

Tech Tips

2007

by Chuck Westfall



What is the recommended user maintenance for the external weather seal of Canon "L" lenses?

No lubricants are required to maintain the weather-resistant functions of L-series lenses equipped with rubber seals. In fact, lubricant may harm the equipment if it is transferred to optical surfaces or electrical contacts, and there is also the possibility of damage caused by grit or other foreign matter becoming suspended in the lubricant and rubbing against the surfaces of the camera body and lens during attachment and removal of the lens. So our best suggestion for maintaining weather-resistant EOS equipment is to clean them regularly with a soft, dry clean cloth. Microfiber cloths are excellent for this purpose.

I have an EOS 1D Mark III Camera. I use Sandisk 4GB Extreme III CF memory cards. I recognize that in the camera's high-speed continuous mode, I can shoot 36 images in one burst at ISO 100 in RAW, but at ISO 3200 the number of images per burst reduces to about 12. The same with JPEG "L." At ISO 100 I get 122 photos in one burst, at ISO 3200 only 40. Why is that happening? I recognize that the image size in RAW increases from about 10MB at ISO 100 to about 16MB at ISO 3200, due to noise. But this increase in size per image and the quicker fill up of the internal buffer does not entirely explain the numbers I observe. Do you have a better explanation?

Basically, there are several factors that affect the maximum number of shots in a burst. When comparisons are made with the same memory card, the remaining factors are (in no particular order):

- Buffer memory capacity
- ISO speed
- Exposure accuracy
- Shutter speed
- Picture Style setting (file sizes are smaller in monochrome, so maximum burst increases at those settings)
- Level of detail in the image
- Framing rate (fps)
- Image quality setting (RAW, sRAW, JPEG)
- Compression setting (for JPEGs)
- High speed noise reduction setting in the camera (on, off or auto)

Our ratings for maximum shots in a burst are based on actual product testing in our R&D facilities. Although specific details of our testing methods are confidential, it's safe to say that we use a standardized test target with a fairly high level of detail, and lighting conditions are consistent across the entire picture area. Shutter speeds are fast enough to allow the camera to perform at its maximum framing rate, and exposures are accurate so that the results aren't skewed by lack of detail caused by over- or underexposure.

With the EOS-1D Mark III set to ISO 100, we quote a nominal rating of 30 shots in a burst at 10 fps when the camera is set to RAW mode (see page 53 in EOS-1D Mark III instructions). Many photographers are able to achieve longer bursts with the same camera settings, which can be attributed to varying levels of detail in the image. We also state in the 1D Mark III Instructions (on pages 53 and 54) that *"The single image size and the number of shots will vary depending on the subject, memory card brands, ISO speed, Picture Style, etc."* The instructions do not quote specific figures for maximum burst at ISOs higher than 100, but we do state (on page 54) that *"at high ISO speeds, the maximum burst will greatly decrease."* I mention all of this as a foundation to support the contention that in fact users can and should expect a significant decrease in maximum burst with the EOS-1D Mark III at high ISO speeds. Our estimate for the maximum burst is indicated in the camera's viewfinder. The estimate is based on a number of factors including average file sizes as well as image processing considerations and available memory card capacity.

Now, as to why maximum bursts decrease at higher ISO speeds, it's basically an issue of increased processing time per image as well as larger file sizes. The increase in processing time is mainly a function of the noise reduction algorithms we use, which vary according to the ISO speed setting as well as the user-selected high-speed noise reduction setting. Even when high-speed noise reduction is turned "off," varying amounts of noise reduction are still applied to all images, even RAW images.

I'm curious about sensor size (APS-C vs. APS-H) and print size, image quality, etc.

Let's make a couple of assumptions:

- 100 ISO (let's not complicate this with high ISO noise)
- focal length adjusted so both cameras capture the same image
- static subject, same exposure settings, same lens
- ignore the extra "1D Mk III goodies" (like AF & shooting speed) for now.

Since the 1D Mk III and 40D both have 10 meg sensors (3,888 x 2,592 pixels) does that mean that images taken with these cameras should be very similar as far as maximum print size, print quality, etc. are concerned? I'm currently using a 30D but thinking about upgrading to a 1D Mark III in January. I'll be shooting downhill ski racing next March and the extra AF points will be helpful. I used a 30D last winter and it worked fairly well, except when the skiers were doing their "stunts" in mid-air and would suddenly end up missing all the AF points (the smaller skiers were very challenging).

Under the strict limitations you've outlined here, the answer would be yes. I would give you the same answer for images created under the same conditions with the EOS Digital Rebel XTi, which sells for even less than the EOS 40D. So the question now becomes, why do you ask?

