

## DSLR Video: The Tools and Tricks of the Trade

By Tyler Stableford, Canon Explorer of Light, [www.tylerstableford.com](http://www.tylerstableford.com)

Canon's HD SLR cameras are incredible tools, capturing stills and HD video. Never before in the history of filmmaking has a camera taken the world by storm the way the 5D Mark II did. And with good reason -- the huge (by video standards) 35mm sensor, 1920x1080p HD capture, and the ability to shoot with the full range of Canon EOS lenses was truly revolutionary.



However, it can be intimidating starting out and trying to make sense of the thousands of add-ons available to today's shooters! This article will hopefully help you navigate the world of DSLR video equipment. I don't claim that this is a comprehensive collection of information -- the world changes too quickly to stay atop every new workflow and each new product, nor have I tested all that's out there. Yet the tips below are ones I use in my daily workflow, the result of hundreds of hours of trial and error.

### Optimize your 5D for video mode

To get the most from the cameras, you'll want to customize the menu settings. I have attached the custom settings at the end of this document; you can also download the same PDF of "Canon 5D Mark II Settings" from the Photography Tips sections of my blog at [www.tylerstableford.com/blog](http://www.tylerstableford.com/blog)

### Neutral Density Filters

ND filters are one of the most important items to have in a DSLR video kit when shooting outdoors. One of the most special things about DSLR video is the ability to shoot with shallow-focus lenses, and to do this, you need to be able to shoot at a wide aperture like f/2.8 -- all while maintaining the 180-degree shutter rule and shooting at 1/50th of a second. So you need a ND filter to reduce the ambient light. One of the best options I've found is the Tiffen Variable Neutral Density filter; it allows you to adjust the ND effect from 2 to 8 stops by twisting the outer ring. Use step-down rings to mate it to other lenses in your kit (or get a smaller size if you don't have any lenses with 77mm diameters).



### What's That? Rich Audio Is Crucial!

For all that today's DSLR video cameras can do, the one place they fall short is with audio capture. The built-in microphones are tiny and generally good only for creating a reference track. If your video project involves capturing dialogue or ambient sounds, you'll need to step up to a 3rd party microphone.

Try playing a high quality movie or commercial; close your eyes and just listen to the sound. Then try playing the same clip without the sound — just watch the images. See what a difference sound makes?!

Rich audio is the most overlooked facet of DSLR cinematography. Raise the level of your storytelling by bringing the best audio capture possible to your project. Below are a few options, in order of increasing quality (and increasing amounts effort).

Good: On-Camera Shotgun Microphone  
Better: Wireless Lavalier Mic  
Best: Off-Camera Shotgun Mic

### **On-Camera Shotgun Microphones**

For run-and-gun videography, the quickest and best option is to put a small shotgun video microphone on the camera's hotshoe. Consider options like the Sennheiser MKE 400 and the Rode VideoMic Pro.



### **Wireless Lavalier Microphones**

For recording interviews, dialogue, and even some sports action, you can often improve the audio quality by putting a wireless lavalier microphone on your subject(s).

For working at relatively short distances, the Sennheiser G3 wireless lavalier kits are an industry standard. The receiver has a hotshoe mount so you can, if needed, run the audio directly into your camera. (I recommend running your wireless lav audio through a field audio recorder, as discussed below, if you have the ability; but sometimes it's more effective to go fast and light without it).



When I'm shooting far away from my subject, or in congested airwaves (e.g. Times Square), I go to the more robust Lectrosonics SMQV lavalier transmitter and (the more bulky) UCR411A receiver.

### **LAVALIER ACCESSORIES**

The stock lavalier microphone on the Sennheiser G3 wireless systems is OK but not amazing, it's a good backup. If your budget allows, look into the Countryman B6 lavalier (approx \$300), it's the smallest lavalier mic on the market and you can put it just about anywhere inconspicuously -- under a T-shirt, in the actor's hair or under a helmet, under a shirt collar, etc.



**\*\*Sound Tips:** To attach the lavalier mic under a T-shirt etc, use Rycote Undercovers. And if you're picking up rustling noises from the lavalier interacting with nylon jacket etc, try using Garfield Hush Lav quieting sleeves to enclose the mic.

### **Off-Camera Shotgun Microphone**

For the best quality audio, an off-camera shotgun microphone is usually your best option. These mics pick up a narrow direction of sound, richly, so you can isolate your subject and reduce extraneous noise. The downside to this system is that it has to be held overhead by a sound tech, or by a C-stand and boom pole, and it often needs to be connected to a field audio recorder; so you are no longer operating fast and light. However, for situations where the audio quality is crucial (as in an interview or voiceover), the gains are often worth it!



