



MACWORLD 2006

secrets *of* shooting great dv

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CONFERENCE & EXPO

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Camcorder

how does it work?

- digitizes picture
- digitizes sound
- records both to tape along with timecode

Lens/Zoom

- *Focal length & angle of view*
- Short focal length /wide-angle = Wide shot (distant objects appear far away)- exaggerates spatial reference
- Long focal length /narrow-angle = Close shot (distant objects are magnified)- collapses spatial reference
- Zoom lens changes focal length & angle of view

- avoid zooming while tape is rolling
- set up shot first, then roll tape
- zoom = bad for web video
- use variety of shots and angles to add interest rather than zooming
- very slow zoom during interview ok
- fast zoom with angle on products and logos, or people for exciting intro

Optical Zoom is created by the lens and is good quality (use this)

Digital Zoom is created electronically and is poor quality (don't use this except for "surveillance" or "voyeur" looking shots)

Auto/Manual

- Use Manual Mode whenever possible.
- Use Auto Mode in uncontrolled, unpredictable changing circumstances.
- Switch the camera to Auto Mode momentarily to allow the camera to set itself up. Switch back to Manual Mode to "lock in" and retain the settings.

Focus

- Focus ring gives you manual control (use this when at all possible)
 - Calibrate the lens by zooming all the way in and focusing on the subject before shooting the scene
 - Sets distance to plane of sharpest focus
 - Numbers on ring show distance to focused object
- Auto focus will continually change to try to focus on the central object during a scene and can become confused by changing contrast or objects.
- Switch to auto focus momentarily, then back to manual

Aperture (Iris)

- Lens *aperture* or *iris* determines image exposure (how much light enters the lens)
 - In low light use large aperture, in bright light use small aperture
- Aperture is measured in "*f-stops*"
 - Large f-stop (16) = small aperture = (less light enters lens- in bright light conditions)
 - Small f-stop (2.8) = large aperture = (more light enters lens- in low light conditions)
- Opening the aperture decreases the depth of field

Zebra

- Use *zebra* feature to see areas of picture which are overexposed ("*blown out*" or "*clipped*")
- Aperture down and/or increase shutter speed to

restore detail to overexposed areas

Gain

- Gain can be increased as a last resort in very low light conditions but otherwise should be set to 0 (zero) or below
- Gain levels above zero will add video noise but in very low light conditions is necessary to get visible detail

Shutter speed

- Controls how long each frame is exposed (normal speed is 60)
- Increase shutter speed to capture fast motion without blurring on each frame
- Decrease shutter speed to blur fast motion and maximize exposure in low light
- Use to reduce exposure with using iris

Depth of field

- For deep depth of field (all objects in focus, foreground to background)
 - Use wide-angle (zoom out)
 - Use small aperture (large f -stop)
 - Shoot far from subject
- For shallow depth of field (only selected objects in focus)
 - Use narrow-angle (zoom in)
 - Use large aperture (small f -stop)
 - Shoot close to subject

Leave distance between foreground and background subjects (general rule is 1/3 distance from camera to foreground subject and 2/3 distance from foreground subject to background subject.)

- Shallow depth of field is better for storytelling, more "filmlike"
- Rack focus changes the object in focus during the shot to shift emphasis from one object to another. Move camera far from subjects and use narrow-angle (zoom in) setting to create

get shallow depth of field by:

1. opening the iris all the way

2. getting subject far from background (and camera far from subject)

3. zooming in all the way

too much light?

1. reduce light

2. turn on ND filter and/or add ND screw-on filters

3. increase shutter speed

shallower depth of field

White balance

- *White balance* adjusts the camera's representation of pure white to the existing light source and color temperature
- Zoom in on white card while in the light you'll be shooting in, then press and hold the white balance button until the indicator stops blinking
- White balance must be set whenever light conditions change
- White balance to pale blue card to warm up Sonys or match to Canons
- Auto white balance only when moving the camera from one light source to another during the scene- i.e. moving indoor to outdoor