This subject came up at a photo meeting a while ago. The general thinking from the "long term" members was that since the APS-C sensor is physically smaller than an APS-H sensor the resulting APS-C images would be grainier when the images are printed at the same size. My line of thought was something like 10 megapixels is 10 megapixels and therefore the resulting prints should be very similar. I've got a feeling that their reasoning may have been a carry-over from the "old days of film" when the physical size of the negative did influence grain and print size. Thanks for giving it some thought and taking the time to reply.

One way to settle the argument is to download *and print* equivalent test photos from each camera. Fortunately, there is a web site that lets you do exactly that, with images that are shot under consistent conditions in a test lab set-up. That site is Imaging Resource. They have comprehensive test reports on most of the popular digital SLRs, including the 1D Mark III, 40D and Rebel XTi.

Here are the URLs for the ISO 100 test images from each camera:

EOS-1D Mark III (ISO 100) USA retail: \$4,499 body only

<http://www.imaging-resource.com/PRODS/E1DMK3/E1DMK3hSLI0100.HTM>

EOS 40D (ISO 100) USA retail: \$1,299 body only

<http://www.imaging-resource.com/PRODS/E40D/FULLRES/E40DhSLI0100.HTM>

EOS 400D/Digital Rebel XTi (ISO 100) USA retail: \$799 body only

<http://www.imaging-resource.com/PRODS/XTI/FULLRES/XTIhSLI0100.HTM>

Just for the heck of it, I'll throw in the PowerShot G7, which is a compact digital camera with 10 megapixel resolution:

PowerShot G7 (ISO 100) USA retail: \$499 with lens

<http://www.imaging-resource.com/PRODS/G7/G7hSLI0100.HTM>

This should prove that image quality at 10 megapixels can be consistently high with Canon digital cameras regardless of the price point. But it's important to realize that ISO 100 produces a "best case scenario" for image quality with most if not all digital cameras available today. Generally speaking, the smaller the pixel, the greater the deterioration in image quality as ISO speeds increase. This is not an absolute rule, because sensor quality and image processing algorithms generally improve when new models are introduced, but digital SLRs as a group generally have a noticeable edge compared to compact digital cameras in terms of image quality at ISO 400 and up.

I am planning to purchase a new L telephoto zoom lens, and the EF 70-200 f/4L IS USM is on my mind. However, I am using EOS 3 and EOS 350D together, and planning to upgrade to full frame such as 5D in the future, and I heard from many people that 200mm would not be long enough on a full frame. So I'm also thinking about the EF 100-400 f/4.5-5.6L IS USM. My primary goal for this lens is nature and landscape photography (I own a 17-40 f/4L, I'm already sick of wide-angle lenses!) Now I am pretty sure to get the 100-400 instead of 70-200; but I'm curious on one thing. The 100-400L IS was produced in September 1998 (almost 10 years ago!). On the other hand, the 70-200 f/4L IS was produced in the end of last year. Would that affect image quality and sharpness, etc. that much? The image stabilizer of the 70-200 obviously features the latest technology and probably is the best one Canon has.

There's no question that the EF70-200/4L IS USM has the edge over the EF100-400/4.5-5.6L IS USM in terms of size, weight, optical performance and image stabilizer technology. On the other hand, the EF100-400/4.5-5.6L IS USM is sharp enough to satisfy even picky photographers, and it is more versatile out in the field than the EF70-200/4L IS USM when it comes to zooming in on small or distant subjects. I am certain you could produce excellent images with either one,

but you're the only person who can decide which of these lenses is better for your needs.

A local photographer here in California suggested I contact you to see if you could offer some advice. I have an unusual assignment: to photograph a race between a plane and a car! If you could recommend a specific camera setup for the Nikon D200 or perhaps some articles I would really appreciate it. I would appreciate any ideas to help produce good images. Thanks so much! PS: The race will take place at an airport here in California. The weather (most likely) will be sunny. There might NOT be clouds in the sky (so this could affect metering in the camera). I will have full access to set up in, on, or near a runway where the car and plane will be passing over/by.

Thanks for the information. Here are some ideas that may be helpful for you:

1. Lighting: Do you have any say over when this photo session will take place? Ideally, you would want to shoot in early-morning or late-afternoon sunlight to get a warm "sweet light" effect to your photos. If that's not possible, chances are good your lighting will be relatively flat, which is still OK, even if it's not as pretty.

2. Camera Positioning: No matter what time of day you end up shooting, I would suggest positioning the camera so that the sun is either behind you or overhead. Aiming the camera towards the sun or the brightest area of the sky should be avoided, unless you like silhouettes and blown-out backgrounds. I would also suggest that you position yourself at right angles or at a 45-degree angle to the path the car and the plane will be using, and sufficiently far away not only for your safety, but also in order to use a reasonably long lens. Use a sturdy tripod with a good pan head so you can follow the action smoothly. If the lens is larger than the camera, chances are it will have a tripod collar, which should be used to balance the setup and avoid stressing the camera body's lens mount.

