



Tips and tools
that will help you
create cinematic
movies with
your new video-
DSLR camera

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Motion PICTURES

BECAUSE OF THE VIDEO
DSLR'S MONSTER-SIZED
SENSOR, SHOOTERS AT ALL
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"FILM-LIKE" SHALLOW
DEPTH OF FIELD...



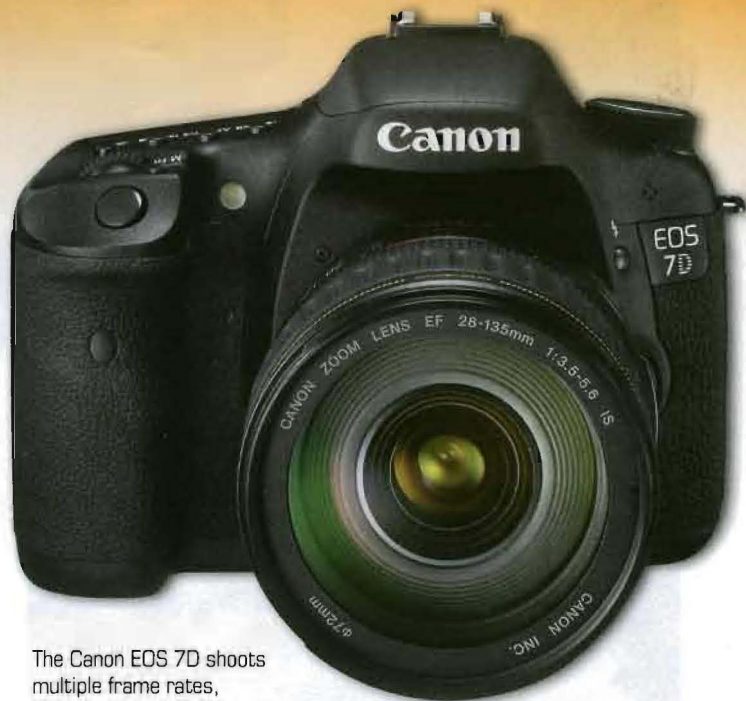
In the past year, video-DSLR cameras have turned the HD-video industry on its head with hype not seen since the announcement of the RED ONE back in 2006. So what's all the buzz about? Simply put, it's all about the sensor. Because of the video-DSLR's monster-sized sensor, shooters at all levels can now achieve "film-like" shallow depth of field, capturing stunning images never before seen, except from footage shot with film or digital camera systems costing in the tens, or even hundreds, of thousands of dollars.

Most of the current video DSLRs on the market contain APS-C sensors (approximately 22.2x14.8mm), which can compare to the size of a 35mm motion-picture negative or RED's Mysterium sensor. The Canon EOS 5D Mark II contains a full-frame sensor (24x36mm), which is closer to the size of 65mm movie film. (Imagine wrapping a VistaVision camera around your neck.) The average price for a video DSLR ranges anywhere from \$1,000 to \$3,000, making it the cost of a consumer or entry-level prosumer camcorder. So, is the Holy Grail of achieving a "film" look with digital video finally within reach?

Not so fast. Before we all put our video camcorders up on eBay, shooting your next pet project on a DSLR might not be your best solution. Although there are many advantages, the following is a short list of the video DSLRs' weaknesses in terms of moviemaking.

- The video DSLR shoots a weaker, more compressed codec than professional or prosumer video camcorders. The format is closer to that of consumer video cameras, which typically use MPEG-4 or H.264 codecs at low bit rates.

- Although these video-DSLR cameras are light—two to three pounds—ergonomically, they aren't designed to shoot



The Canon EOS 7D shoots multiple frame rates, including 24p (23.97), and features an 18-megapixel APS-C-sized CMOS sensor.

continuous handheld for very long periods of time.

- Lengths of shots are limited at anywhere from five to 12 minutes. (This wouldn't work for a lengthy interview, such as a documentary.)

- The 2.5- to 3.0-inch screen on the camera makes it difficult to judge critical focus. It also makes it difficult to frame shots at unusual angles.

- Since the cameras are primarily designed for still photographers, camera engineers didn't factor in professional sound capability. All of the video DSLRs offer built-in rudimentary audio recording, but none offer XLR inputs for professional audio microphones or manual audio control for monitoring. (Revisit Dan Brockett's Audio Assist columns on "Sound And The Video DSLR" in the October and December *HDVP* issues for more information.)

But even with all of the negatives in mind, a shooter still can produce some breathtaking images that'll look great on nearly all viewing platforms. To help counteract some of the deficiencies, here are a few valuable tips and tools to help you create your cinematic masterpiece with a video DSLR.