The Sennheiser MKH-416 is an industry standard shotgun mic. Be sure to get a furry windscreens to reduce wind noise, like the Rycote Softie Kit, which comes with a pistol grip and suspension for the shotgun mic.

### **Field Audio Recorders**

Field audio recorders are necessary when recording multiple audio tracks, such as two lavaliers, or a shotgun mic and a lavalier. (Running two audio sources also provides a backup in case one fails.) The most popular DSLR field audio recorder is the Zoom H4n, as it can accept 2 XLR feeds, as well as recording ambient sound through its onboard stereo microphones. It records the audio tracks separately onto an SD card, which can be easily synched later with video editing software using PluralEyes.



The downside to the H4n is that it doesn't have two audio outputs -- i.e. you can monitor the sound with headphones, or you can yank the headphones and run the output via a headphone cable to your DSLR to record a "scratch track." This way you have the audio track recorded directly to your DSLR as well as to the field recorder, which can save you editing time.



For recording stationary interviews, I usually get the sound dialed in with the headphones, then connect a double-ended headphone cable from the H4n to the DSLR audio input jack for recording.

Another great field audio recorder option is the Edirol R-44, which can record 4 independent audio sources -- this can be very handy if you have two subjects with lavalier mics, and you want to run 1 or 2 shotgun mics as well. Additionally, the R-44 has dual audio outs -- so you can monitor the sound with headphones AND run a scratch track to your DSLR, unlike the Zoom H4n. But it doesn't fit on top of a DSLR video rig.

**\*\*DSLR Audio Tip:** To optimize the Scratch Track coming onto your DSLR, many online forums have suggested that you should run a "hot" (i.e. loud) audio signal into your camera, and turn your camera's manual audio levels to just 1 click above Off. This helps reduce any excess hiss. To achieve this, I set the recording levels properly on my H4n, then I adjust the Headphone Output levels to be high enough that my Canon 5DII camera's manual audio inputs are set at level 1, with the actor's voice filling the audio meter to the correct -12DB level.

**\*\*The Sescom Line Out to Camera Mic In Headphone Tap Cable** is the perfect solution to for running audio from a Zoom H4n recorder to your SLR camera's microphone jack -- and it has a splitter so you can monitor the audio with headphones.



## **Light It! Dramatic Lighting On The Fly**

The easiest way to add dramatic lighting to your scenes is to shoot backlit -- directly into the sun or into whatever lights are around. See if you can edge-light your subject a bit, with the backlight hitting their hair and one side of their cheek, without it hitting their nose. Then the job of filling in a bit of light on your subject is relatively easy, as I don't try to expose my subject identically to the ambient light -- often the background is overexposed or underexposed, and this is what helps your subject stand out. On a sunny day, if your subject is stationary you can use a silver reflector clamped to a C stand.

If you have AC power, the next cheapest option is a set of tungsten fresnel lights; many kits come with a set of gel strips, so you can match the lights to daylight, etc.

LED lights have revolutionized portable lighting, in that they are light and draw very little power; many can run on both battery or AC power. Check out the LitePanels MiniPlus LED lights, they can be placed on the dashboard of a car, atop a computer screen, etc, for a nice kick of light. Use the included gels match the ambient light.

Larger LED panels like the LitePanels 1x1' models provide a relatively powerful light, and the bi-color models can be adjusted from cool light temperatures to warm, matching daylight or tungsten light, etc. Also check out Cool Lights for less expensive options.

## **DSLR Rigs**

There is a huge number of DSLR Rigs on the market, and I haven't tried even close to half of them. Of the ones I've used, however, I've come to love two brands: Red Rock Micro and IDC Systems. Today's DSLR video style often looks great with a bit of shoulder-mounted sway; it lends a homegrown feel while still maintaining a high-production look. For this, I love the Red Rock Micro's DSLR Field Cinema Deluxe Bundle V2. Try this with the Canon 50mm f/1.2 lens wide open and you'll get some incredible effects! The optional weights lend welcome stability, even when you take the rig off your shoulder and hold it down at knee level using the top handle.



When I'm trying to go with the smallest rig possible in the mountains, I turn to the IDC System Zero for its simplicity. It can go quickly from a handheld run-and-gun rig to sit atop a tripod, all while holding a video monitor, field audio recorder and a wireless lavalier receiver. Plus the ingenious follow-focus knob is handy for racking focus smoothly. The rigs are shown with the Hoodman viewfinder (top) and the Zacuto Z-Finder (bottom), both of which are great.