3. Lens Selection: One of the best lenses for this type of photography is a telephoto zoom. Since you'll be using the Nikon D200, you might want to consider the Nikkor 80-400mm f/4.5-5.6D ED AF VR lens. Photographers using the Canon EOS system could use the EF100-400mm f/4.5-5.6L IS USM. Other good choices might include a fixed focal length 300mm, 400mm, 500mm or 600mm lens, depending on how far you'll be from the subjects.

4. Camera Settings: Let's divide this topic into several subcategories:

- **Image Quality Mode:** For maximum image quality as well as maximum flexibility during post-processing, use RAW mode.

- **AF Mode:** Use Continuous Focus for your D200 (AI Servo for EOS users). Select the center focusing point manually, as opposed to automatic focusing point selection.
- **Drive Mode:** High-Speed Continuous
- **Exposure Mode:** Stick with Manual to keep your exposures consistent during burst mode shooting. Take a few test shots ahead of time to check your exposure, using the camera's histogram to ensure that you're on the money. You don't want to be too far over or under.
- **Shutter Speed, Aperture & ISO:** I would set the shutter speed no slower than 1/1000th sec., but use higher speeds if you've got good light. Since you'll be shooting against a blue sky, I would also select an aperture that's about 2 stops down from wide open on your lens in order to get better evenness of illumination in the corners of the image. Don't be afraid to adjust the ISO to get the shutter speed and aperture combination you want.

5. Shooting Tips: Assuming you are positioned as I've suggested, you'll probably be at roughly a 45-degree angle to the subjects when you start shooting, and then you'll pan the camera along with their movement until they pass your position at which point they will be at a 90-degree angle. If this is the case, and if you are using a VR or IS lens with a mode switch, use the panning mode. Practice tracking the subjects with the AF system by pressing the shutter button halfway for a few seconds before you press all the way down to start the sequence. Try to be patient and don't start shooting until the subjects are close enough to fill the frame reasonably well. Otherwise, you'll probably end up throwing away a lot of frames where the composition is too "loose." If you're using a zoom, start out at maximum focal length and pull back as the subjects approach your position.

6. Other Tips: Be sure that the camera's battery is fully charged and bring along a fully charged spare or two, just in case you need extra power. Also, be sure to bring along enough memory card capacity to handle your needs; I'd take along at least 48GB (6 x 8GB) if you're going to shoot a lot. Also, consider hiring an assistant to download the images into a laptop computer or portable storage device. Last but not least, don't forget to protect yourself with sunscreen and appropriate clothing for the weather, and bring a lot of water to keep yourself hydrated.

I am a firefighter who does off-duty spot news photography. The new digital cameras are very sensitive to the reflective striping on our turnout gear and apparatus, especially at night with flash. I have Canon 20D & 30D cameras. Do you have any suggestions or settings to illuminate the scene and reduce the overpowering reflections?

One of my buddies happens to be a volunteer fireman, and he confirms that the best solution for this particular problem is to use off-camera flash. This technique allows you to light the subject from a different angle than the camera position, so that the flash illumination does not bounce back into the lens. An ideal setup would involve the use of a bracket to hold the flash, which would connect to the camera's hot shoe via an Off-Camera Shoe Cord. With this setup, you would have a place to store the flash when it's not in use, but you could easily detach it from the bracket to hold it at arm's length and point it at an angle to the main subject while you're shooting. Here's a Web link for the Off-Camera Shoe Cord:

[Canon Off Camera Shoe Cord 2 Review.aspx](#)

I work full-time with the EOS-1Ds Mark II, and have noticed that Canon AF algorithms can sometimes pick another AF point than the one selected, if the camera can't AF with the selected point, and close AF points have high contrast to easily focus on. There is no feedback that the camera does this, but it does seem very likely to happen. I'm not talking about back-focusing issues; I know how my lenses work in this aspect. This seems to be the case on the 350D and 400D also. I'd like to disconnect this function - better no AF than wrong AF. Can it be done?

Assuming you are selecting the focusing point manually on your EOS-1Ds Mark II, the only way to let the camera use any other focusing point than the one you selected is to use Custom Function 17-1 or 17-2. So, if you want to ensure that the 1Ds Mark II is only using the single focusing point you selected, make sure that C.Fn 17 is set to 0. If C.Fn 17-0 has already been set and you still think the camera is picking another focusing point, either it is malfunctioning or you are mistaken. The EOS 350D and EOS 400D do not have the equivalent of C.Fn 17, so all you need to do with them is to make sure the camera is set for manual focusing point selection to ensure that focusing points other than the one you selected will not be used.

