

Grass Valley Group (GVG Useful Terms)

These terms are taken from a 1991 GVG Publication, and the Zettl Text. The Television vocabulary is expanding at a rapid rate in recent years. In fact it is difficult for many astute engineers (including students of television) and professionals to keep up on all of the new standard and terms. Each video company develops its own unique vocabulary and terms.

Knowing most of these could be an "edge" if asked during a job interview and are some of the most common TV terms in studio and remote productions by "informed" professionals that are not necessarily engineers. The italics that follow some of the text are my additional comments on the applications for some of these terms. These have been prepared by some of the WTIU engineers, and Professors Jim Krause and John Winninger.

A-B ROLL Videotape editing arrangement where scenes on tape and played alternately on VTR's A and B and recorded on VCR C. Typically the final output contains scenes from both tape sources, with transitions (wipes, cut, dissolves, between the scenes. *When doing a production try always to shoot B Roll as CUT-AWAY-SHOTS (CAWS) they can save a production or news story. VERY useful in editing.... "you can never have enough B-Roll or CAWS"*

ACTIVE VIDEO The part of the TV picture that contains picture information. Seen in a normal commercial receiver/monitor. Many studio monitors can "under scan" the signal so you can see outside this ACTIVE area of the picture.

ADC or A/D Analogue to Digital Converter. *This is getting more important with the conversion to digital TV.*

ADDRESS 1. A precise frame location on a videotape or disc, ID'ed by TIMECODE.
2. A memory location or device identifier in a microprocessor and computer terminology. I cannot stress enough the importance of understanding timecode. *It is the Hours: Minutes: Seconds: Frames of each video frame. Expressed as 00:00:00:00 in drop-frame mode, and 00:00:00:00 in non-drop frame mode.*

AGC Automatic Gain Control. This is often used in audio, can be a trap for good audio, a lazy tool that can get you during editing. *This is similar to AUTO IRIS for the video.*

AIR To broadcast an audio or video signal. *Dah...on air usually LIVE...part of the reason you are in this business is to have something AIR on TV or radio.*

ALIASING Distortion in the video signal which manifests itself in three different ways. Spectral. Interference between two frequencies i.e., luminance and chrominance; Spatial. Distortion cause by limitations of physical resolution. Temporal. Distortion resulting from information lost between line and field scans in synchronization of a video camera and i.e. a computer screen. *Important to understand in graphics especially, and computer graphic designs, web sites etc.*

ALIGNMENT The adjustment of components in a system for optimum performance. *You'll know (see) when things are out of alignment with a video camera, really less common with the CHIP or CCD era of pick up devices. This was more common in the era of video pick-up tubes like PUMICON and SATICON that you parents grew up with in early black and white and color television.*

AMPERE (A) This is a unit of measure for electrical current. *Remember that high amounts of AMPS are more dangerous than Volts*

AMPLITUDE The magnitude of a signal in voltage or current. Frequently expressed in terms of peak to peak. *Remember the sine wave in high school physics?*

ANALOG 1. An adjective describing any signal that varies continuously as opposed to a digital signal that contains discrete levels. 2. A system or device, which operates primarily on analog signals. *In your generation more digital technology and less analogue equipment is seen.*

ANTI-ALIASING A feature of some video devices, such as character generators, which minimizes aliasing by filtering and other techniques.

ARCHIVE Off-line storage of video/audio onto backup tapes, floppy disks, CDs or DVD's. *Many entry jobs are to log videotapes, "to see what is in the archives." Archive jobs are quite common in documentary PA's. And in Newsroom jobs that nobody wants to do, not the glory positions, but they are important when needed. The FCC requires some News to be saved as archives. Also for a station to protect itself from libel suits.*

ASPECT RATIO The ratio of a TV video signal in width to height. In NTSC or PAL formats. *The current standard is 4:3, and soon to be 16:9. That's 4 horizontal by 3 vertical, 16 wide by 9 tall.*

ASSEMBLE EDIT/MODE An editing mode that replaces all signals on the record tape. (video, audio, control, and time code tracks), with new signals. *If you desire or you become an editor, and make the mistake of an assemble edit in the middle of a master tape...you'll never forget the difference between INSERT and ASSEMBLE modes.*

AUDIO BRIDGE In telecommunications, a device that mixes multiple audio inputs and feeds back to composite audio to each station, minus that station's input. Also known as mix-minus audio system. *These are very common in teleconferencing in the corporate and educational worlds.*

AUDIO DISTRIBUTION AMPLIFIER (Also called an Audio DA) A device used to replicate an audio signal, typically providing 6 outputs, each of which is identical to the input signal. *More commonly seen with big sports remote trucks, press feeds in news specials, and audio recording studios, and studio control rooms*

AUTO-TRANSITION On a video switcher, an automatic transition where the motion of the lever arm is electronically stimulated. *The "frame rate" is dialed up by the TD. Used for a dissolve, wipe, DSK, and fade to black on the control room switcher. Not a "CUT".*

AUXILIARY BUS (AUX) A single cross point bus, typically used in conjunction with a production switcher. Often used to usually feed a digital picture manipulator with the same inputs as the primary inputs applied to the switcher.

AXIS Relating to digital picture manipulation, the X axis is a horizontal line across the center of the screen, and the Y axis is a vertical line across the screen and the Z axis is the third dimension, perpendicular to the X and Y axes and indicates depth and distance. *Really try to understand this if you want to do 3-D moves with video.*

BACKGROUND (BG / BKGD) The bottom layer in an effect. Items are usually keyed with the switcher over the camera or BG, as a DSK (downstream key) for ID's. *It might be easy to confuse this with the background audio, or background lighting in a set. In TV terms background can have many meanings.*

BACKGROUND GENERATOR A video generator that produces a solid color output which can be adjusted for hue, saturation and luminance. *Pretty simple concept.*

BACKTIMING The method of calculating the edit point, or end of a sequence, or program by subtracting the duration of the edit or end of the program from the desired out pint or end of the production. *If you are ever an Assistant Director (AD) this can make or break a show...so really practice the math. Remember the minutes are 60 not 100, and seconds are also 60 not 100, and to add to the confusion when editing frames are 30 +/- . SO if you borrow from a minute when subtracting, you'd carry a 60 not 100. Sample question: Add 34 min and 32 sec + 28 min and 51 seconds? Ans: (1 hr 3 minutes and 23 secs)*

BALANCED Having two sides with a common third. These are conductors that carry voltage with a common ground. These are very common in Canon or XLR audio cables in TV. Three pins, two carry the audio signal with a common ground. *Unbalanced has no ground. The ground in theses audio cables helps prevent the dreaded "hum or buzz" often heard with phono plugs such as electric guitar amplifiers*

BANK 1. A group of (2-3 usually) E-MEM Effects Memory registers. 2. A mix/effects level or row (BUS) in a video switcher.