CAMERAS

The Canon EOS 5D Mark II (www.usa.canon.com) set the benchmark for video DSLRs with its full-frame sensor, which offers great low-light shooting capabilities. You also won't endure the APS-C sensor's 1.6x crop factor, which limits your use of affordable wide-angle lenses (i.e., a 50mm lens now becomes an 80mm). The one drawback to the 5D Mark II (and it's a big one) is the inability to shoot in 24p. Fortunately, Canon has recently released the EOS 7D, which shoots at multiple frame rates that include 30p (29.97), 24p (23.97) and 25p, unlike the 5D Mark II, which captures at 30 fps exactly.



FAR LEFT, TOP AND BOTTOM: The Panasonic Lumix DMC-GH1K, with a Hot Rod PL adapter, enables the use of professional cinematography lenses. LEFT: The affordable, entry-level Nikon D5000 shoots 720/24p. BELOW: Carl Zeiss' ZE line offers great manual-focus control with minimal breathing.

interchangeable-lens system, which allows you to use a PL adapter, since the camera doesn't contain a reflex mirror inside its body. With the PL mount, users can take advantage of high-quality 35mm cinema lenses, such as Cooke S4s or Zeiss Master Primes, which offer more features for professional cinematographers. Abel Cine Tech started renting a GH1K package that includes a PL adapter—the Hot Rod PL—designed by Hot Rod Cameras. The DMC-GH1K has a list price of \$1,499, which includes a 28-280mm telephoto kit lens.

For more budget-minded shooters, the people at Nikon (www.nikonusa.com), who started the video-DSLR trend with the introduction of the D90, released the D5000. The camera, which retails for only \$679 (body only), shoots 720p at 24 fps and still lets you choose from Nikon's respected line of Nikkor lenses. Recently, esteemed cinematographers Harris Savides, ASC (*Milk*, *Zodiac*), and Ellen Kuras, ASC (*Away We Go*, *Eternal Sunshine of the Spotless Mind*), created two poetic short films with the camera.

"Viewers have already told me how beautiful the images look and how inspiring they are," says Kuras. "The fact that one can get images like these for under \$1,000 is astonishing."

LENSES

As with any photography—movie or still—it's about the glass. Besides the sensor, the second big advantage of video DSLRs is the ability to use a wide variety of high-quality SLR lenses—particularly, fast prime lenses. One of the great lens manufacturers, Carl Zeiss, Inc. (www.zeiss.com/photo), has released lenses designed for Canon's EF mount (5D and 7D). The manual-focus lenses feature electronic shutter control and additional electronic contacts to the camera. Zeiss' first release

The 7D also features a new 18-megapixel APS-C-sized CMOS sensor and dual DIGIC 4 image processors to capture images up to 12,800 ISO. The 7D retails for \$1,699 (body only).

Another camera that's garnering a lot of attention is the Panasonic Lumix DMC-GH1K (www.panasonic.com). The GH1 shoots a full 1920x1080 in 24p recording in the AVCHD format, although at a much lower bit rate (17 Mb/s) than the Canon EOS 5D Mark II (approximately 38 Mb/s). The most unique feature about the GH1K is its Micro Four Thirds



LEFT: Lensbaby's latest lens, the Composer, offers a new Optic Swap System. BELOW, TOP: The Tamron SP AF17-50mm is designed for APS-C-sized sensors. BELOW, MIDDLE: Sigma's 10-20mm super-wide-angle zoom. BELOW, BOTTOM: Singh-Ray Filters' Vari-ND filters can stop the lens down up to eight stops with no color loss.

of its ZE line was a 50mm and an 85mm, which both open up to $f/1.4$. The all-metal body has a very solid feel, and pulling focus on the lens barrel is extremely smooth. Zeiss recently released more lenses in the ZE line, including the Distagon T* 3.5/18, Distagon T* 2/21 and Distagon T* 2/28, which like the 50mm and 85mm, all offer great manual-focus control with minimal breathing.

If you're shooting in more controlled lighting environments and are looking for a variety of focal lengths without having to change lenses, a zoom lens may be a better fit. For your new APS-C-sized-sensor cameras like the Canon EOS 7D or Nikon D300S, Tamron (www.tamron.com) offers two new zoom lenses that are designed to be used with imagers smaller than 24x16mm. The SP AF17-50mm F/2.8 XR Di II VC LD Aspherical (IF) is a fast zoom that's designed for both Canon and Nikon APS-C-sensor cameras and features Tamron's proprietary Vibration Compensation mechanism that minimizes handheld shakiness. The 17-50mm focal-length range is equivalent to 26-78mm in a full-frame 35mm format. Tamron also offers a wide zoom lens, the SP AF10-24mm F/3.5-4.5 Di II LD Aspherical [IF] (16-37mm 35mm equivalent) that enables a shooter to capture landscape shots in motion. The 17-50mm lists for \$649, and the 10-24mm retails for \$499.