Are you completely sure this AF change is not happening?

Yes, I am absolutely certain. I've had a close working relationship with our R&D engineers since the early 1990s, and I am quite familiar with the AF specifications of all EOS SLRs. As an addendum to my previous reply, let me say, however that even when a single focusing point is manually selected, it is quite possible for the camera to select a subject that is slightly outside the AF frame shown in the viewfinder. This can occur under two circumstances:

1. In the case of EOS SLRs with less than 45 focusing points, the AF frames are engraved directly on the focusing screen. In some cases, the focusing screen may become very slightly shifted to the left or right of the actual focusing point position.

2. Also in the case of EOS SLRs with less than 45 focusing points, the size of the AF frames on the focusing screen is smaller than the size of the actual focusing points. If there is more than one subject in the area being analyzed, the camera may pick the area with the highest contrast, and this area may be slightly outside the AF frame in the viewfinder. However, under no circumstances does an EOS SLR with less than 45 focusing points and set for manual focusing point selection evaluate another focusing point than the one manually selected, unless the camera supports focusing point expansion and the user has selected it.

With EOS-1D class cameras including the EOS-1Ds Mark II, the size of the actual focusing points is very close to the size of the AF frames superimposed on the focusing screen, and moreover the alignment of the AF frames shown in the viewfinder compared to the positioning of the actual focusing points is typically quite accurate.

I have been an EOS user since 1993. Back then I bought an EOS A2 35mm SLR with two lenses: EF28-80mm f/3.5-5.6 USM (type 1); and an EF100-300mm f/4.5-5.6 USM. I still have them and use them with my EOS 20D. However, since going digital I have come to realize the 100-300 is my weakest lens in terms of IQ. I look to replace it and I study the various reports. But my main question concerns the 28-80. There are no "modern" tests for this older lens (that I know of), so I have nothing to compare it against. If I were to upgrade it too, what should I work toward? I've always thought it does a pretty good job, and so, other than an IS function, I'm not sure as to whether I should even bother with an upgrade. Would I notice a significant difference between it and the EF-S17-55mm f/2.8 IS USM in terms of sharpness?

The EF100-300mm f/4.5-5.6 USM lens is still current in our lineup, but it's been effectively replaced in terms of popularity by the EF70-300mm and EF75-300mm zoom lenses. Within the current Canon line, I would say the best replacement would be the EF70-300mm f/4-5.6 IS USM. This lens doesn't have a ring USM (it's a micro USM instead, which is just as quiet), and it doesn't focus internally. However, both the focal length range and the image quality are superior to your lens, and it also has a very effective Image Stabilizer. There are plenty of other choices at higher and lower price points, but within the Canon line, I'd rate the EF70-300mm IS USM as the best value overall in its category.

If you were using a full-frame digital SLR, the most direct replacement of the EF28-80mm f/3.5-5.6 USM would probably be the EF28-90mm f/4-5.6 III, but since you're going to be using an EOS 20D, the equivalent lens would instead be the EF-S18-55mm f/3.5-5.6. You should be able to pick one up for less than \$100 on the used market. (There's nothing wrong with using your 28-80mm lens on the EOS 20D, but due to that camera's smaller imaging format, the angle of view would be equivalent to 45-128mm on a full-frame camera.) If there's some room in your budget, then either the EF-S17-55mm f/2.8 IS USM or the EF17-40mm

f/4L USM would be better choices. The EF-S17-55mm has a longer zoom range, a faster maximum aperture, and an Image Stabilizer. The EF17-40mm L lens has the advantage of covering full-frame, so it could be used on both of your cameras, and might also be useful to you in the future if you ever upgrade to a full-frame digital SLR like the EOS 5D. In terms of image quality, the EF-S 17-55 and the EF17-40L are fairly close (and definitely better than the EF-S18-55), though the 17-40L has better evenness of illumination wide open at 17mm than the 17-55mm lens if that's important to you.

I have heard that when using a camera for handheld photography, it is best not to use a shutter speed lower than the reciprocal of the focal length of your lens (100mm = 1/100 sec., 50mm = 1/50 sec., 400 = 1/400 sec., etc.) Does the 1.6x focal length conversion factor for APS-C digital SLRs (or any conversion factor) affect this equation at all?

In my experience, it is best to apply the focal length conversion factor in this particular situation. For example, if you are using a digital SLR with a compensation factor of 1.5x or 1.6x compared to full-frame 35mm format, you should multiply the actual focal length by that factor to arrive at a useful figure. In this case, the safest shutter speed for handheld photography at an actual focal length of 50mm would be approximately 1/80 sec. You might be able to get by with a slower speed with careful technique or image stabilization, but if the shot is important, it's better to err on the side of caution.