Filters

- Lens filters modify light entering the lens and are used to control or enhance the image
- Diffusion (Tiffen Soft/FX 4 or Black Pro Mist 1) softens the image for a "dreamy" or "film look"

less contrast, compensate with lighting

- Center Spot, soft outer image, sharp (normal)center
- Matte box allows gradient filters
- (UV) Ultra Violet cuts down the amount of UV light reducing haze. Also used to protect the lens from getting scratched or damaged
- Neutral Density (ND) cuts down light and reduces contrast
- Polarization changes angle at which light enters the lens reducing glare and reflection

Wide angle

- lens, converter, adapter gets more field of view in small rooms, makes shots more dramatic/scarier/funnier

Clean the lens

- Always make sure the lens is clean before shooting
- Use a good quality blower brush, lens cloth, and/or

lens paper

- Keep lens cap on when not in use

Frame/Progressive Scan

- Normal NTSC (TV) mode is 29.97 fps with two fields per frame (Upper or Odd, and Lower or Even) which effectively looks like 59.94 fps, and is referred to as an Interlaced signal.
- Frame or Progressive Scan (Desktop) mode is 30 fps (Canon cameras) or 15 fps (Sony cameras) with each frame containing the complete image, and is referred to as a Non-Interlaced signal.

Frame/Progressive Scan mode is used to:

- Achieve a "Filmish" look - As film runs at 24 fps-USA/25 fps-Europe, mild blurring occurs during subject and/or camera motion. The slower frame rate of Frame/Progressive Scan mode allows blur from frame to frame.
- Avoid De-interlacing artifacts when delivering to the Desktop - An Interlaced signal will be De-interlaced prior to delivery on the Desktop resulting in artifacts

from blending even and odd fields, or interpolating between the discarded fields.

- Pull stills from the video frame(s) - Stills pulled from an interlaced signal contain only half the image (the even or odd field) and are subject to the same De-interlacing artifacts as video.

Tip: Canon cameras shoot 30 fps in Frame mode, which looks almost magical. Sony cameras shoot 15 fps in P.Scan mode, which will give the viewer a headache if the subject and/or camera are in motion.

We prefer to shoot in Frame mode with Canon cameras unless the smoothest motion (subject or camera) is desired for delivery to NTSC (TV.)

3 ways to add depth

1. light and shadow
2. shallow depth-of-field
3. foreground movement against background

Aesthetics

- **180° rule** – if you have two people in a scene, don't cross the line between them while shooting
- **Jump cuts** – when making an edit from a camera position to the same position- unless that's the effect you want, move the camera 30° or more, or change zoom/dolly position in or out at least 30°
- shoot in a style to suit your subject matter

Coverage

- have the talent repeat each shot several times
- cover each shot with a wide variety of angles, subject matter, composition, etc.

3 ways to make video look like film

1. Use shallow depth of field
2. Use Soft FX or Pro Mist filter
3. Use Frame/Progressive Scan mode (Canon)

Pre/Post Roll

- 5 Seconds of pre-roll and post-roll
- Have talent hold position during pre-roll and post-roll
- The first and last 60 seconds of each tape should contain time code only.

Avoiding broken time code

1. Watch counter- if it resets to zero, stop take, then back up tape to the post-roll position so it will pick up where it left off
2. Pre-black new tape prior to the shoot (put in camcorder or deck, hit record and let it go)

Fixing broken time code

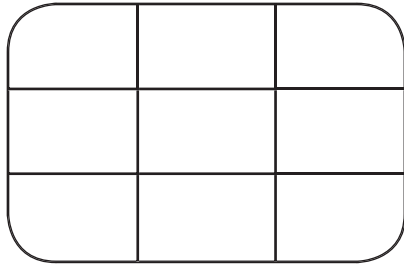
- "Clone" tape from one DV device to another via 4 pin to 4 pin FireWire cable

Tape security

- Always label each tape
- After shooting record inhibit tape
- Store tapes in a safe, cool, dry place- keep tapes away from magnets, monitors and speakers
- If footage is critically important, clone master(s). Work from clone(s) and archive master(s) off-site.

Frame the shot

- **Rule of thirds**- put points of interest one third from edge of screen



- **Face space** – frame faces looking into the middle of the screen- not the edge
- **Headroom** – leave space between top of head and top of screen
- **Close-up** – provide energy and detail
- **Background** – avoid distracting objects (tree growing out of head) and complex movement in footage slated for CD-ROM or Web delivery (leaves on trees blowing in wind, etc.)