### **Viewfinders and Field Monitors**

The smallest option to help pull focus accurately is a loupe over your camera's LCD screen. Hoodman, Zacuto and others make various options that work very well -- the limiting factor is often that the camera's LCD screen is of such low resolution that you can't accurately gauge focus when shooting at extremely shallow depths of field.

For more accurate focusing, and a larger view of the scene, it's helpful to mount a field monitor to your rig. I have come to love the SmallHD DP6 and DP4 monitors; these have focus-assist features and a peaking filter that makes it a snap to gauge focus, even when shooting with the Canon 85mm f/1.2 lens wide open. What's more, the DP6 has such great resolution that it satisfies most of my clients' needs for reviewing images in the field -- this saves us valuable time that would be lost to downloading images to a laptop.



## Time Lapse

Time Lapse photos can make a great addition to your films, and are relatively easy to make. For some amazing inspiration, start by visiting [www.timescapes.org](http://www.timescapes.org)

Here's all you need to outfit your DSLR:

- Tripod or a motorized dolly like the Kessler Pocket Dolly with the Oracle Controller.
- Canon Intervalometer TC-80N3
- Quicktime Pro

For information on how to shoot timelapses and edit them in Quicktime Pro, see Owen Scharlotte's handy online guide at:

<http://timelapseblog.com/2011/03/28/quicktime-pro-time-lapse-tutorial/>

It can be helpful to shoot in aperture-priority mode if you're shooting a sunset. And try to shoot your frames at a relatively slow shutter speed (i.e. 1/50th of a second or even much less) so the frames have a touch of motion blur to them -- this will help mimic a film look as you bring the still frames into motion.

## Adding Motion

Films almost always benefit from having a touch of camera motion. Watch any movie and you'll see the camera, even if it's on a tripod, is moving one way or the other; or perhaps has a bit of modest shake/movement added on purpose to feel more raw.

## MONOPODS

Although we all need a tripod in our kits, I rely on my Manfrotto 561BHDV-1 monopod far more often -- it provides just enough sway to give an authentic feel to my clips. It's great for pans and tilts; and it can even be swung down low to the ground to mimic a crane move! Try it out -- it will likely become your single favorite piece of gear, more so even than a DSLR rig.



## TRIPODS

Tripods are great not just for anchoring the camera in place, but also for shooting smooth pans, tilting up or down, etc. My go-to fluid head and tripod for DSLR video is the Manfrotto 504HD and Manfrotto 535 tripod.

## SLIDERS

Sliders and dollies can provide compelling, shake-free motion side to side, or forward and backward. One of the least expensive options is the GlideTrack HD, at approximately \$300. I recommend starting with a short track, as 2 feet is often plenty, and it will fit easily in a backpack. Mount the Manfrotto 701HDV fluid head to it so you can pan and tilt the camera while sliding it along the track.

Atlas makes the great FLT slider, check them out too. Moving up a notch to Hollywood-style quality, Kessler makes the excellent Pocket Dolly, to which you can add their Oracle electronic motion control for hands-free control. It also works great for adding motion to time lapses.

### Revealing with Focus

It's common for DSLR filmmakers to shoot with a fixed-length prime lens and not mess with zooming in or out during shooting. However you can create an even greater sense of drama by revealing with focus. Use a lens that can shoot at f/2.8 or shallower, and practice racking focus through, say, some leaves to your subject beyond. You'll be amazed at the visual journey you can create with something as simple as this!

### Favorite Cameras and Lenses

#### Canon 5D Mark II

My favorite DSLR video camera is the Canon 5D Mark II because it has a HUGE sensor (keep in mind that until the 5DII was released, most Hollywood cameras were operating with sensors 1/3rd the size). This means you can capture not just great image quality, but also an impressively shallow depth of field when you use some of Canon's fast prime lenses. Before the 5DII appeared, it would have cost tens of thousands of dollars to achieve this look with other video cameras. Also, I like a full-frame DSLR camera because they connect the subject more closely to the background, which is important when, say, shooting cowboys in front of a mountain range. When you use a cropped-sensor camera like the 7D to capture the same scene, you need to use a wider lens, and thus the mountains in the background become much smaller and farther away in the captured image. Cropped sensor cameras also do not produce as shallow of a depth of field as a full-frame sensor.