I'm wondering if you have access to a resource that could help explain a technical issue that seems to have a number of us confused. Some argue that a 1.6x camera (ex: EOS 40D) will have more depth of field than a FF camera (ex: EOS 5D) when used with the same lens at the same focal length with the same camera to subject distance at the same aperture (as I recall, the three factors that affect DoF). Most of these folks base their statements on experimentation. Others contend that with all factors the same, other than sensor size, the DoF will be the same, but you will see less picture on the 1.6x camera as compared to the FF image. Most of these folks base their answer on "science." In order to get the same composition with the 1.6x camera, one has to move further back from the subject, and refocus, which would (understandably) result in more depth of field. If you have an authority on this subject that could post in our ongoing discussion, I'm sure it would be greatly appreciated. Perhaps there is some other factor that we have not considered that results in more DoF.

Here is my understanding on this topic: The three main factors (not the only factors, but the main factors) affecting depth of field are camera-to-subject distance, focal length, and aperture. Changing any of these will have an effect on the depth of field in the resulting photograph. When shooting the same scene

with both full frame and small sensor digital SLRs, typically there are two ways that photographers attempt to match the angle of view:

1. If the actual focal length is the same on both cameras, the camera with the smaller sensor must be positioned at a further camera-to-subject distance to match the angle of view. Increasing the distance while keeping the focal length and aperture the same results in greater depth of field.
2. If the distance and the aperture remain the same for both cameras, the actual focal length must be reduced on the camera with the smaller sensor to match the angle of view on the full-frame camera. Reducing the actual focal length without changing the distance and aperture also results in greater depth of field. It turns out that there is approximately a one f/stop increase in depth of field for a 1.6x DSLR compared to a full-frame DSLR when the distance and aperture are the same, but the focal length is reduced on the 1.6x camera to match the angle of view on the full-frame camera.
3. If all three factors are the same on both cameras, then depth of field is identical, but the angles of view are not.

What may be confusing some photographers on this topic is the concept of "effective" focal length vs. actual focal length. For example, it is often said that an actual focal length of 50mm on a 1.6x DSLR is equivalent to an "effective" focal length of 80mm on a full-frame DSLR. While this may be true in terms of angle of view, it is equally true that the actual focal length of the lens never changes regardless of image sensor size. When it comes to comparing depth of field, therefore, "effective" focal lengths should be disregarded.

One wish list item for the firmware on the EOS-1D Mark III (and 1Ds Mark III when it's here) would be for Canon to allow us to enable or disable the various drives modes. Given that almost every other function on the camera can be enabled or disabled – e.g., shooting modes, metering modes, etc. – it would make sense to allow the user to disable drive modes which are not required. As a wedding shooter I only ever use S (Silent/Delayed mirror return), single shot and low speed drive mode. High speed drive mode is just embarrassing if it is accidentally selected (the icons are a little small and indistinct for my fading eyes) and I'm never going to use either of the self timer modes during a wedding ...

I'll be happy to pass along your suggestion, but in the meantime there is a workaround that may be helpful for you: C.Fn III-16 lets photographers adjust the framing rate for high speed continuous from 2 to 10 frames per second. Low speed continuous can be adjusted from 1 to 9 frames per second. Taking advantage of this feature by setting a lower framing rate than the defaults may save you a few headaches if you set the wrong drive mode accidentally.

I'm noticing a significant difference when comparing color reproduction of the same scene on the LCD screen of my new EOS-1D Mark III versus my EOS 5D. What's going on?

There are many different aspects to consider when comparing the LCD displays of the EOS-1D Mark III to other EOS bodies, especially the 5D. First of all, there have been two versions of the 5D LCD. Early production models have a different backlight than current production models. The newer version is warmer than the older one, but that's not why it was changed. The main reason was to increase the brightness level to make the screen easier to see in daylight conditions. If you compare an early production 5D to a current production model, the current one is a full two steps brighter. At the same time, the newer version is warmer, as previously mentioned. Once you get used to either one, it's difficult to feel comfortable with the other.

The 3-inch LCD for the EOS-1D Mark III is even brighter than the current version of the 5D. It uses the same kind of backlight illumination, so the color balance is similar, but there are more LEDs so the display is brighter, at least when both screens are set to their defaults. Under these circumstances, any fair comparison of the screens for 5D vs. 1D Mark III has to take into account which version of the 5D you're comparing. If it's an early production model, it's going to look cooler overall, tending towards greenish if you compare the same image on both. If it's a current production model, it's going to be similar to the 1D Mark III, but smaller of course. But that's just the tip of the iceberg. Zeroing in on differences when photographing under tungsten illumination, there are at least three more issues to confront:

1. Picture Style: Whether you shoot RAW or JPEG, the overall color balance shown on the LCD display is going to be affected to a noticeable degree by your choice of Picture Style setting on the camera's menu. If you use the default Standard setting, you're going to find that the colors in the display tend to be well saturated, perhaps too well saturated for some photographers' tastes. Of course it's possible to override all color balance settings in post-processing with RAW images, but when it comes to judging color on the camera's LCD display, this is something you need to be aware of. If you haven't tried it yet, I would encourage you to compare the Neutral Picture Style to Standard when you're shooting under tungsten illumination. Keep in mind that you can freely adjust Sharpening, Contrast, Saturation and Color Tone in any Picture Style.