BARS Color bars is a test signal that originates from a video generator that is used as a SMPTE (Society of Motion Picture and Television Engineers) standard for alignment of the RGB (Red, Green, Blue), video. *These video levels are then used in setting up the videotape for proper playback. Bars are usually recorded a "0" level reference audio tone at the front of a tape or cut. Always try to put this reference on the start of a videotape. At least 15 seconds, better 30 seconds for a 30-minute tape and about 45 to 60 seconds for an hour tape.*

BETACAM A portable many times "convertible" component camera that uses Y (luminance), R-Y (red minus luminance), and B-Y (Blue minus luminance) color difference signal set.

BETACAM is a registered trademark of Sony Corporation.

Note: $Y = 0.3 \text{ Red} + .59 \text{ Green} + .11 \text{ Blue}$ (Y is luminance or brightness) $R-Y = 0.7 \text{ Red} - .59 \text{ Green} - 0.11 \text{ Blue}$ and $B-Y = 0.89 \text{ Blue} - 0.59 \text{ Green} - 0.3 \text{ Red}$. FYI, Green is the "strongest" color in the TV signal @ 59%, with Red @ 30% and Blue @ 11%.

BETA SP A superior performance brand of videotape, with a metal particle tape and wide bandwidth recording system on $\frac{1}{2}$ inch tape. *Pretty much the standard after 1" videotape was phased out. Now replaced by DIGI BETA formats.*

BIRD A satellite to send or receive a video/audio signal for live or taped feeds.

Also related to this is the transponder information, audio and video frequency polarity, name of the "bird" (i.e. SATCOM). Basically how the up-link or downlink dish is pointed or aimed in altitude and azimuth.

BLACK LEVEL The lowest transmittable luminance level that can occur during active picture portion of the video signal. *Seen at 7.5 IRE on a waveform (WF) scope. SUPERBLACK is below 7.5 IRE and the SYNC level "0" on the WF. Used to enhance a luminance key. Really*

try during the semester to sit at the video or “shader” position and look at these two scopes, the WF and Vector Scope. The black level is at the “0” position with the dark parts of the picture at the bottom and the brighter levels (whites) are at the top. Shading keeps the levels below 100 %, and less likely to distort or get clipped.

BLANKING 1. The (extremely short nanosecond) time period when a picture is shut off. Blanking is a voltage level, which is at or near the black level of the video signal. It acts as a signal to turn off the scanning beam. Synchronizing pulses, which control the invisible retrace of scanning, are active during the blanking period. **2.** A standard signal from a sync generator used to create the blanking in video. *Remember the TV picture is composed of two fields “high” to make on frame, blanking is an important part of this process. If the blanking is too wide or narrow it will not be a stable picture on the screen.*

BNC A Bayonet Neill-Councilman video connector. *These are VERY common in connecting video equipment. Named for the inventor. Usually on a “COAXIAL” Cable. There are many other connectors, RCA, mini-phonos, F, phono, “male and female” barrels, turn-arounds, converters, UHF etc. Again knowing these may get you a job someday. With remote trucks you 99% of the time always “F___ the truck” when connecting cables or “CABLING”.*

BUMPERS These are usually short. A term used for tape, or digital (on a PROFILE computer) scenes at the start or end of a program. *Bumpers are often used as a pad into or out of commercial in a commercial newscast. Used in post-production, and newscasts.*

BURST Seven to 9 cycles in NTSC or 10 in PAL of subcarrier, placed near the end of horizontal blanking to serve as the phase (color) reference for the modulated color subcarrier. *The BURST serves as the reference for establishing the picture color. No BURST, no color. Look for this when doing a rotation tour in the control room at the WF and Vector Scopes.*

BUS A signal path, which feeds a number of inputs, to, a single feed or outputs. Think of it as a funnel to a point, used with the video switcher. *Part of the TD’s (technical director’s) everyday terms.*

CCU Camera Control Unit. A separate control panel connected to a video camera head to supply it with power, and control. It also provides the encoding, and processing of the video signal. *Controls are usually: the remote IRIS or lens control, video gain, video level, black level, white level, color bars or camera “open”. The video engineer “shades the camera picture to a proper level during the production.*

CAMERA RIGHT or LEFT The direction used to tell the talent or subject to move. How the camera operator and viewer sees objects in the TV frame. *Opposite of “stage directions” Stage right is the same as camera left.*

CAPACITOR A device that stores electrical energy. It allows apparent flow of alternating current while blocking the flow of director current. *The capacitor is a workhorse and is used in many applications in television as filters, delay line components, timing, frequency regulators, etc.*

CHARACTER GENERATOR CG A computer used to generate text and sometimes graphics for video titles. *In studio 5 we use the Write Deko PC based CG. Another very popular system is Chyron. Again understanding basic operation is a useful tool for all to have.*

CHROMA KEY (Color Key) A video signal is inserted in place of areas of a particular color. Many times this is a blue, or green screen color. *The talent stands in front of a blue screen and through the switcher the two are electronically mixed. You see the almost every day during the weather. The talent stands in front of blue or green screen and the weather maps, and graphics appear as one picture.*

CHROMINANCE That part of the video signal that contains the color information (hue and saturation). Video picture information contains two components: luminance (brightness and contrast) and chrominance (hue and saturation). *This may be a good exam question)*

