subscriptions. Artists can expect 25-30% on rentals; 60% on personal appearances; 50% on sales. The mathematics on a popular hour of tape are indeed promising over a year's distribution.

Presently, we are still looking for about 10 more hours to complete our initial target of 20. So, if the prospect of having your work profitably and widely distributed doesn't threaten your counter-cultural credentials, submit copies of tapes to:

Arthur Ginsberg
c/o New Line Video Link
121 University Place
New York City 10003

SPACE TECHNOLOGY SPINOFFS FOR LIFE AND DEATH

●The products of American space research are finding their way into our daily lives. Miniaturized communications technology is being adapted by pro- and anti-life forces in approximately equal proportions.

Both the military and medicine are developing new uses for video, the former to build "smart bombs" for MEM (more effective maiming) purposes, and the latter for restoring physical functions.

SMART BOMBS - The U.S. Navy and Air Force are using video guidance systems for 1 thousand, 2 thousand, and 3 thousand pound bombs. The Navy systems are built by Martin Marietta Corp., and Hughes Aircraft. The Columbus division of North American Rockwell builds for the Air Force.

A smart bomb is equipped with a small vidicon-lens assembly which allows a pilot to monitor his target on a master TV screen in the bomber cockpit. Once he has located the target in a standard visual manner he switches to the TV screen, and using a hand control unit, centers the video camera's crosshairs on the target. The pilot then activates a lock-on and releases the bomb. The camera is linked to the bomb's flight guidance system, so that once launched, the bomb operates on its own and is guided automatically to the point which its TV seeker has locked on. These bombs can also be equipped with a video data link. This displays in the cockpit exactly what the bomb sees, and allows the pilot to remote-control the bomb in case of interference or automatic lock-on malfunction. Presently the smart bombs are restricted to daytime-high visibility conditions, but infrared image sensors now under development would allow their use in darkness or through smokescreens. Some fun, eh, kids!

The video component of these monsters is pretty basic stuff. The real space-age design innovations are incorporated in the camera's protective housing. The Navy's "Walleye" smart bomb is designed to withstand forces of nine Gs and temperatures of -55° to 125°C.

ELECTRONIC EYES - NASA has set up a special Biomedical Applications Team at the Southwest Research Institute in San Antonio, Texas to apply NASA technology to medical problems. Complete engineering intelligence on products developed by the group is made available free to manufacturers who wish to produce them commercially. *Visual prosthesis* (electronic aids for failing vision or complete replacement of visual apparatus with electronics for the totally blind) is one of the prime areas of medical high technology now being developed at this and other research centers around the country.

In normal vision, light is focused by the lens of the eye on the retina. The retina transforms the light patterns into electrical impulses which are transmitted by the optic nerve to the visual cortex of the brain. The brain recognizes the pattern of impulses and interprets them as an image. Certain kinds of blindness are caused by malfunctions of the retina or the optic nerve. If either or both are not operating, the brain receives no stimulation.

One method of visual prosthesis involves direct stimulation of the cortex by electrodes implanted in the brain. Random stimulation of these electrodes produces phosphenes, the little flashes of light that you can see by pressing your thumbs against your eyeballs. With a video camera acting as a sensory input to the electrodes, the phosphene pattern can be organized to produce a coherent image.

The basic problem in brain implant prosthesis is miniaturization. The present state of the art allows for 180 electrode implants, 90 on each side of the brain. According to researcher, Prof. G.S. Brindley of Maudsley Hospital in London, the 180 points are sufficient to convey information on the shape of an object and the light and dark features associated with it. Brindley expects that advances in integrated circuit technology will allow implantation of enough electrodes to enable a blind person to read. On the camera end, RCA, Bell Telephone Labs, and the U.S. Navy are close to perfecting low cost miniature high-quality TV cameras using integrated circuits. The Navy is talking about a cost of $100 per camera.

Another method of visual prosthesis stimulates the tactile receptors of the abdomen with a kind of electronic braille. A self-scanning array of photodiodes is mounted on a pair of eyeglasses with a light source and a small lens. Each diode corresponds to an electrode placed on the skin of the user's abdomen. An image focused on the photoelectric glasses is transformed into electrical pulses which are transmitted to the electrodes. A blind person can sense an image by feeling the location and intensity of the applied pulses.

The latest advancements in this technique include a 4096-bit photodiode array developed for NASA by Westinghouse, which would allow for a 40-50 degree field of vision, sufficient for walking and reading. Research is also being done on the feasibility of weaving the abdominal electrodes into a special garment.