- Solid background is best for web video, sharp detailed moving background worst.
- Avoid herring-bone and other intricately patterned clothing.

Camera angles

- Low angles – make subject stronger, more dominant
- High angles – make subject weaker, more passive
- Angled shots – “dutch” angles for effect

Moving camera

- Zoom = Changing the focal length while shooting
- Pan = Rotate the camera
- Tilt = Point the camera up or down
- Pedestal = Raise or lower the camera
- Dolly = Move the camera toward or away from the subject
- Truck = Move the camera laterally to follow the action and/or reveal the scene
- Crane = Moving the camera with a combination of the above moves



moving camera

bad for web, good for all other

jib arm (crane)

use tripod for stabilizer

foreground and background movement is good

steadicam and glidecam camera stabilization options

Microphone Types

- On-camera - easiest, run & gun, closeups, usually stereo
- Lavalier - small, close to source without boom and operator- either wired or wireless
- Handheld - good audio control by user (interview)
- Shotgun - focused pickup from farther away
- Wireless - no cables to trip on, subject and cameraperson can freely move around

Mic Pickup Patterns

- Omnidirectional - hears equally from all directions
- Cardioid (unidirectional) - hears well from one direction
- Hypercardioid - hears well from one tightly focused direction

Mic Placement

- Know the pickup pattern
- Placing mic close to source increases proximity effect creating warmer sound
- When using two mics in stereo applications they must be twice the distance from each other as they are from the source or placed in X configuration

Cables, Connectors & Level

- XLR connector - balanced, +4 dB, long cable runs - professional
- RCA connector - unbalanced, -10dB, short cable runs
- 1/4" phone - can also be stereo, -10dB, short cable runs
- Mini - can also be stereo, -10dB, short cable runs

Audio Tips

- Use auto record level unless dedicated audio engineer has tools (compressor/limiter) and specific need for external audio control- e.g., a musical performance
- When manually controlling audio level don't push gain- cannot fix distortion
- Use bass rolloff on mics unless you want low end material
- When shooting outdoors bring wind screen(s) for mics
- Always monitor audio with closed-ear headphones- watch out for rustling lav mics, wind noise, hum or buzz, and distortion
- Always play back a few seconds of tape before going ahead with the shoot to make sure the audio (and video) are being recorded properly
- Record a couple of minutes of ambient (background) sound in each location for masking during editing, use in future projects
- Wireless and condenser mics must have fresh batteries (bring spares)

Mic Model Suggestions

- Shotgun - Audio Technica AT835b
- Shotgun - Sennheiser ME66 w/ K6 power module
- Lavalier - Sony ECM-44b, ECM-77b
- Wireless Lavalier - Samson UM1
- Handheld - Shure 57

Lights & Shadows

- *Directional ("hard") light* - defined beam, causes sharp, dense shadows
- *Diffused ("soft") light* - undefined beam, causes soft, transparent shadows
- *"Attached" shadows* - reveal form and texture, controlled by direction of light source
- *"Cast" shadows* - are independent of the objects that cause them, define spatial relationships

Lighting Instruments

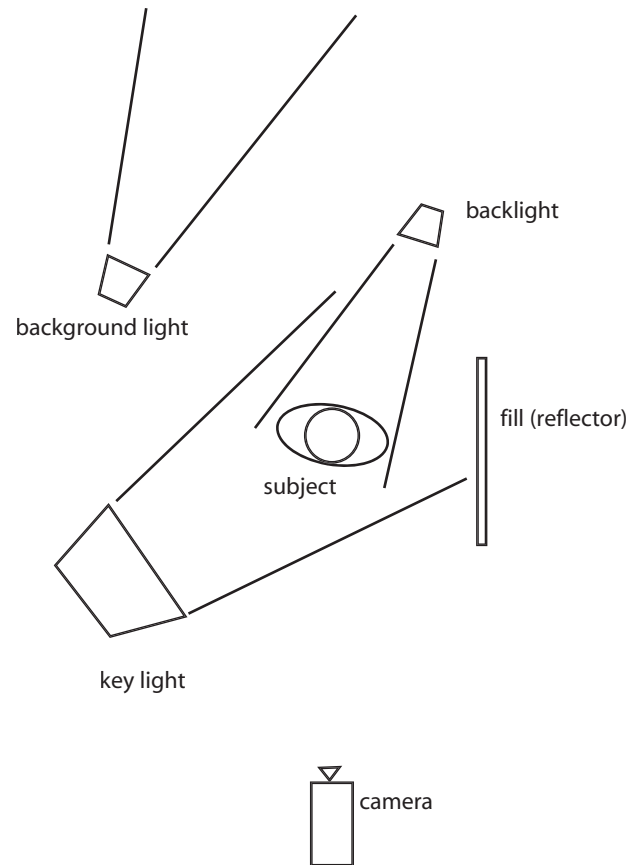
- *Spotlight* - produces a narrow directional beam
- *Floodlight* - produces a wide diffused beam
- *Reflector* - passive reflective device (i.e. umbrella, card, foil)
- *Gel* - translucent plastic film used to change light color, temperature, or intensity