#### LENSES

My current favorite lenses (and the list changes perennially) for cinematography are the fast prime lenses including Canon's 50mm f/1.2L USM lens, the 35mm f/1.4 and the 24mm f/1.4. Why? You can achieve a shallow depth of field that gives your film a very special craftsmanship. Similarly, the Canon's 14mm f/2.8 lens produces a crisp, ultra-wide vantage that is quite unique in the film world.



For shooting interviews outdoors, I often go with the 24-70mm f/2.8L lens and the 70-200mm f/2.8L lens, as they allow me to quickly frame the subject and the background by zooming in or out.

Don't overlook Canon's tilt-shift lenses, either -- the 17mm TSE can create a wildly unique look by tilting the plane of focus, all with an extremely wide angle view. It's not

for everyday use (or is it?). And the 45mm TSE lens provides a more “normal” focal length while still providing tilting and shifting capabilities.

### **A Final Word**

Perhaps I should put this line at the top of the document, as it’s arguably the most important: STORY IS KING.

No matter how many tools and tricks you have up your sleeve, everything falls below storyline in importance. A powerful story shot with cheap Flip video cameras can mesmerize millions of viewers around the world.

In other words, spend more time honing and crafting the storyline of your film than you do shopping for gear. Engage a video editor before you start shooting to help focus your film; video editors can be powerful mentors for cinematographers of all levels, from the beginning of the project through the end.

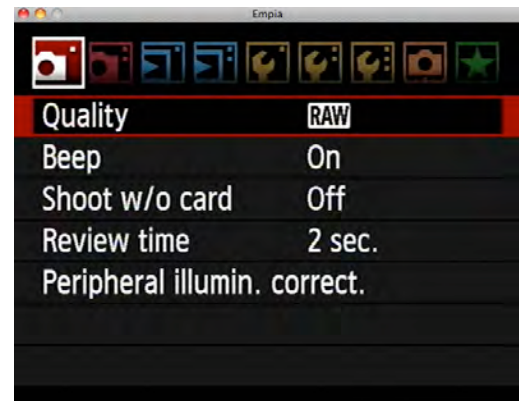
(See some of Tyler’s videos at: <http://vimeo.com/user5295922/videos>)



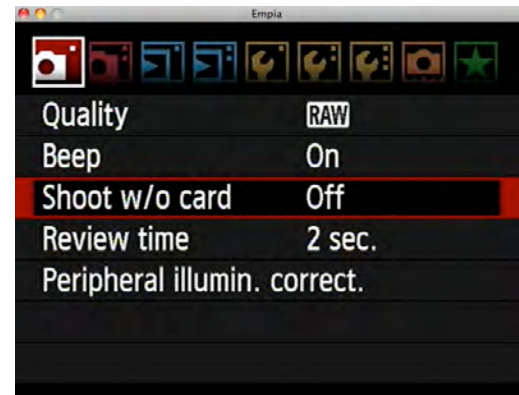
## Tyler Stableford's Custom Functions for the Canon EOS 5D Mark II

Many people have asked me which settings I use for white balance, color space, video mode, and custom functions, etc. Here is list of the settings that I 'customize' on my Canon EOS 5D Mark II -- they are simply settings that I find helpful, and are in no way the absolute best method. I hope that you find them useful!

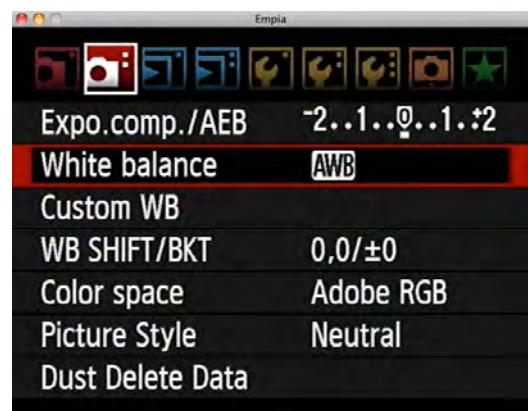
Raw mode. I prefer to shoot only in Raw, rather than Raw+Jpeg, as the camera writes files to the compactflash card faster. Plus, it's so easy to output a Jpeg from a Raw file these days.