CLIP In keying, the trigger point at which the key or insert takes place. *One will need to adjust the clip until a clean images is seen.*

COAXIAL CABLE A cable which has a metallic noise shield surrounding a signal-carrying conductor. In TV the cable impedance is 75 ohms. *This coax cable is used extensively in the studio for connecting video monitors, tape machines, etc. This is as important as the Canon or XLR audio cables. These are also good to practice the lariat coil with.*

CODEC Short for coder-decoder. A device that converts analog video and audio signals to a digital format that can then be sent over telecom lines, and visa versa. *If you get into the corporate world many of the teleconference or meeting are help by this technology. Again this term understood may land you a job.*

COLOR BARS This is a VIP to understand. A video test signal for setting up monitors. Bars contain vertical bars with fixed amplitudes and saturations (of color). *When seen on the Wave Form or Vector scope they have a "pure" position. These are used at the front of videotape recordings as a reference standard that when played back are used to set up the tape for proper color alignment.*

COMPONENT VIDEO The un-encoded output of a camera, videotape VCR. Consisting of the 3 primary color signals (RGB) that together convey all necessary picture information. *Many if not all of the digital formats use composite information. Also in the world of digital editing the most in and out of the video information is component.*

COMPOSITE VIDEO An encoded video signal such as NTSC (what you watch in the US) that included the horizontal and vertical synchronizing information. *A lesser quality in overall "look", the COMPONENT format is fast replacing this older composite.*

CRAWL Is simply text that moves from left to right across the TV screen. *In the CG world these are used to present information at the bottom of the screen. Weather information, emergency information etc. Without disturbing the program in progress.*

CROSSFADE A transition between two pictures through black on a switcher. *The first picture fades to black and then immediately from black to a second video. Sometimes this is asked for by the TV director by saying, "kiss black". Used to indicate the end/start of a segment. Not as "permanent" as fade the to black at the end of a show, and slightly different from the dissolve between two video shots.*

CUE 1. Video editing term meaning to position the tape to a "cue point" for playback. 2. To cue the talent to start. In the control room you will "cue the tape", also mic and "cue" the talent.

CUT or (TAKE) A transition between two video sources, instantaneous, not the gradual changes like the dissolve. *The cut is the director's tool to change the shots between cameras. The preparatory word is "ready" (to take on the switcher by pressing the right button on the bus) "camera ___" (followed by saying) "take" (or the camera number) "x".*

DECODER A device used to recover component signals from a composite (encoded) source. Decoders are commonly used in monitors for recovery of RGB signals to drive a color picture tube.

DEGAUSS To demagnetize (erase) all recorded material on a magnetic medium, such as video or audiotape. *Some also think that the newer x-rays at airport-heightened security can "scramble" the magnetic material on videotape.*

DEGENERATION The loss of quality of a videotape due to multiple generations of copying the material. *There is also a loss of quality from component to composite, and digital to analogue. Digital to digital component is the preferred way to make copies. CD and DVD's are more transparent and preferred ways to make copies.*

DEMOGRAPHIC Audience factors that reflect items such as the age, sex, income, marital status, of the area covered by a radio or TV station. Used for research purposes and sales at commercial stations. *The target audiences for a particular station's programming. For example children's programming, teen, young adults, family, senior audiences.*

DEPTH OF FIELD The area of the TV picture where things are in focus. *This depth of field depends on the amount of light, focal length (size) of the lens, and distance the camera is from the object being viewed. In low light levels the depth is less. This is usually desired for a dramatic or lens effect.*

DEMODULATOR A circuit that demodulates or decodes the desired signal from amplitude and/or frequency modulation present in a carrier wave.

DIGITAL Circuitry in which data carrying signals are restricted to either two-voltage level, corresponding to logic 1 or 0. A circuit, which has two stable states: high or low or on or off.

DISSOLVE A transition where one source of video or audio is faded down as another is faded up resulting in an overlap of two images. *A very common technique in video switching done by the TD (technical director)*

DOWNSTREAM Occurring after the other devices in the signal path. A DSK or "downstream key" is an example. *This is usually a CG that is superimposed over the primary video, such as a name of the talent.*

DROP FRAME TIMECODE (DF) SMPTE time code format that continuously counts 30 frames per second but drops 2 frames from the count every minute except for every tenth minute. This equals 108 frames per hour of time. This is done to maintain synchronization with "clock time". This is all necessary because NTSC video is 29.94 frames per second rather than 30 frames. **NONDROP FRAME (NDF)** doesn't drop these frames. NDF is used in CD-ROM's. *Think of this as "leap-year" to allow the video to catch up with the clock time.*

EDIT CONTROLLER A control system computer (usually controlled by a keyboard) that controls videotape, audio, CG's, switchers in linear editing systems. *Edit controllers rely mostly*

on a time code based menus to complete editing. This system is phasing out to the nonlinear systems such as Final Cut, Primer, and AVID non-linear systems. These are more cost effective and can really do more than the older systems, with much less hardware.

EFFECTS MEMORY (E-MEM) The ability of a video production switcher to store and recall effects created on the system for later use in a production. *The effect desired is setup as "learn." Then the correct source buttons on the switcher are pushed, and then SAVE at # of effect is entered for later recall.*

EFP vs. ENG (ELECTRONIC FIELD PRODUCTION vs. ELECTRONIC NEWS GATHERING)

EFP is to produce a program in the field rather than in the studio. *Usually the EFP is a better produced, scripted, better directed effort, with more equipment and most of all time.* The ENG is many times more hurried, with less scripting, more getting the "story or event". *Many ENG assignments are reacting to the breaking news of the police scanner with circumstances while it's happening and capturing for a newscast. There is less equipment, personnel and the script is developed on the spot by the producer/reporter, and the cameraman is the director editor back at the station. All in time for the newscast only moments away.*

EQ or EQUALIZATION 1. Process of altering the frequency response of a video amplifier to compensate for the high frequency losses in a coaxial cable. **2.** In audio (more common definition) to improve the sound quality by increasing or decreasing certain selected frequencies. *This can also take a perfectly clean and normal signal and distort it to sound like a telephone, or to remove all the highs and midrange and boost the low end for dramatic or audio effect.*

FADE TO BLACK To gradually makes the video picture disappear to a black (blank black screen). This is usually done at the end of a production. *For the theater majors, think of it as lowering the curtain at the end of a drama*

FIBER OPTICS The use of optical cable to transmit images, or signals in the form of light energy pulses over great distances with very little loss of information, quality or need for relays that were needed in older forms of cabling.