2. Light Source Color Temperature: Photographers tend to talk about tungsten illumination as if it were fairly standardized, but obviously it is not. Significant variations can be caused by a number of factors, including the voltage of the lamps and the coloration of lamp shades, among other things. Resulting color temperatures can often range from 3600K or 3800K down to less than 2000K, with huge differences in color balance as a result.

3. Camera's White Balance Setting: Several photographers have commented that the EOS system's handling of AWB under tungsten illumination is less than adequate, and of course everyone is entitled to an opinion. However, it should be pointed out that, as listed in the instruction manuals, Canon's AWB does not adjust to WB settings under 3000K. If the light source is less than 3000K, what do you get? Warm photos, what a surprise! (Not). Setting the WB to Tungsten can be helpful, but you'll get even more control by using the manual color temperature setting (the K setting) or custom white balance. The EOS-1D Mark III has an edge over the 5D here, because (a) it can be manually set to 2500K instead of just 2800K, and (b) it can register up to 5 CWB readings instead of just one.

To summarize, if you want to make a suggestion that EOS AWB should extend its correction range to less than 3000K, that's perfectly understandable, and I'll gladly pass it along to our R&D folks. Similarly, if you feel that the 1D Mark III's LCD display is too warm in color balance for your taste, that's another opinion that I am happy to relay. But for those of you who want to make the best of what you've got, please consider the suggestions I've made concerning choice of Picture Style and White Balance settings. If you try them out, you *will* see a difference, and it may make the LCD screens easier to use when evaluating color on location.

From time to time, I see an "ERR 99" on the LCD data panel of my EOS Digital SLR. What does it mean?

ERR 99 appears to the user as a non-specific error code which can be caused by a wide range of malfunctions. However, Canon's Factory Service Centers have access to various diagnostic tools that allow them to determine the precise cause of an ERR 99 when it occurs. This makes it relatively easy for them to diagnose problems such as a malfunctioning camera component, but it's not a complete panacea because a variety of problems can be caused by the use of non-Canon accessories such as lenses, memory cards, battery packs, electronic flash units, etc. In cases like these, it is entirely possible that the Service Department won't be able to reproduce the ERR 99 when the accessory that caused it is not present while the equipment is being examined.

ERR 99s are not unique to any specific EOS model. Unless you are a service technician trained to service EOS Digital SLRs, it makes no sense to jump to any conclusions about the cause of an ERR 99 with these cameras. Experiencing error codes is a frustrating experience for any EOS user, but when the objective is getting the problems properly diagnosed and repaired, it is usually best to let the Factory Service Centers do their job.

I own two Speedlite 580EX units and a Speedlite Transmitter ST-E2. Shooting the two flashes indoors never seems to be an issue with the ST-E2 but take it outdoors and communication becomes very inconsistent

even when staying within the distance limits as described in the manuals. For example, I shot some team photos last night. The 580s were on light stands 10 feet to the left and right with sensors pointed directly at me. The ST-E2 was on top of my 1D Mark II N --- sometimes both flashes would pop, other times, only one and occasionally neither. Everything set to E-TTL on channel A. Should I be using a radio trigger for outdoor shooting? It seems like the only way to get both units to fire with any consistency.

If you want to get the most out of Canon's E-TTL wireless autoflash system when shooting outdoors, I would suggest using Speedlite 580EX or 580EX II as the master unit on the camera instead of Speedlite Transmitter ST-E2. This configuration will provide greater range and consistency in an outdoor set-up. Radio slaves also provide reliable communication, but they don't support E-TTL or E-TTL II.

You kindly answered a color management question for me earlier this year. I now have another. I recently purchased a Canon PIXMA Pro9500 printer. I use Canon DPP software as my RAW converter together with the Easy Photo Print Pro plug in. When opening Easy Photo Print Pro, is the image displayed for print a 'soft proof' that is an accurate representation of how the colors will print? I could not find any documentation that says yes or no to the above.