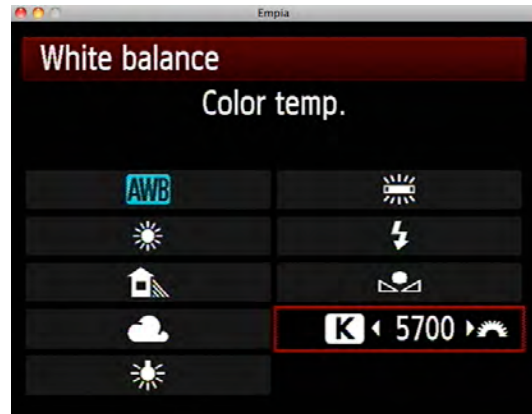
Be sure to turn "Shoot w/o card" to OFF -- otherwise you run the risk of taking photos without a compactflash card in your camera!



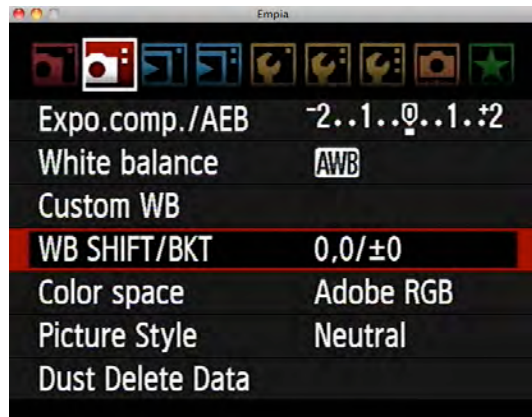
White Balance. When shooting Raw files outdoors, auto white balance often works just fine as you can easily adjust the white balance afterward in Lightroom. However if you are shooting with strobes or in challenging light conditions, you may want to set a custom setting.



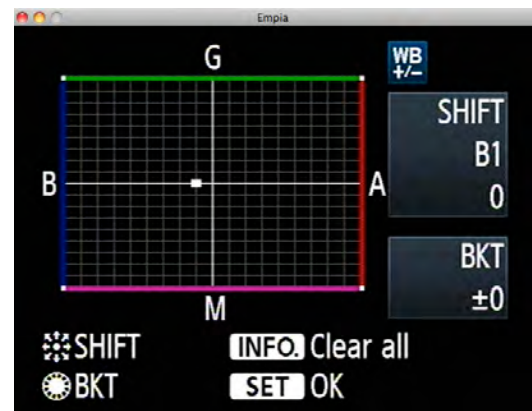
When shooting jpegs or video, it's crucial to set a custom white balance that is as accurate as possible. Jpegs and video clips are highly compressed files and don't allow for dramatic adjustments in color temperature, so you need to get it right in the camera. The box on the right shows how I set a custom color temperature. Take a test shot or use Live View mode to check your settings, and tailor the settings until the scene looks right.



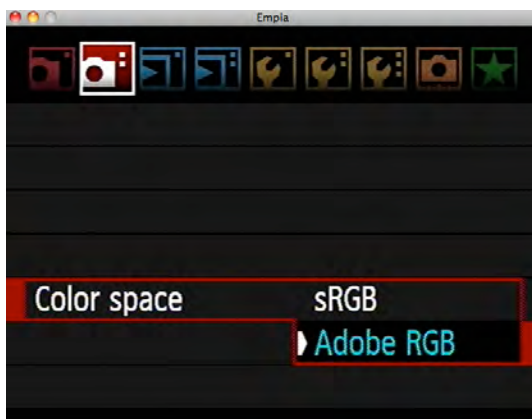
You can do further white balancing in the WB Shift/Bkt pane. Selecting this menu brings up the pane below.



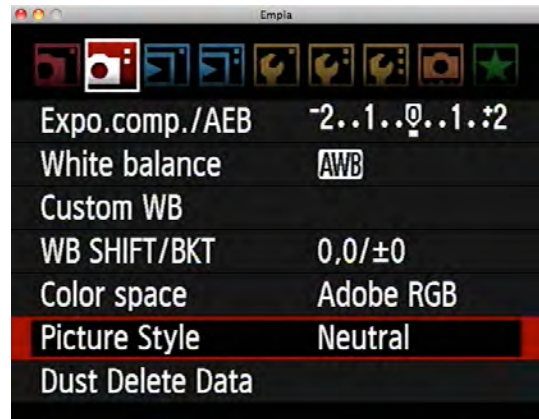
Here, I don't use the bracket feature but rather the White Balance Shift options. If your subject's face is showing too much red, try tabbing the cursor to the left one or two clicks. Take another close-up test frame or use Live View, and zoom in to see how the color looks now. Keep experimenting until the scene looks good.