FILL In video keying, the fill is the video signal that is inserted into the "hole" that is cut in the background video in the key.

FIRST GENERATION The first copy of a videotape. A copy of that copy would then be 2nd generation and so on. *The further down the copy the worse the video quality appears.*

FORMAT 1. In TV, the specific format of the signals that make up the video signal. i.e. component vs. composite. **2.** To format (prepare) a disc for computer use. **3.** Different kinds of videotape formats i.e. miniDV, DvPro, VHS, BetaSP, 1", M2, etc. **4.** The format of a program i.e., talk show, documentary, drama, sitcom, magazine, hard news, studio, field, sports, etc.

FRAME SYNCHRONIZER A digital buffer that, by storage, comparison of sync information to a reference, and timed release of video signals, can continuously adjust the signal for any timing errors. *These are used in studio 5 when we plug in external cameras so they will "pass" through the video switcher clean. If not used there will be a tearing of the external camera (or video that is not timed when a dissolve is attempted, and cuts will result in a quick roll of the picture.*

FRICION HEAD A relatively “cheap” tripod head. Usually a counterbalanced spring loaded mechanism for lighter weight cameras. Other heads are FLUID heads that provide smooth pans and tilts for medium and lightweight cameras, often mounted on a base plate and balanced by adjusting the camera position to a balance point. CRADLE HEADS are common for the heavier, HARD cameras that can bear much heavier cameras and especially the longer lenses used in studio and sports remotes.

GAIN Any increase or decrease in the strength of an electrical signal. Gain is measured in terms of decibels or number of times of magnification. *This is seen in audio gain, and camera gain is added if there is not enough light for a good picture on the camera. The bad side effect is noise in the audio, and grain added to the picture.*

GEN-LOCK The phase-lock the timing of one piece of equipment to another. *This is important with multiple camera, and video setups.*

GRAY SCALE The range of luminance levels in TV from black to white. *Many times seen on the Wave Form when the “chip chart” is used to setup the camera at the start of a production.*

HELICAL SCAN or **SLANT TRACK** The diagonally slanted path of the video signal when recorded on a video tape.

HOUSE SYNC Television sync generated within the studio and used as a reference for generating and/or timing other video signals. *Many times the house sync is off of the color bars, or color black generator. If the sync generator goes in a production.... you are SOL. It's kind of like the tracks the train runs on.*

HUE (tine, phase, chroma phase) One of the characteristics that distinguishes one color from another. Hue defines color on the basis of it's position in the spectrum-i.e., whether it is red, blue, green, yellow etc. Hue is one of the three characteristics of television color. *The others are luminance and saturation. These are usually adjusted on the monitor. Most TV's have a detent position as the factory “Setup”.*

IMPEDANCE The total resistive and reactive opposition, measured in ohms, that a circuit presents to the flow of alternating current at a given frequency.

IN-POINT The beginning point for an edit. Also the MARK IN point. The OUT POINT would then be the ending point of an edit, or MARK OUT point.

INSERT EDIT MODE An edit mode in which the time code/control track already existing on the record tape are not replaced during the editing process. The system edits using a pre-recorded control track and timecode. *In most non-linear videotape editing there are: a video tack, 2 audio tracks and the control track with the timecode. In non-linear systems there can be up to 8 or more video tracks, and many (4 is the norm) audio tracks on the “timeline”. This timeline is read left to right as the program is played.*

INTERLACED Short for interlaced scanning. A system of video scanning whereby odd-and-even numbered lines of a picture are transmitted consecutively as two separate interleaved fields.

INTERCOM The intercommunications used in studio that allows the crew to talk via headsets, IFB's or cell phone adaptors with each other with out getting into the program audio. *This is*

usually between the control room and the studio floor crew or remote crew.

IRE (Institute of Radio Engineers) Units of measurement dividing the area from the bottom of sync, to peak white level into 140 equal units. *The Wave Form scope reports this information. The sync is at the very bottom, the "0" level is the start of the visual area. The pedestal is at 7.5 IRE, with the darker information at the bottom, and the white at the top. Shading is done to prevent the levels from going over 100%. Many higher priced cameras can CLIP the whites at 100 so the picture doesn't become distorted. In studio the cameras are set with the white balance, and no filters. Outdoors neutral density filters are used (much like sunglasses) to lower the amount of light that is getting to the CCD or tubes.*

IRIS The adjustable opening of the camera lens that allows the light to pass through to the pick up device such as the CCD or tube. *In shading the camera, the iris control is remotely controlled by the video engineer for proper exposure and level for broadcast.*

ISO In videotaping this is to record the output of a single camera, or switched bus to an individual videotape machine. *In many productions cameras are "isoed" as a safety for the director. For example: in a sports production cameras are in the line cut or "mix" and isoed to separate machines for those instant replays of the athlete perhaps going out of bounds.*

JPEG A video compression method used mostly for still digital pictures. Developed by Joint Photographers Experts Group.

JIB ARM This is similar to a camera crane. This is a specialized camera mount and it allows for extreme high and low camera angles over that of a regular camera pedestal. *The jib operator also tilts, pans, zooms and focuses the camera with servo-motor remote controls. These are specialized, and can be 10 to 80 feet in length depending on the application, ceiling height, room for the arm to move. There are several brands of jib/cranes, there is one in studio 6 at WTIU.*

JOG JOGGING The process of moving a videotape forward or backward one field or frame at a time. To SHUTTLE a tape is faster than jog. *This is a fine control often for location of edit points, or can be used for slow-motion replays if the VCR has dynamic tracking that keeps the tape fully engaged on the playback head so the viewer doesn't see the frames. Used to "park" and videotape for a still frame of video.*

JUMP CUT In video production or in tape editing a jarring cut from one scene or camera to another causing discontinuity. *The jump cut is often cover by a cut-away, or "B" roll of the scene.*

KERNING A graphics/typesetting term referring to the spacing between a pair of characters on a line of text. While most CGs and graphics software can automatically kern text, designers often need to fine-tune the kerning between two characters. (See *tracking*.)