Did you get a chance to review the online tutorial for Easy Photo Print Pro? It can be downloaded here:

[EPPProGuide_v1.3Einch.pdf](#)

There is a lot of useful information in this document. One of the important parts is that if you choose to print directly from DPP software using EPP Pro, the image data can be used "as is" from DPP. Therefore, if you set up color management properly in DPP, you can expect it to be supported in EPP Pro. Color management is fairly straightforward in DPP. You can set the Preferences to use your own custom monitor profile and working color space, and you can also select a printer profile, a CMYK simulation mode, and a rendering intent. Proper adjustment of these settings will allow you to use your calibrated monitor for soft-proofing within DPP. The main tasks that need to be accomplished in EPP Pro are setting the correct paper size, printing layout, and paper in use. Let me know if this answers your question.

I currently own the EOS-1D Mark II and I am strongly looking at getting the EOS-1D Mark III body, which is almost my dream camera. There is ONE feature that so far NONE of the xD xxD or xxxD series of cameras have that my old EOS-1N RS had, which is the Pellicle Mirror. Is there a "D" series camera with that feature anywhere in the future? I know the EOS-1D Mark III is fast enough not to need one, but I'd prefer a camera that didn't sound

like a machine gun while shooting fairly quiet dance routines. Also, I'm sure that not having a moving mirror would save some battery power, possibly save a few grams of weight, and make the camera slightly less complex. Some people might say that a mirror will lose about 2/3rds of a stop, but I would assume that the electronics can adjust for that difference.

When answering this same question about a year and a half ago in an earlier edition of *Tech Tips* (February 2006), I commented as follows:

"Pellicle mirror versions of any EOS Digital SLR are technically possible, but customer demand for them has not been overwhelming so far. I'm sure that Canon Inc. would consider them more seriously if more photographers started requesting them."

I haven't seen much evidence of increased customer demand for an EOS Digital SLR with a pellicle mirror since then, but recent models like the EOS-1D Mark III and the EOS 40D have come up with something called Live View mode that may be even better for some applications. Like a pellicle mirror camera, Live View mode does not use a moving mirror during its operation. This makes the camera quieter during burst mode shooting. However, unlike a pellicle mirror camera, there is no light loss in Live View mode. This provides potentially better image quality by eliminating the need for exposure compensation. Pellicle mirror cameras still have some advantages compared to Live View mode, such as the ability to see the subject during the exposure and the ability to use the camera's AF system. Therefore, it wouldn't make sense to rule out the possibility that Canon or some other manufacturer may eventually offer one. But I would suspect that we're likely to see further development of Live View mode to address its current shortcomings, which may eliminate the need for a pellicle mirror camera. Please note, this is strictly my personal opinion.

I've stumbled upon a technical question I think you may be able to help me with. A friend who is selling a used Canon DSLR claims that using slower shutter speeds (below 1/100) increases the shutter's longevity, or at least claims that using high shutter speeds decreases the shutter's durability. I disagreed and argued that the number of shutter actuations is the same and that the shutter speed used is irrelevant. Could you settle this argument for us and let me know if shutter longevity is affected by the shutter speeds used?

With a focal plane shutter camera, shutter life is not affected by the shutter speed in use. This is because the travel times for the first and second shutter curtains are always exactly the same at every shutter speed, thus there is no difference in stress on the shutter mechanism simply by changing the shutter speed. However, shutter life can be affected to some degree by the framing rate, in other words, the number of frames per second. Every time the shutter is cocked, a mechanical spring must be wound, and this moving part is subject to

deterioration over time through normal wear and tear. Generally speaking, shutters in modern SLR cameras will last longest if the camera is set for single frame advance rather than motor-driven continuous sequences.

Chuck, I really enjoy your *Tech Tips* column (and I'm not even a Canon shooter). Last month's question about low-light focus made me wonder whether sonar focus (which I think Polaroid used at one time) might be a better choice for "cave" photographers. If you could focus by sonar you could also set the flash by the distance information and require no pre-flash, thus making fast and accurate flash shooting in conditions that are iffy with today's equipment. Sonar ranging apparently works well. What is the possibility of marrying it into a future version of some pro-rank camera?

As you point out, sonar focusing has some advantages over the phase detection AF systems used in most current SLR cameras. I'm sure the technology could be adopted for SLRs, but there would be several obstacles to overcome. These would include limiting the measurement area, while at the same time being able to deal with distant subjects or even near ones that don't reflect sound energy very well if at all. I am in favor of any technology that advances the state of the art in autofocusing, but I'm not sure if sonar meets that challenge.

It seems clear that Canon EF-S lenses have been made for small sensor cameras like the EOS 30D to get the best pictures out of them... but is that really true? To make my point clear, if I have a 30D, will I get better image quality with an EF-S lens (like the EF-S17-85 f/4-5.6 IS) or with an L-series lens like the EF24-105 f/4L IS? If I'm better off with an L-series lens could you explain why?