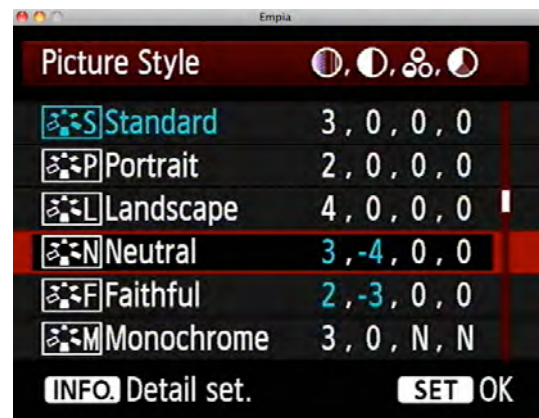
Color Space. I set the camera to capture in Adobe RGB as it has a wider color gamut than sRGB, and as such allows for greater manipulation of the images with less degradation.



Picture Style. This is a crucial custom setting when shooting video, as it allows you to reduce contrast in the clips and to capture a wider range of highlight and shadow detail. It's not as important when shooting Raw files, as Lightroom has calibration settings you can dial while processing your images; but nonetheless I suggest setting things properly here.



My preferred setting is the Neutral picture style, and then I further customize it as seen in the boxes below. Remember that these are just my preferences, so please experiment and find your own if you think a different setting will work better for your needs.



After selecting Neutral, I go into the detailed settings and drag Contrast all the way down. I commonly shoot straight into the sun in the snowy mountains here in Colorado, so I prefer a very low-contrast setting to capture the full range of light and shadow -- remember you can always boost contrast later, but it's nearly impossible to recover clipped highlights or shadows if you don't get them in the original file.

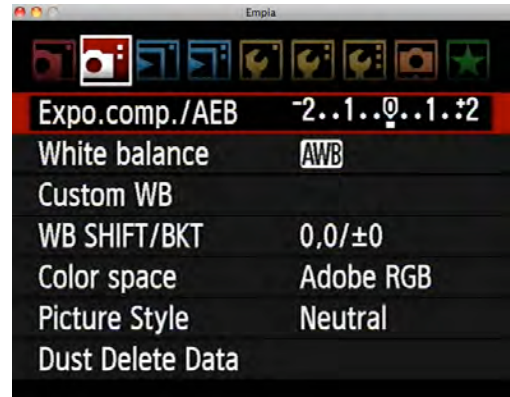


The reduced contrast make the image look relatively flat and dull at first, so I add a touch of extra saturation, and this seems to help the overall look of the image.



\*\*See the last page of this PDF to see how to enable the Neutral Picture Style when developing a Raw image in Lightroom.

Auto Exposure Bracketing. When shooting outdoors in changing light conditions, I often bracket my images 2/3 of a stop on either side to make sure I don't clip the highlights.



This screen shows my settings. Be sure to press the Set button or the bracketing won't register! Also, you'll want to go into the Custom Functions panel and disable the AEB Auto Cancel feature -- please see the section on Custom Function 1-4 further down for details.



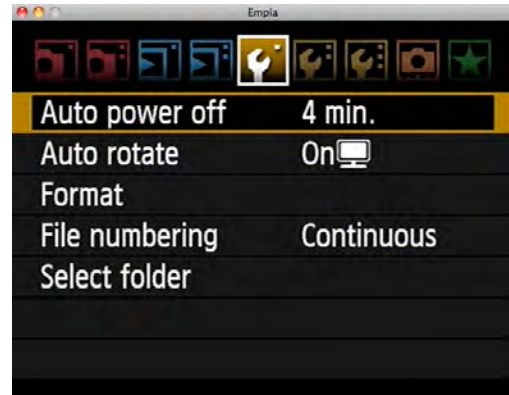
Highlight Alert. I like having Highlight Alert enabled; when reviewing the image on the LCD screen, the clipped highlights will blink white. I don't always attempt to capture all the highlights, but nonetheless I find it helpful to know what's being lost.



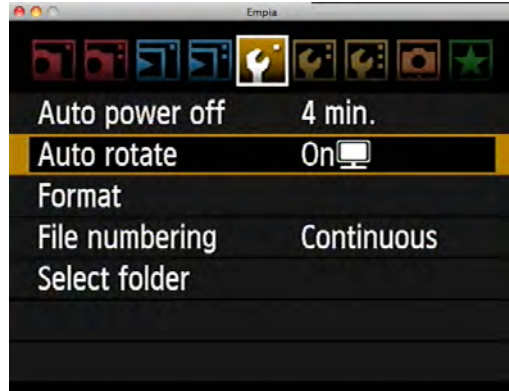
Histogram. I set my histogram to display in all three channel of Red, Green and Blue. Skin tones often appear in the red channel, giving me a more accurate idea of the exposure on a model's face.