Although this method doesn't actually let a blind person "see" the way brain implants do, it has the obvious advantage of convenience. To quote researcher, Dr. Carter C. Collins of the University of the Pacific, "If you were a blind person, what would you rather do, have a brain operation, or slip on a girdle-like garment?"

Another bit of hi-tech originally developed for the Army by ITT is finding an application as a remedy for night blindness. The tool is a pair of goggles which contain focusing lenses, a miniature image intensifier tube, and a small

All Watched Over by Machines of Loving Grace

I like to think (and
the sooner the better!)
of a cybernetic meadow
where mammals and computers
live together in mutually
programming harmony
like pure water
touching clear sky.

I like to think
  (right now, please!)
of a cybernetic forest
filled with pines and electronics
where deer stroll peacefully
past computers
as if they were flowers
with spinning blossoms.

I like to think
  (it has to be!)
of a cybernetic ecology
where we are free of our labors
and joined back to nature,
returned to our mammal
brothers and sisters,
and all watched over
by machines of loving grace.

Richard Brautigan

Sign language and signalling were one method of communicating ideas in primitive societies. This 1873 engraving showed an American Plains Indian informing his tribe that a herd of buffalo is roaming nearby.

TV monitor. The image intensifier amplifies the image and displays it as a bright picture in the eyepiece monitors. The goggles cost about $11,000 apiece.

Just as the animal products of evolutionary divergence may share the same life cycle, opposite technologies developed from a common source may share the same cycle of consumption. So who knows? If your body is destroyed today by a "smart bomb" in Indochina, you may regain "normal" functions tomorrow with the installation of a few small devices at an Army hospital.

Mark

HOLOGRAPHY

●HOLOGRAPHY is the process of three dimensional lens-less photography (the act of freezing light waves). Holography as a science has been made possible through the phenomena of lasers. *Laser* is an acronym for *L*ight *A*mplification by *S*timulated *E*mission of *R*adiation. The laser's atoms in a stimulated state radiate more directional, intense, coherent (in phase), and monochromatic (single wavelength) energy than ordinary white light. The laser's most important property, coherence, allows for the existence of the holographic process. *Coherence* is the ability of light waves to remain in phase and compacted as compared to incoherent white light, which is very diffused. An analogy of the process of coherence can be thought of by imagining people marching row after row, as compared to people running in a random pattern, in all directions at once. Laser light waves are unusual because of the intensity of the power of their energy, compressed into the thickness of a pencil lead.

In this state the laser can act as a drill, a transmitting carrier, or as an image recorder (holograms).

The process of holography can be produced by sound and radio waves as well as light waves; this includes the following:

ACOUSTICAL HOLOGRAPHY utilizes a laser illumination source, an acoustical lens, and water as a medium to focus holographic images upon its surface. This is applied as an acoustical microscope, which is capable of showing details which may go undetected in an optical microscope.

MICROWAVE HOLOGRAPHY is utilized by the armed forces; it is a scanning technique that captures all surfaces of an irregular terrain in the form of rows of photographic film. Unscrambling the microwave images produces high resolution radar "photographs" with details of various land surfaces.

Three dimensional images are quite pronounced as holograms and the viewer quickly realizes that much more information about the scene is furnished by this process than by stereo photography or 3-dimensional photos using ridged lenses. The viewer can inspect a 3-dimensional scene not from just one direction, but many directions. *Parallax* is one of the outstanding features of a hologram; this is the ability to focus on the image sharply in all planes and to watch the object shift in its relationship between itself and the viewer. Holography also has the capacity of storing several hundred images in one film plate as compared to a film image which can store only one image at a time.

The large information content of a hologram is the consequence of the extremely fine fringe detail in the interference patterns of the recorded image. This detail, approximately 1,500 lines per millimeter, is far superior to the capacity of present television systems which employ much coarser line structure. The ratio between the pictorial information content of an 8-inch square hologram and that of a U.S. television picture is 360,000 to 1. Applications of holography include:

Medicine
Information Storage
Display Graphics & Printing
Stress Analysis
Deblurring of Photographs
Computer Memory Banks
Microscopic Analysis

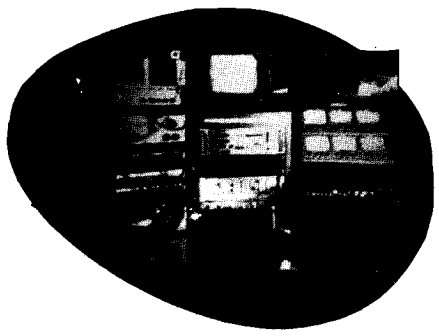
The phenomenon of holography is still in its infancy as a potential medium of communication. The applications of this process are unlimited. Acoustical holography can be applied throughout the field of medicine as a technique in examining microscopic imagery. It can produce high-resolution readouts as well as 3-dimensional pictures, and can be applied to research as easily as it can be used in a doctor's medical examination to supplement an X-ray machine.