KEY Also called key source or key cut. A signal that can be used electronically to "cut a hole" in a video picture to allow for insertion of other elements such as text or another video image.

KEY BUS On a video switcher these are the cross points used to select the key sources (hole cutters) and/or key fills. Signals to the key bus are typically the same sources as the other switcher cross points, plus external sources. *On most switchers yellow buttons are used for the key bus.*

KEY FRAME An effect that has been stored in memory, similar to a snapshot photograph.

Individual key frames can be strung together to create an overall key-frame effect. *This can look like animation. Also, in non-linear editing key frame effects are “triggered” at assigned key frames marks based on the timecode or timeline. Another example would be with in a commercial where the text may “fly” in, then fly or move to the top and then fly on the Z axis to infinity. Each of the points the text goes to is indicated by key-frames within the effect. This can also be done live with E-MEM effects capable switchers, and on many non-linear edit systems.*

LAYERING Combining several video sources into an effect at one time. Each layer of video can be cropped, keyed, positioned, or made transparent to expose the video of the next layer. *This can be done with many graphic stations, including the Write Deko in studio 5.*

LEADING A typesetting/graphics term referring to the spacing between lines of text.

LIGHTING and STAGE TERMS

- **ACE** The nick name for a 1K or 1, 000 watt light. Usually a FRESNEL SPOT light instrument with “Barndoors”
- **BARNDOORS** Usually 4 small or large black shutters attached to the front of studio lights to frame the light, used to control the spill light to avoid hitting unwanted areas of the set or talent
- **BASELIGHT** Even, non-directional (often diffused or flat) light necessary for the camera to operate at an acceptable iris setting for normal operation.
- **BATTENS** The overhead electrical or pipes the are used to hang studio lights or scenery. *In studio these are “fixed” on chain supports, and some are on moveable electric motors or pin-rail counter-weighted fly system. The “fly space” is necessary to raise and lower the lights on electrical battens or scenery on pipes or utility battens. Make sure the space is clear, and the counter-weight balance is correct before moving battens “in” (down) or “out” taking them up during setup.*
- **BLACK WRAP** This is heavy weight black aluminum foil that can be molded to the barn door, or light frames to extend or to create special control of excess spill light
- **BRACE** In studio 5 the specially designed aluminum support that is placed on the floor, weighted with 10 to 30 pound stage weights, and C-clamps for putting up and securing scenery flats
- **CAMERA LIGHT** Used often with ENG news cameras to provide a single key light that is attached directly to the camera. Sometimes called a FREZZY (the brand name), or “eye-light” or “inky-dinky.”
- **C-CLAMP** Clamps that hold the lights to the battens, or scenery together temporarily
- **COLOR TEMPERATURE** The relative reddishness or bluishness of light as measured in degrees Kelvin (K). *Normal studio lighting is 3,200 degrees K, outdoors is 5,600 K. This is why it is important to do the white balance for the cameras especially when going from exterior to interior locations with the camera*
- **CUCALORUS** or “COOKIE” Any pattern cut out of thin metal that is placed in a pattern holder for the Ellipsoidal light
- **CYCLORAMA** “CYC” A “U” shaped continuous canvas curtain. This is seamless and is most often used as a background
- **DEUCE** The “nickname” for a 2,000 or 2K watt studio light
- **DIFFUSED LIGHT** A light that produces a soft shadow. A SCOOP light has no lens, or a SOFT BOX has a translucent material in front of the light, or BOUNCED or reflected light. This type of light is also easier on the talent’s ability to read the teleprompter. These lights are desired when possible to avoid the hard shadows of **DIRECTIONAL LIGHT**.
- **DIMMER** A control device that varies the intensity of a lighting instrument through a

- fader that creates lighting effects at various levels. *In studio 5 the “dimmer” is selected, this is the number of the circuit that the light is plugged into which is assigned to a fader, and scene.*
- ELIPSOIDAL (Also referred to as a pattern projector) A spotlight that produces a very defined beam that can be further focused with hard internal shutters. Often used to project patterns on scenery, or the cyc.
 - F/STOP The opening of a camera’s lens. The higher the f/stop number the smaller the opening, the lower the f/stop the wider the aperture. *This is an important camera tool for the understanding of lighting, depth of field, rack focus, follow focusall visual effects done with the camera lens.*
 - FAST vs. SLOW LENS A “fast lens” allows a greater amount of light at a much lower f/stop number. Usually more expensive and heavier (due to more optics and width of the glass elements that make up the lens)
 - FILL LIGHT A basic part of the KEY-FILL-BACK scheme of lighting called the “Y” principle. This Y principle or “triangle principle” provides a BACK LIGHT to separate the subject from the background, the KEY or main illumination from the front of the subject, usually at 45 degrees up and to the side, with the FILL opposite the KEY, and the BACK directly behind in relation to the cameras position.
 - FLAG A thin, light weight metal, plastic, or cloth material used to keep unwanted light from falling on a specific area of the talent or set.
 - FLAT Scenery, in the studio. Constructed of 1x3 or 1x4 frames, with various coverings. Also refers to a style of lighting with very even illumination, minimal shadows and very little fall or slow fall off.
 - FLOODLIGHT In the studio this is usually a self-contained household type 150-250 watt light, which produces a diffused soft illumination.
 - FLOOR PLAN A common way to indicate the position of scenery, furniture, cameras, and lighting for a studio production. *Not necessarily drawn to scale, usually looks from the top view. This is important in classes to facilitate the building of the putting up of the flats for a set, for the lighting, the blocking of talent and cameras. The LIGHTING PLOT is also associated with the floor plan, but indicates the position of all the lighting needed for a production.*
 - FLOOR STAND Usually a heavy metal stand or dollied stand on a wheeled base that holds a light for lower angle uses.
 - FOOTCANDLE (fc) The unit of measurement, or illumination or amount of light that falls on an object. One foot candle equals the amount of light from one candle that falls on a 1-square foot area located one foot away from the light source. *The newer digital cameras operate with less foot candles or light or illumination than the older tube type cameras. This also saves on the number and intensity of the lighting used for studio based productions*
 - FRESNEL One of the most common spotlights. Named for the inventor of the lens, which has step like concentric rings of Pyrex glass so the heat of the lamp doesn’t shatter the lens. *This lens allows for these instruments to have a variable focus from a “flood (wide and less intense) to a spot” (narrow and more intense) position.*
 - FULLY SCRIPTED A complete script, includes all the spoken, read parts, visual and audio cues also the visualization comments. *Many times formatted with the video on the left side of the page and the audio on the right side.*
 - GEL or COLOR MEDIA Colored filters usually put in a frame or gel holder. *These are placed in front of the lens most often in the barn door shutters that have a slot for the gel material or the frame. The gel can also be “clothes-pinned” to the barn doors as a quick way to fasten gel. Keep in mind the heat the radiates from these lights...so wear heavy gloves when adjusting studio lights that have been turned on for a while.*