Auto Power Off. When shooting video and using Live View to preview a scene, I like to set at least 4 minutes of time before Live View shuts off. This isn't as important for stills, and will drain the camera's battery faster.



Auto Rotate. I set the camera to rotate images only when ingested to the computer, and not on the back of the camera. This way I can view vertical images using the camera's full LCD screen for a larger preview.



Video System. NTSC is the preferred system for most uses in the U.S.A.



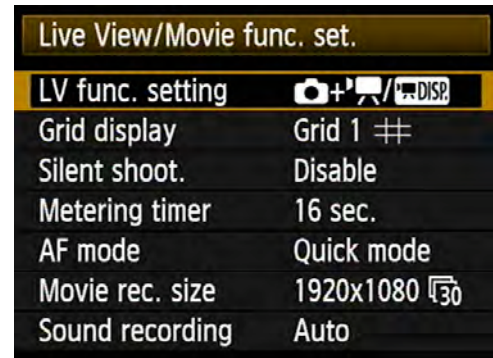
Live View/Movie Function Settings. This menu is the biggie for shooting video. It also controls the Live View settings, which can be very helpful for honing focus when shooting stills on a tripod. See the boxes below for my preferred settings.



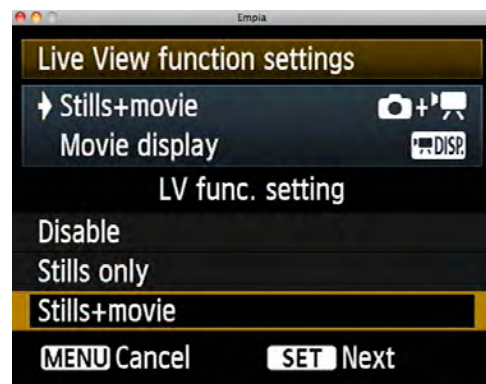
This image shows my preferred settings for video and live view. I like having the grid enabled to help keep horizons straight.

\*\*Disable Silent Shooting to make sure your camera operates at full-speed frame rates; when enabled, the camera doesn't shoot as quickly. But Silent Shooting can reduce camera shake, helpful for longer exposures.

-I set AF Mode to Quick Mode, when you press the autofocus button in Live View, the mirror drops to enable faster focusing; fyi, when you can, I often find it best to focus manually using the 5X and 10X magnification feature while in Live View.



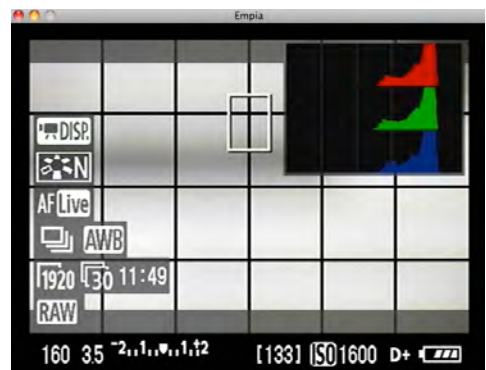
Click on the LV Func Setting to go deeper into this menu. Here, I select Still + Movie mode. Press the Set button to go deeper.



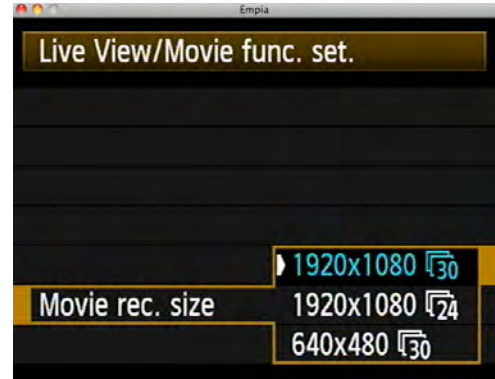
Next, in the Screen Settings dialogue, select Movie Display. This will enable a histogram during live view mode.



Here is a snapshot of the camera's LCD screen while in live view mode, with the RGB histogram enabled. Press the Info button to cycle the histogram etc on and off.



Another important setting in the Live View/Movie Function Setting pane is the Movie Recording Size, which selects both movie size and the frame rate. I commonly choose a 30p frame rate (30 frames per second) over the 24p frame rate as it allows me to capture better action clips of skiing etc. However many people prefer 24p, so check with your client for their needs first.