If you need to shoot wide landscapes with your 7D, Sigma (www.sigmaphoto.com) has released the 10-20mm $f/3.5$ EX DC HSM (16-32mm equivalent), a super-wide-angle zoom that has a maximum aperture of $f/3.5$ throughout the entire zoom range. Other cool features of the lens include a design that incorporates an inner focusing system, which eliminates front lens rotation, and the HSM (Hyper-Sonic Motor), which offers a quiet, high-speed autofocus, as well as full manual-focus control. The lens has a list price of \$950.

DSLR lenses offer not only more speed and focal lengths for filmmakers, but also more effects. For those seeking an unusual image, many photographers have gravitated toward Lensbaby (www.lensbaby.com), which has launched a Creative Effects SLR lens system that allows a shooter to man-



ually control depth of field by tilting and focusing the lens, similar to tilt-shift lenses that typically run upward of \$1,000. Lensbaby's latest offering, the Composer, is based on a ball-and-socket configuration and gives smoother selective focus than previous lenses; it also stays in the desired position without having to lock it down. Another unique feature of the Composer is the new Optic Swap System, which includes a high-quality Double Glass lens, a Single Glass lens (similar to an antique camera), a Plastic optic (mimics a toy camera lens) and a Pinhole optic (creates dreamy soft-focus images). The optic is simply dropped inside the Composer lens for an immediate new look. The Composer retails for \$270 (includes the Double Glass optic), with the optics selling separately for \$34.95.

FILTERS

A 180-degree shutter, or $\frac{1}{8}$ sec. exposure, is the optimal shutter speed for film, which runs at 24 fps. For many of us shooting in 24p or 30p with video DSLRs, the preferred shutter speed that best displays cinematic motion is $\frac{1}{48}$ sec. for a 24p camera and $\frac{1}{60}$ sec. for a 30 fps camera like the Canon EOS 5D Mark II. The only problem is that when shooting outdoors in bright sunlight, a $\frac{1}{48}$ sec. or $\frac{1}{60}$ sec. slow shutter speed, without a lot of

Shoot 'Em Up

Zacuto delivers the big shot

Based in Chicago, Zacuto offers a multitude of high-end products aimed at the indie filmmaker. The company recently created a number of innovative DSLR accessories that give a DSLR shooter the tools a seasoned cinematographer would demand. For handheld, guerrilla-style shooting, its Tactical Shooter camera rig (\$1,117) is light and easy to handle, weighing only one pound, eight ounces. The rig has three points of contact, with one hand on the hand-grip, the gunstock in your chest and your focusing hand pressing up against the rod. The user quickly can free the camera from the gunstock by flipping the lever on the quick-release tripod plate. The Z-Finder (\$395) is Zacuto's DSLR optical viewfinder that gives DSLR cameras the correct form factor for video. It offers a 3x focusable magnification, a 40mm diameter lens, an eyecup preventing extraneous light leakage and a field of view perfectly matched to LCD screens. It consists of four parts—the mounting frame, the skirt with optics, the focusing knob and the eyecup. For more information, visit www.zacuto.com.



neutral-density filtration, will cause the image to be overexposed. A still photographer usually would increase the shutter speed to, say, $\frac{1}{2000}$ sec., but for motion, it'll give you a stutter effect, à la the battle scenes in *Saving Private Ryan*. Since DSLRs currently don't have electronic ND built in like most video camcorders, one way to solve this is by purchasing a matte box that can hold up to two 4x4 or 4x5 ND filters.

Since the main purposes for using

video DSLRs is to capture cinematic images with shallow depth of field, it's essential to shoot with a lower T-stop, even during day exteriors. For those who can't afford expensive matte boxes and 4x5 filters, there are a few options. Singh-Ray Filters (www.singh-ray.com) manufactures a Vari-ND filter that lets a user control the amount of light passing through the lens by rotating the front end of the filter, stopping the lens down as much as eight stops with no loss of color or sharpness. The Vari-NDs are offered in 77mm (\$340) and 82mm (\$390) standard ring-mount sizes, with step-up rings available.

Light Craft Workshop (www.lightcraftworkshop.com), based in Hong Kong, also has a single filter that lets you dial in at least eight stops of light reduction—from ND2 to ND400. Fader NDs are produced in 52mm to 86mm screw-on filter sizes. Prices range from \$59 (52mm) to \$108 (77mm).

MONITORING

Although the quality of the LCD monitors on video DSLRs is very good—the Canon EOS 5D Mark II has

about 920,000 pixels—the size of the monitors is lacking, usually measuring between 2.5 and 3.0 inches. Another problem is that if you're shooting from an awkward angle, such as a low-angle shot with the camera looking up, it's nearly impossible to properly view the LCD, which is typically fixed flat on the back of the camera. To combat this feature, many video-DSLR filmmakers shoot with external LCD monitors. But be forewarned—currently, only standard-def can be viewed on the external monitors when recording, and once the monitor is plugged into the mini-HDMI slot, the camera's LCD screen is disabled.