- HAND PROPS Objects that are held by the talent
- HIGH HAT A camera mount that can be attached to a temporary but stable foundation that allows normal panning, and tilting of the camera. These are used in tight settings where there is little room for a field tripod, often secured with bolts or c-clamps.
- HMI LIGHT (Hydrargyrum medium arc-length iodide) An extremely efficient, high intensity light with a color temperature of 5,200 degrees Kelvin. Used most in outdoor settings as Key or Fill light of talent. This requires a separate ballast power supply
- INCANDESCENT The light produced by the burning tungsten filament of ordinary glass globes, such as household light bulbs. *Sometimes these are referred to as "practical lights" and they are warmer or in the redder hues on camera.*
- INCIDENT LIGHT This is the light that falls directly from the source, such as the direct light that is used in TV studios. This differs from BOUNCE or REFLECTED light sources.
- LIGHT RATIO In flat lighting the ratio is 1:1, very even. *When the ratios are changed like in more dramatic scenes or special effects the ratio of the set light, back light and keys can create the mood that is desired by the script...this is where the creativity of the lighting director "shines".*
- LIMBO Any set that has a plain background. *Most commonly this is lighting that is done with a black or no background, a stark dark staging area. The talent should not wear dark clothing or they may "disappear" into the black background of the set.*
- LOW KEY LIGHTING When there is a darker background with very few or minimal lighting instruments. *This has nothing to do with the physical position or height of the lights. This is usually a more dramatic effect, and requires less or careful movement of the talent to stay within the lit areas of the studio. The opposite is HIGH KEY LIGHTING where large areas are safe for talent movement and more general light is on the entire set.*
- MORIE EFFECT Color or vibration that occur when narrow contrasting stripes in the design of fabric or material interfere with the scanning lines and resolution of a video picture.
- MPEG A compression technique developed by Moving Pictures Experts Group for moving film or video pictures. MPEG -2 is the standard for motion video.
- PANTOGRAPH An expandable in height hanging device for lighting instruments.
-

LINEAR A straight line of motion or performance that is sequential. A motion path for data. Having an output that rises or falls in direct proportion to the input.

LOG TIME A requirement of the FCC (Federal Communications Commission) for stations to log the time the program and in the case of commercial stations when particular commercials aired. This is mainly for accounting and billing purposes. *"Logging" is also a technique that is very labor intensive when you look at videotape scene by scene, shot by shot with the timecode address of each scene, and a written description of the material for archiving and post-production editing.*

LUMINANCE The measurable, luminous intensity of a video signal. Differentiated from brightness in that the latter is non-measurable and sensory. *Again remember the color video picture information contains two components: luminance (brightness and contrast) and chrominance (hue and saturation). The photometric quantity of light radiation.*

MASTER This is confusing. This text calls the master as the original recording. *In practice the master is the tape that (it may be at times the original such as a live show) has been edited.*

MATCH FRAME EDIT When a shot or scene that has already been recorded is continued with no apparent interruption. *This is a very handy device in editing, The precise timecode frame is located, and the VCR or non-linear system goes to the exact same frame, which allow for the continuation.*

MATTE A solid color background that may be adjusted on a video switcher for chroma, hue, and luminance. *Matte is also used in borders, and drop shadows on wipe patterns and keys.*

MIXER A video switcher, or audio board that can mix two or more sources.

MONITOR In video, a device that directly displays (only) a video picture from a camera, videotape recorder, or mixer. In audio, the speaker is what you listen to hear the audio levels. *NOT a TV receiver, which has a tuner and audio. The monitor for singers in a band so they can hear their voice over the background music. Verb: to watch or listen to a signal.*

MULTIPLEX 1. A technique for transmitting two or more signals at the same time or on the same carrier frequency. 2. To combine two or more electrical signals into a single composite signal.

MUTE A mode of operation, which turns off the audio output to the monitor speakers. Used when the mic is in the same room as the monitor to prevent or lessen feedback.

NAB Stands for the professional organization, the National Association of Broadcasters. *Most of all radio and TV stations subscribe to the guidelines, practices and standards of the NAB.*

NOISE Unwanted audio buzz, hum in the audio or video signal.

NONCOMPOSITE SIGNAL A video signal that includes blanking but has no sync.