Sound Recording. For run-and-gun style shooting outdoors with a shotgun video microphone attached to the camera's hotshoe, I prefer setting sound levels to Auto. When shooting indoors with controlled sound levels, it's better to dial in the sound levels in the Manual mode.



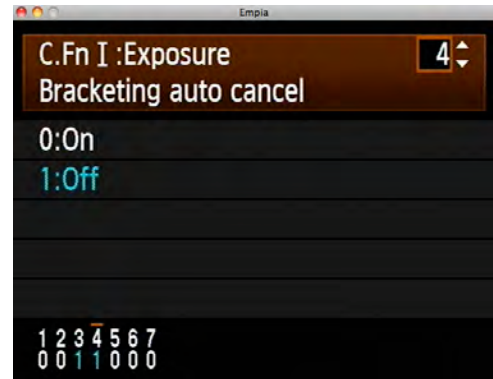
Custom Functions. Below are the settings that I customize, begging with the Exposure panel.



C.Fn I-3, ISO Expansion. Turn this on to enable shooting as low as ISO 50 and as high as ISO 25,600.



C.Fn I-4, Bracketing auto cancel. Turn this to Off; otherwise the camera will cancel bracketing after only one sequence of three shots.



Next let's go to the C.Fn.II panel.



C.Fn II-2. I find that Lightroom's noise-reduction features are very robust, so I turn down the in-camera noise reduction to Low.

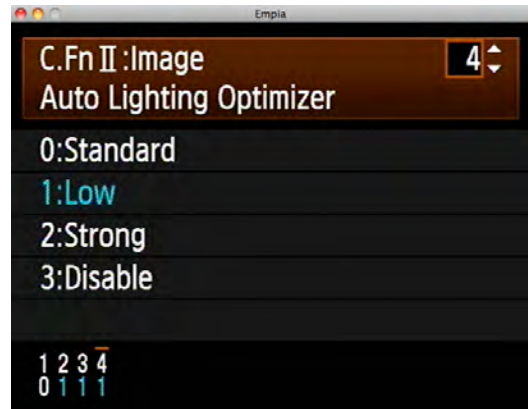


C.Fn II-3, Highlight Tone Priority. This setting enables the camera to capture a greater range of detail in highlights like backlit snow, clouds and water. Turning this setting on will make ISO 200 the lowest possible ISO.

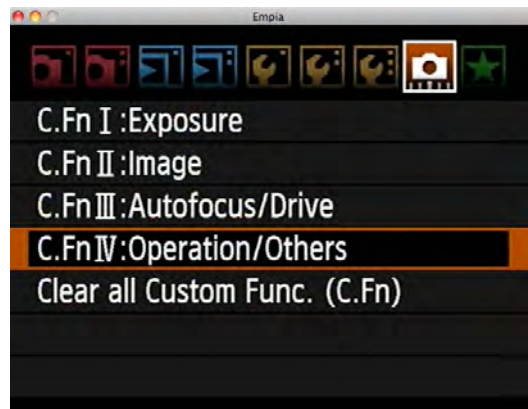




C.Fn II-4, Auto Lighting Optimizer. This setting essentially brightens the shadows in a scene; it can be helpful when shooting run-and-gun video without a lighting crew. Try it at a Low setting and experiment to see if you like it; it's a judgement call. This setting applies only to Jpeg and Video files; it does not affect Raw files.



I skip the C.Fn III panel as there's nothing I customize there, and continue to C.Fn IV.



C.Fn IV-1, Shutter Button and Auto Focus. I select option 2 which moves autofocus controls to the AF-ON button rather than the shutter button. This way I can focus with my thumb on the AF-ON button, which I find more helpful when tracking a moving subject in AI Servo autofocus mode.



Here is a snapshot of the various 'quick-view' settings I enable for easy access, using My Menu Settings. In the My Menu Settings dialogue, you can Register a range of menu settings for quick access. Click Register to view the full list and add a setting; click Delete to remove unneeded settings from the panel.



## Addendum: Using Lightroom to develop Raw files with specific Picture Style settings.

The Picture Style settings you select on the camera don't automatically apply when processing Raw files in Lightroom. Here's how to select the style you want: scroll down to the bottom right panel in the Develop mode to Camera Calibration, and click the fly-down menu for Profile. I select Camera Neutral, which replicates the Neutral Picture Style.