Color Temperature

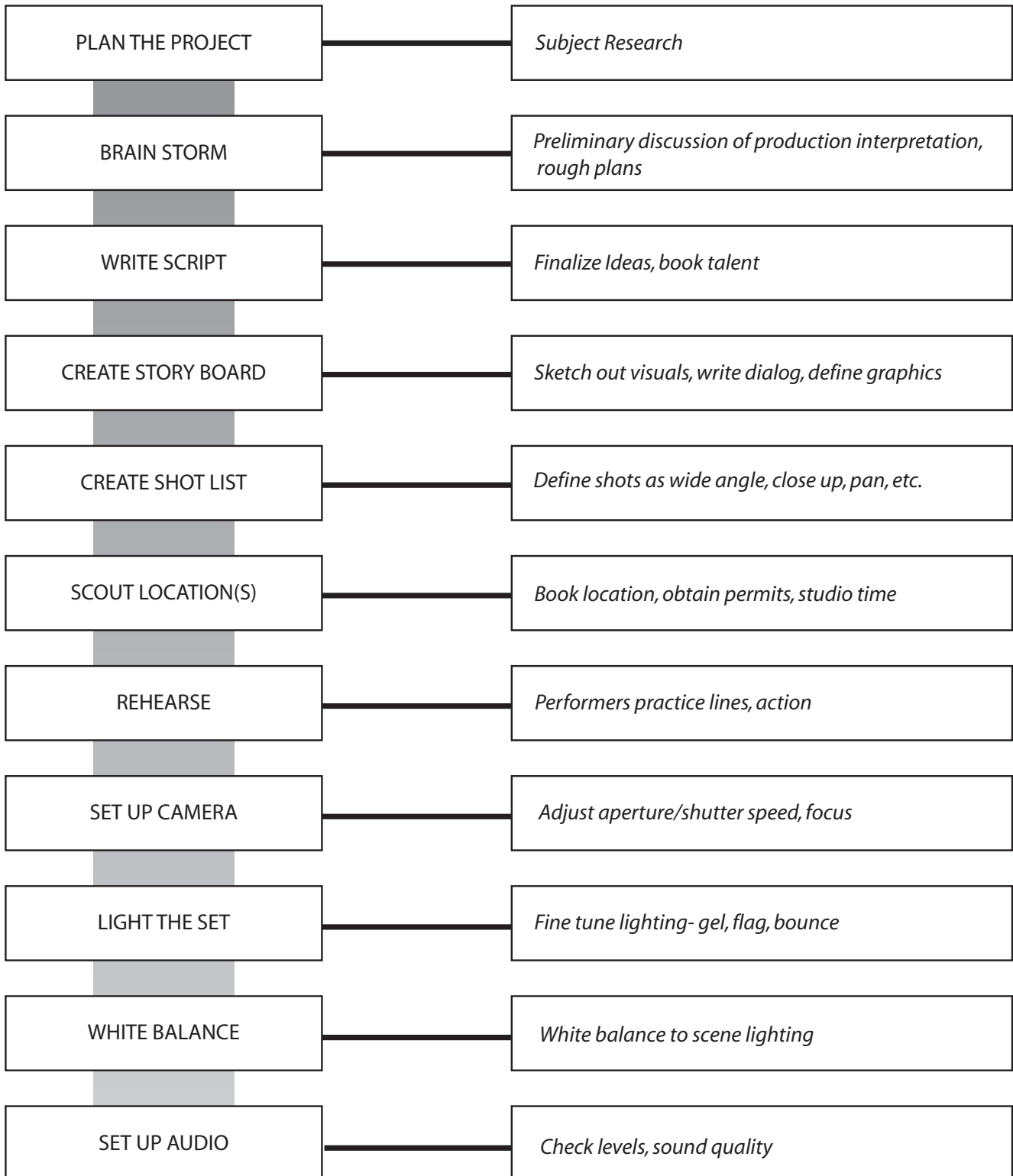
- *Color temperature* is measured in degrees Kelvin
- Indoor light has reddish tint - low degrees Kelvin
- Outdoor light has bluish tint - high degrees Kelvin
- Indoor rated light standard = 3200°K
- Fluorescent lights = 4000°K
- Outdoor rated light standard = 5600°K
- Direct sun light = >7000°K - 15,000°K
- Cameras will not accurately white balance in mixed color temperature conditions
- To control mixed color temperature use gels to match color temperature to the most prominent light source