NTSC (National Television Systems Committee) The organization that formulated the standards used for a NTSC television system. What we see on US television, also in Japan, Canada, and parts of South America. This uses a sub-carrier phase of 3.57 MHz, and 525 lines per frame and 59.94 fields per second. *This will change with HDTV, to 1080 lines per frame.*

OFF AIR 1. Signals that are not currently broadcast or to a record machine. 2. Signals that are received on a TV set “out-of-the-air” from a transmitter are picked up off the air. *In the control room the directors may say to a camera operator the move is “off air” meaning get the shot quickly as an off-air move vs. an on-air smooth camera move.*

OFF and ON LINE EDITING Off line is editing that is done usually at a lower resolution or dubbed format tape for a rough cut of a show that is not suitable for broadcast. *This is most of the time a cheaper way to do the rough edit.* The ON LINE edit uses the information EDL (Edit Decision List) from the OFF LINE session to make the broadcast version of the production. The original tapes (not the timecoded work tapes or dubs) are used as the source material striving for the highest quality possible. *This is an area where many experienced TV production college graduates can start, at a production house working in an off-line suite.*

ON THE FLY When someone (the producer or director) points out where the edit will go as the tape is playing back on a screen. Not as accurate as entering specific time code numbers to an edit controller. This is more like a live cut of a studio or remote production.

OPEN ENDED EDIT An edit where there is an in point but no out cue or point. An edit that runs until the operator stops the VTR that is playing back or recording. *This is more common in linear suites.*

OVER 1. In audio or video, a signal that is superimposed over a second signal. This is known as a voice-over in audio. 2. In video switchers the selection that determines which key layer appears on top of the other layer in a mix/effects. *Sometimes called for as i.e., "camera one over camera two" a superimposition, with one camera over the top of another.*

OVERSCAN (UNDERSCAN) A video monitor condition in which the raster extends slightly beyond the physical edges of the CRT screen cutting out the edges of the picture. *The under scan mode (possible only in certain higher priced studio monitors) can see these edges. The studio camera's picture or raster will lose about 10% of the picture around the edges by the time it is transmitted to the home TV set. This is why the MUST SEE or SAFE SCAN area needs to be understood. This is especially important for graphics and text that may get lost because the producer didn't understand safe area of the TV signal.*

PA and P.A. PA a production assistant position, most often an entry level position in a production. P.A. short for the public address speaker in a studio, auditorium or outside venue.

PAL Phase Alternate Line. The name of the TV system that is found in Europe, China, Malaysia, Australia, New Zealand, the Middle East and parts of Africa. The scan rate for PAL, PA-B, and PAL-I is 625 lines per frame, with 50 fields per second on a 4.43 MHz subcarrier. There is a Brazilian PAL-M that is based on 525 lines per frame at 60 fields per second, with a subcarrier of 3.57. *To review, system in the USA is NTSC, 525 lines per frame at approximately 60 fields per second. There is another called SECAM for Sequential Couleur Avec Memoire (sequential color with memory) that is used in all of France and the former Russian countries. This system is 625 lines per frame at 50 fields per second. There are then NTSC, PAL and SECAM systems worldwide.*

PEDESTAL 1. In the video waveform monitor, the signal level corresponding to the black part of the picture. Also called setup. 2. A pulse, usually with a flat peak) that elevates the base level of another waveform. 3. The mechanical base for the camera is also called the pedestal. (#2) *If the pedestal is set too high the pictures appears washed out or stretched, if too low the black levels are compressed or crushed.*

PHASE (Chroma, phase, hue, tint) The relative timing of a signal in relation to another signal. If the time for one cycle of this signal is 360 degrees along a time axis, the position for the second signal is called the phase angle expressed in degrees. The subcarrier phase in TV colors can be adjusted and this in turn changes the hue or the colors themselves. *This is very evident when the phase is adjusted when looking at color bars.*

PIXEL The smallest distinguishable and resolvable area in a video image. A single point on the TV or CRT screen. In digital video, this is a single sample of the picture. Derived from *picture element*. *If you zoom into or magnify a digital picture, the pixels start to show up as tiny squares. The more squares per surface area the greater or higher the resolution.*

POST PRODUCTION The editing process that occurs after the video footage has been shot or produced.

PREROLL 1. A specific amount of time on the tape recording on a videotape prior to the actual start of the production. 2. In editing, the time a tape is played or cued to before an edit in order to get the VTR machine up to speed for it to “lock up” to be synchronized with the other devices to accomplish the edit. **POSTROLL** is just as important.... always put about 5-10 second of black at the end of a recording before stopping the videotape recorder.

PRESET BUS To select a video source in preparation for the **PROGRAM** bus, or putting it on air.

PREVIEW In linear editing to rehearsal an edit before actually putting it to tape. To look at a video effect before taking it to air. *In the control room there is a PREVIEW MONITOR, this is the output of the PREVIEW BUS. Many time the directors will look at the preview monitor before putting the camera, or video source on tape, or on air.*

PRIMARY COLORS In television R,G,B. (Not the primary colors of art that are Red, Blue, and Yellow.) These colors combine to make up the spectrum of color television.

PROCESSING AMPLIFIER (Proc Amp) A device that stabilizes the composite video signal, regenerates the synchronizing pulses and color burst, and can make other adjustments to the color signal.

PROGRAM BUS A source of cross points on the switcher called the program bus (the on-air). Usually color-coded “red”.

PULSE(s) A changes in the voltage that has an identifiable beginning and end. A momentary deviation from and return to a constant voltage level. *There are many kids of pulses referred to in TV. This most often is the Pulse Delay Distribution Amplifier (video DA) A device used to replicate an input timing signal (usually 6 outputs) used in distribution of a single monitor feeds to other monitors.*

RAMP A video test signal that graduates from low luminance to high, used to measure luminance linearity. *Also a term for a graphic that goes from light to dark for a background of a text*

REFERENCE VIDEO A composite video signal to which other signals are compared or locked to for timing purposes.

RESISTOR A component made of a material (such as carbon) that has a specified resistance or opposition to the flow of electrical current.

RETRACE The return of the electron beam (with the picture information) in the CRT/TV screen to the starting point after “tracing” the picture information over the entire screen. *In black and white monitors the retrace lines can almost be seen, in color TV these retrace line are all but invisible.*

ROLL 1. To start a videotape for playback. 2. To scroll credits or graphics vertically usually from bottom to top.