One of the most popular monitors is the V-LCD651ST-HDMI 6.5-inch outdoor monitor from Marshall Electronics (www.lcdracks.com). The V-LCD651ST-HDMI is a high-definition, widescreen LCD monitor that features Marshall's digital TFT-MegaPixel active matrix LCD platform. One of the monitor's best features is its focus-assist feature, or peaking filter, which enables the operator to get the sharpest focus possible. When peaking is on, the display turns to black-and-white. When the operator begins to focus on the subject, the edges of the subject start to turn red—the darker the red, the more in focus the subject is. The other cool feature of the V-LCD651ST-HDMI is its false color filter, which helps aid in the setting of camera exposure. When you adjust the exposure, the image will change color based on the brightness. The monitor retails for \$1,099 with a small battery adapter or \$1,199 with a V-mount and Anton/Bauer battery.

For more budget-conscious shooters, Ikan Corp.'s (www.ikancorp.com) most popular LCD monitors for video-DSLR shooters is the V5600, which is a 5.6-inch, TFT LCD that delivers 1024x600 resolution, YUV and AV inputs, as well as HDMI input. For battery power, the V5600 is compatible with the Sony L and BP-U series, Canon 900 series and Panasonic D54 series. Switchable aspect ratios and safe area guides make the V5600 a great addition to your camera, and it has a price point that's consistent with the lower-cost video DSLRs (\$699).

If you don't want to carry an external monitor, due to cost or the extra gear that

(Cont'd on page 94)



Marshall Electronics V-LCD651ST-HDMI 6.5-inch outdoor monitor offers both focus-assist and camera-exposure control.

MOTION PICTURES

(Cont'd from page 81)

needs to be wired to the camera, the LCD monitor on your DSLR should be sufficient, although for shooting daylight exteriors, it may be difficult to view your footage in direct sunlight. The digital camera-accessory specialist Hoodman (www.hoodmanusa.com) manufactures a simple viewing device called the HoodLoupe 3.0. It's fitted to your camera's LCD screen and allows the operator to view a 1:1 ratio of a glare-free LCD screen. The rubber HoodLoupe 3.0 has a ± 3 diopter for users with poor vision. The HoodLoupe 3.0 retails for only \$79.

CAMERA RIGS

Focusing on the fly and handheld continuous shooting are new aspects to which still shooters will have to adjust. Because of the extreme shallow depth of field while shooting wide open, the biggest challenge a video-DSLR shooter now faces is achieving proper focus. On a professional movie set, focus pulling is usually performed by one person—the 1st AC—and being able to keep tack-sharp focus on a moving subject while shooting handheld is a skill set that can take years to master. Also, although the cameras are lightweight, DSLRs aren't really ergonomically built to shoot continuous handheld for a long period of time. Fortunately, there are several cinema accessory companies that have released cinema-style gear that will help assist you in keeping your shots in focus, as well as take a lot of the weight off your wrists.

Well known for the Brevis35 cin-



Redrock Micro's eyeSpy shoulder-mount support rig.

ema lens adapter system, Cinevate (www.cinevate.com) has a product that definitely will assist handheld shooters. The Digital SLR Shoot Rig (\$883) is basically its tried-and-tested Proteus carbon-fiber rails system, but is configured for DSLRs. The rails are made of solid carbon fiber, and all of the additional parts are made from 100% CNC-machined aluminum. The padded shoulder mount has been configured so a shooter easily can adjust it to his or her liking and put the overall weight of the camera onto his or her shoulders. The Proteus rails system also can support video cameras—from small consumer to $\frac{2}{3}$ -inch professional camcorders.

The company Redrock Micro (www.redrockmicro.com), also known for its 35mm cinema lens adapter, the M2 Encore, has numerous tools to help convert your DSLR into a motion picture camera. For camera support, it offers handheld DSLR rigs, as well as shoulder-mount and cinema-style rigs. One support rig that's receiving a lot of attention from professional cinematographers and filmmakers is the eyeSpy, which enables a more direct connection between the eye and viewfinder for longer, more strenuous shots. The eyeSpy rig contains a shoulder pad, 18-inch 15mm carbon-fiber rods and a single rubberized handgrip, as well as an additional rod extension to center the camera for viewfinder use. The rig comes in three incarnations: the Standard (\$620); the Balance (\$735), which adds counterbalance weights for longer handheld shooting; and the Deluxe Bundle (\$1,470), which adds the microFollowFocus v2 and microLensGears to work with any of your 35mm lenses.

So now that you have a tricked-out video-DSLR camera, what are you waiting for? Go make your movie! HDVP



Cinevate's Digital SLR Shoot Rig.