3-Point Lighting

- **Key** - primary light source-generally a spot placed above and to the left or right of the camera, or direct sunlight if outdoors
- **Fill** - controls falloff, contrast, and attached shadows-generally a flood placed on the opposite side of camera from key light, or a reflector if outdoors
- **Back light** ("halo light" or "kicker" - provides separation between subject and background- generally a spot placed behind subject opposite camera
- (4th light) **Background light** - adds drama and interest to background-generally placed on same side of camera as key light



**basic interview
lighting setup**



Intent

What is the *purpose* of the project? Which of the below is the primary purpose?

entertain

educate

persuade

inspire

Visualization

Close your eyes and try to watch your entire production from beginning to end in your imagination first. Then grab a pen and paper and jot down as many ideas as you remember from your visualization.

Style

- Keep the style consistent
- Camera angles/composition/technique
- Lighting • sets • graphics • fonts • colors • music • pacing/editing style
- What film, show, commercial, or work will serve as the model for this production?

Target

- The purpose of defining a style and target viewer is not to exclude viewers, but to create a stylistically coherent piece that will make an impact and be memorable
- Age • motivation • priorities • interests • music • preferred environment

Project outline

Contains elements above plus rough description of project sections

Story Board

Contains illustrations of shots, script/narration, and denotes music, sound effects, and graphics

Shot List

Defines shots as wide angle, close up, pan, etc.

Scheduling

Take the absolute maximum time you think each task will take and multiply by 3

Producer

- Obtains financing, hires crew and casting, responsible for overseeing entire project

Director

- Directs shoot – makes sure everyone is on task
- Communicates to talent what is needed before each shot
- Explains to DP what type of shot is needed
- Directs each shot – “quiet on set!”, “roll camera!”, after sufficient pre-roll, “annnd...action!”
- If MOS, verbally directs talent and camera during shot
- After sufficient post-roll “cut!”
- Determines whether retake is needed

DP - Director of Photography

- Operates camera- responsible for making sure footage is high quality and fits project
- Determines with director where camera goes and how shot is framed
- Communicates to director whether shot felt good and if retake is needed

Audio Engineer

- Wears headphones, is responsible for testing audio and making sure audio goes onto tape perfectly
- Sets up mics, mixer, operates boom

Gaffer/Lighting Designer

- LD works with director and DP to design lighting to establish mood for each shot- sets up and operates lights and reflectors

PA - Production Assistant

- General purpose assistant - may assist any of the crew or talent if needed
- Responsible for carrying storyboard and script
- Times shots to make sure they match VO (voiceover)
- Logs camera timecode onto storyboard
- Keeps an eye out for continuity problems, extraneous noises or interference with shot, keeps track of which shots are done

Talent

- Acts!

Editor

- Edits footage, works with director and producer

CG Artist

- Creates computer graphics, 3D and/or composite sequences for project

Music Supervisor/Composer

- Chooses and/or composes music for project

Things to know:

- Where are the AC outlets?
- How do you turn air conditioning/heating off?
- How do you work blinds?
- Where are light switches?
- Where are circuit breakers?
- What time of day works best for each shot?
- Who is your "location contact"?