ROUGH CUT In editing, a primary version of the edit. Usually subject to review by others for comments and ways to improve the production.

SAFE TITLE (ACTION) AREA The area that is safe and certain to be broadcast on most

television sets.

SATURATION (Chroma, chroma gain, color) 1. The intensity of the color in the active picture. The voltage levels of the colors. The degree by which the eye perceives a color as departing from a gray to the white scale the same brightness. *A 100% saturated color doesn't contain any white, adding white reduces the saturation. Over saturated color causes "bleeding" of the colors together and can cause shorter life to the picture tube, and can cause RF (hum) in the picture.*

SECAM See NTSC and PAL.

SEQUENCE THE ability of a memory system to link several learned effects together and replay them based on the timing information provided by the operator. *We build sequences quite often on the Write Deck CG.*

SERIAL the sequential transmission of data along a single wire. Communication to equipment via a serial port.

SIGNAL GENERATOR A test oscillator that can be adjusted to provide a test signal at some desired frequency, voltage, modulation, and waveform.

SMPTE Society of Motion Picture and Television Engineers, The set standard for American TV. This system used the Y R-Y, and B-Y signal set. The time code used in American productions is called SMPTE (SIM-TEE) time code. *Related: To STRIPE a tape with SMTPE, means to record about a minute of color bars and tone at the front, followed by color black for the duration of the tape. This lays continuous time code to the end of the tape for later INSERT editing.*

SNOW Video noise. Loss of signal.

SOURCE Equipment that produces a video, such as cameras, tape machines, graphic and character generators. In digital information, the origin of picture information applied to the input of a digital effects processor.

SUBCARRIER (SC) In NTSC or PAL video, a continuous sine wave of extremely accurate frequency, which constitutes a portion of the video signal. The subcarrier is phase modulated to carry picture hue information, and amplitude modulated to carry color saturation information. The NTSC subcarrier frequencies 3.57945 MHz. A sample of the subcarrier wave is called the color burst, which is used to align and color information.

SWEETENING To electronically improve the quality of the audio in a production. *Examples are laugh tracks, reverb, EQ, SFX (sound effects)*

SYNC The portion of an encoded video signal that occurs during blanking and is used to synchronize the operation of cameras, monitors, and other equipment. Horizontal sync occurs within the blanking period in each horizontal scanning line, and vertical sync occurs within the vertical blanking period.

TAKE 1. A direct cut, switch to a video source, this occurs in the vertical interval of the picture, also going from preview to program or on air.

TELEPROMPTING Text shown on a television. Or CRT monitor that will assist the performer or talent read scripted material. *In studio 5 the teleprompter is on cameras one and three. The Mirror that reflects the text via a one-way mirror also reduces the amount of light for these two cameras.*

TERMINATE This is done to complete a circuit by connecting a resistive load to it. A video connector, typically a male BNC, which contains a 75 ohm resistive load. *This is needed to prevent a ghost or reflective video in monitors that are looped together from the same source as in a studio.*

TIME BASE CORRECTOR TBC A device used to correct the time base error and is used to stabilize the timing of the video output from a tape machine.

TIMECODE This timing code is laid down on a videotape on a separate audio track to give each video frame a specific number for editing, and as a frame accurate frame locator.

TIMELINE An effects control feature that enables the operator of a switcher or digital picture manipulator to pre-program a series of times events, such as auto transitions (E-MEM recalls, GPI triggers, and key frames, and then replays them as the playback occurs. *This is also the name of the non-linear sequence of events on most digital systems. Another production term for the events of a production, or simply schedule of events in a daily rundown.*

TRACK The section of a videotape where a particular signal is recorded. There are separate tracks for video, audio, and timecode.

TRACKING (Def. 1) An adjustment on an analog videotape recorder affecting the offset position of the tape moving across the playback head (Def. 2) A term in typesetting and graphics referring to the character spacing of a line of text or group of letters (See kerning)

TRANSITION A change from one picture to another, such as a dissolve, cut, or wipe.

TRIAXIAL (TRIAx) This is a special form of TV coaxial cable containing three connectors. This is the main cable used in TV productions. *Like most cables there is a male and female end to cables. Remember the female end is at the camera head, you F__ the truck. The power from the CCU, shading, lens controls, intercom, return video feeds, AC power, are all fed on the camera's Triax.*

VECTORSCOPE A trademarked name that displays a visual checking of the phase and amplitude of the color components of a video signal.

VERTICAL INTERVAL The portion of the video signal that occurs between the end of one field and the beginning of the next. (remember there are two field of video to a single frame). During this time the electron beams in the camera and monitors are turned off (invisible to the eye) so they can return to the top and trace to the bottom of the screen for another scan.

VIDEO GAIN The complete range of light to dark values of the image, which are proportional to the voltage difference between the black and white voltage levels of the video signal. These are expressed on the waveform monitor at the top, with the darker levels above the pedestal.

VU METER The abbreviation of volume-unit meter, a type of meter used to indicate the average audio amplitude or levels. *During the pre-production set up of levels during the recording of color-bars and tone the '0' level is set for matching the same level during the playback.*

WATT A measure of electrical power. The current expended when 1 ampere of direct current flows through a resistance of 1 ohm.

WAVEFORM MONITOR A device used to examine the video signal and the synchronizing pulses. An oscilloscope designed especially for viewing the waveform of a video signal. *This is usually seen in tandem with the vector scope.*

WINDOW 1. A video signal containing, usually time code and tape information, or allowing information entry, keyed into the video monitor for output for viewing. A window dub is a videotape dub with the timecode "burned in" to the video picture that is then used for logging the tape of off line editing.

WORKPRINT A copy of a original videotape used for off-line editing, usually with burned in time code or in film with the edge numbers visible.

WYSIWYG What you see is what you get.

X Axis. The horizontal axis on a system with 3-D coordinates. *Remember the Z axis is near and far, and Y is vertical.*

Y (Luminance) 1. The luminance brightness of the video signal especially in component video. *See BETACAM to refresh the understanding of the R and B factors.*

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SCAP Handout