In industry, holography can be used to study the phenomena of stress analysis, and can quickly be used to pick out materials with structural flaws that could possibly break down or malfunction at a later date. In the field of communications, holography as a graphic display medium is virtually a whole new world of art that's waiting to be explored. The possibilities are infinite for sculpture, diorama, and display arrangements with this process. And of course somewhere in your lifetime, you can look forward to 3-dimensional television and movies.

This article is from the Holographic Corporation of America resource and information access center. Our library contains much in-depth information including video tapes of the history and development of holography and the process of holographic production. We also are in the process of designing multimedia kits explaining the various applications and uses of holograms. H.C.A. is available for holographic production, consultation, exhibitions, lectures, demonstrations, and workshops. For more information, please contact:

Louis M. Brill
International Holographics
865 Broadway
New York, N.Y. 10003
(212) 865-1710

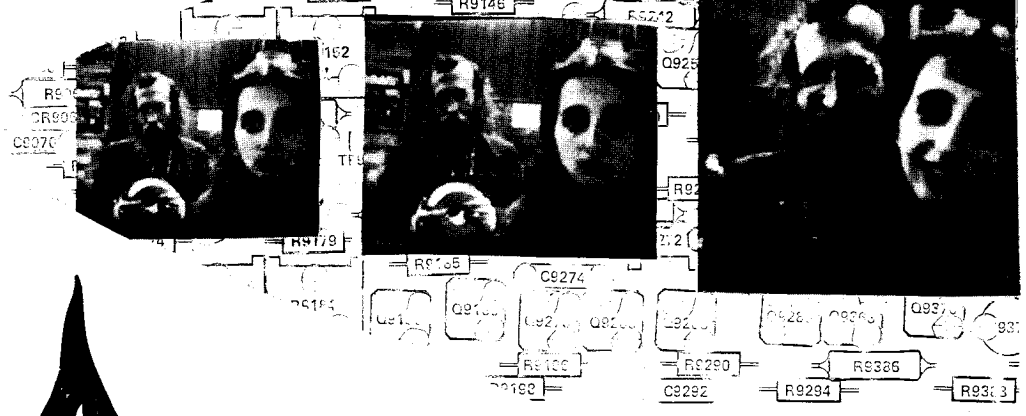
POST-PRODUCTION - The Egg Store pioneered in 1/2" to 1" editing for transfer to 2" quad. Our VTRs are Sony, Panasonic, Javelin in the 1/2" format; Sony EV-320F 1" and Sony 3/4" cassette. Services include B&W and color editing (by our editors or on your own), signal processing using a Ball Bros. Mark II proc amp, special effects and titles using a genlock SEG with keyer, colorization, sound equalization, air checks, 16mm film transfer and **tape duplication in any helical format.**



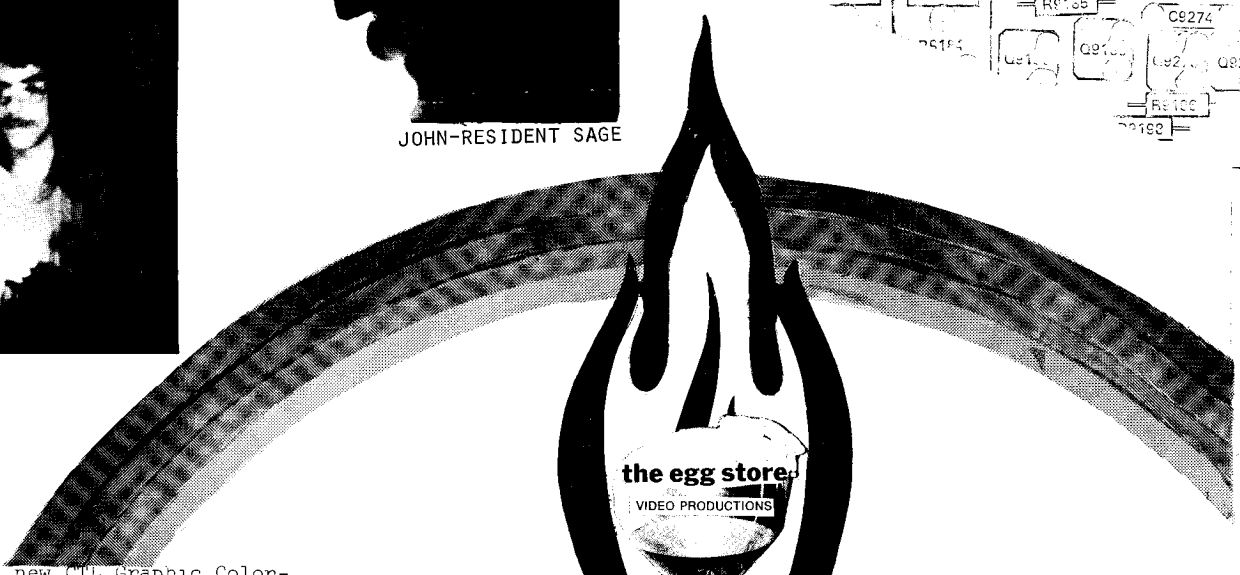
PRODUCTION- Our 30 X 30 foot studio space is equipped with 3 DXC-5000 color cameras, up to 5 black and white cameras, including an image intensifier camera, for low light shooting. Viscount special effects board, 1/2", 1" and 3/4" cassette VTRs. All production hardware is fully modularized and can go on location. The Egg Store supplies a full production crew on location or studio shoots. You have the option of using your own crew in the studio for a greatly reduced rate. We also supply 1/2" portable equipment with operators for less complex field shooting.