Things to tell talent:

- No intricate patterns, no saturated reds or blues
- For interviews: speak loudly and clearly, vary tone & rate of speech, try to speak in discrete phrases (make a series of short statements or "soundbites")
- Don't ask a yes or no question, try to have them restate the question in their answer
- Look into camera- in an interview have the interviewer stand right next to the camera lens

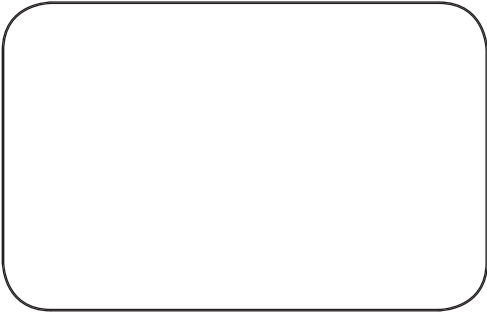



- Freeze for several seconds before and after shot
- "That take was great! Let's try that one more time!"





Things to bring:





- Field NTSC monitor (TV) with long S-Video (Y/C) cable
- Long AC extension cord and AC power strips
- Gaffer tape
- Extra batteries and charger
- Worker's gloves & knee pads
- Plenty of water- sunblock, chapstick for outdoor shoots
- Extra bulbs for lights
- All shotgun and lav mics you own- plus all audio cables and adapters, extra batteries for mics
- Closed-ear headphones
- Notepad and pen
- STORYBOARD & SCRIPT!

■ CONFERENCE

<i>client:</i> _____	<i>date:</i> _____
<i>producer:</i> _____	<i>page:</i> _____

visual	script/narration	music/sfx
		
		graphics/fx/shot notes 
location/set: _____		

visual	script/narration	music/sfx
		
		graphics/fx/shot notes 
location/set: _____		

visual	script/narration	music/sfx
		
		graphics/fx/shot notes 
location/set: _____		

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■ **CONFERENCE**

I hereby grant to _____ (hereafter referred to as Company) permission and consent to photograph, (by video photography or still photography and with or without sound track) my image, voice and name for use in media products as they see fit, and to use such images and recorded sounds in the exhibition, advertising, editorial use and publicizing thereof as Company, its assigns, successors and licensees may elect.

I understand I am not entitled to any compensation for work performed on the date below. I affirm that I am 18 years of age or older.

Talent Info:

Date: _____

Print Name: _____

Contact Info: () _____

Signature: _____

(This form not to be construed as legal advice, consult a lawyer if in doubt)

DVcreators.net	www.dvcreators.net
DV KnowledgeBase	www.dvcreators.net/dvkb/
Final Cut Pro 411	www.fcp411.net
Apple Computer	www.apple.com
Canon	www.canondv.com
Tiffen	www.tiffen.com
Lowel Lighting	www.lowel.com
PhotoFlex	www.photoflex.com
Audio Technica	www.audio technica.com
Samson Audio	www.samsontech.com
Mackie Designs	www.mackie.com
BeachTek	www.beachtek.com
Studio 1	www.studio1productions.com
Bogen	www.bogenphoto.com
VariZoom	www.varizoom.com
Sony	www.sony.com
2-pop	www.2-pop.com
DV & Firewire Central	www.DVCentral.org
ZGC	www.zgc.com

The Final Cut Pro PowerStart (CD-ROM)
dvcreators.net

Shooting Awesome Video (CD-ROM)
dvcreators.net

The iFilm Digital Filmmaker's Handbook
by Maxie D. Collier

Producing Great Soundtracks for Digital Video
by Jay Rose

Matters of Light & Depth
by Ross Lowell

Desktop Digital Video
by Ron Grebler

Digital Filmmaking : The Changing Art and Craft of Making Motion Pictures
by Thomas A. Ohanian, Michael E. Phillips

Feature Filmmaking at Used Car Prices: How to Write, Produce, Direct, Film, Edit,
and Promote a Feature-Length Film for Less Than \$10,000
by Rick Schmidt