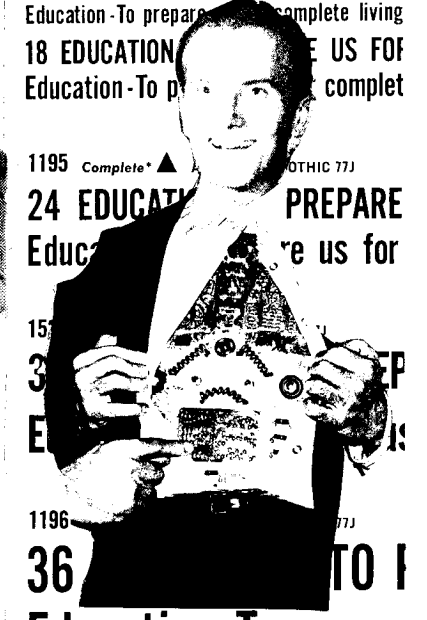
MARK-MANAGER

JOHN-RESIDENT SAGE

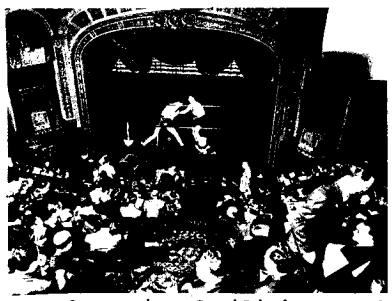


ALAN-TECHNICIAN





COLORIZATION- The new CTL Graphic Colorizer is now available for production use at the EGG Store. We can colorize any prerecorded or live B&W material. We believe this colorizer to be one of the best anywhere. Come down and see it. (More on CTL's colorizer on pg 25).



SCREENING- Screening facilities at the Egg Store provide closed circuit viewing for up to 30 people. We can play any tape recorded on 1/2",3/4" or 1" Sony and Ampex 7800 formats. Monitoring facilities include the Sony color video projector with 50" screen.

CLASSES-John Brumage and other CTL staffers are offering spring video workshops and lectures at the Egg Store. Three regular courses and a series of workshops cover 1/2" videotape equipment from the simplest concepts to advanced techniques for editing, feedback or modifications (if you ask the questions, John has the answers). All courses have limited registration. For information, call Miriam, Paula or John at CTL (233-0754).

If you need a good carpenter who understands the needs of video people, get in touch with Andy Mannic at (212) 260 0390.

Hi,
This is Mark, your smiling studio manager. Now that we're in our second year of operation I think it's appropriate to deliver a State of the Egg report, so here goes.

Over the past year the Egg Store has worked closely with the alternative video community as well as with industrial and educational institutions. Among those who use the Egg Store regularly are *Top Value Television, The Everson Museum, Women's Video Collective, IBM, General Electric and the U.S. Information Agency.*

On the production end, our mobile color production unit made a 90-minute videocassete of a Central Park rock concert featuring Mandrill, and the Egg Store staff assisted WBAI in their March 1973 video benefit.

John's classes were a big success and he'll be giving an expanded series this spring and summer that will be even better (more about classes on another part of this page).

At this writing we're in the process of rearranging the studio space and building a second editing room.

As always, the Egg Store gives special consideration to artists and non-profit groups by arranging use of the facility during unscheduled hours at a nominal rate. Please call or write me for more information.

Happy Trails

Do you like lists?

200
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