In many cases, Canon tries to offer users a choice of "good, better, or best" in SLR lenses, especially at the most popular focal lengths. When it comes to standard zoom lenses for EOS Digital SLRs with APS-C sensors, such as the Digital Rebel series as well as the 20D, 30D, and 40D, there are 3 Canon lenses that fit this description:

EF-S 18-55mm f/3.5-5.6 II (Good)
EF-S 17-85mm f/4-5.6 IS USM (Better)
EF-S 17-55mm f/2.8 IS USM (Best)

As you might expect, not only are there differences in specifications like focal length range and maximum aperture, but there are also differences in terms of image quality and price. Concentrating on price for the moment, the EF-S 18-55mm lens is bundled with certain EOS DSLRs at a retail of \$100 more than the body only price. The EF-S 17-85mm lens retails for about \$499 at many popular retailers, while the EF-S 17-55mm lens retails for about \$999 at the same locations.

With a retail price that's twice as much as the EF-S 17-85mm lens, it's easy to understand that the EF-S 17-55mm lens is not only faster but sharper. However, the EF-S 17-85mm lens is no slouch in terms of image quality. If you want to get an appreciation for the differences between the two lenses, I would suggest that you check out the test reports at SLRGEAR.COM:

<http://www.slrgear.com/reviews/showproduct.php/product/353/cat/11>

<http://www.slrgear.com/reviews/showproduct.php/product/136/cat/11>

These are good tests in the respect that they analyze not only sharpness but also chromatic aberration, vignetting, and distortion. They also show how image quality changes as focal lengths and apertures are varied, which can be very instructive when it comes to picking the right settings for optimum sharpness.

Another good Web site for lens tests is at The Digital Picture.com:

<http://www.the-digital-picture.com/Reviews/Canon-EF-S-17-55mm-f-2.8-IS-USM-Lens-Review.aspx>

<http://www.the-digital-picture.com/Reviews/Canon-EF-S-17-85mm-f-4-5.6-IS-USM-Lens-Review.aspx>

You'll find a different take on both lenses here, with the added attraction of sample images and a very useful "ISO 12233" feature that lets you compare the sharpness of both lenses based on resolution charts. Once again, the 17-55mm lens is the best, but the 17-85mm lens puts in a decent performance. And if you don't mind stopping down to f/8, even the 18-55mm lens is pretty good.

My overall observation on these three lenses is that you get what you pay for. The EF-S 17-85mm lens is well worth its price, but you can buy better lenses if you don't mind spending more money.

The EF 24-105mm f/4L IS USM, being an "L" lens, falls into the same "best" category as the EF-S 17-55mm f/2.8 IS USM, with the main differences being a different focal length range and full-frame coverage. So, it's reasonable to say the EF 24-105 L IS is a better lens than the EF 17-85mm IS, but a more apt comparison lens for the EF 24-105L IS would be the EF-S 17-55mm f/2.8 IS USM. In this comparison, image quality and cost are quite similar between the two lenses. If you're an EOS 20D, 30D, 40D or Digital Rebel user, choosing between the two becomes a matter of personal preference in terms of focal length range and maximum aperture.

What link can I use to sign up for your *Tech Tips* newsletter?

There are a couple of ways to subscribe to *Tech Tips* via this Web site:

You can use RSS with a Web-based news reader program. For more information, check out this page:

<http://feeds.feedburner.com/TheDigitalJournalist>.

Alternatively, you can sign up for TDJ publisher Dirck Halstead's mailing list, which is sent via e-mail each month when *The Digital Journalist Web* site is updated. To sign up for this service, please register here:

<http://www.greenspun.com/spam/home.tcl?domain=dirckhalstead>.

I hope you can answer a question because I haven't been able to get a definitive response elsewhere. I recently purchased an external power pack for my 580EX flash -- namely, the Lumedyne TinyCyclor. Would I still need to install four working AA batteries in the 580EX?

As you may know, there is a custom function on Speedlite 580EX that allows recycling from an external battery pack only. However, even when this C.Fn is activated, it is still necessary to use four AA batteries in the flash itself to operate the LCD display and the zoom head.

I'd like to suggest custom modes for Canon DSLRs. Sports, portrait, landscape, etc., are useful for beginners but it would be nice if we could set (maybe via software?) these modes for our preferences. For example, I could set the sports mode to say 1/500, ISO 400. Could Canon address this with a firmware or software update?

You may be interested to learn that Canon has already taken a step in that direction. With the EOS 5D, you can register a number of camera settings including ISO, drive mode, metering pattern, white balance, etc. according to personal preferences. Then, while shooting in your regular exposure mode, Manual for example, you can quickly switch to your registered settings by selecting "C" on the camera's exposure mode dial. EOS-1D-class cameras do not have a "C" mode, but they have various Personal Functions that can be helpful. On a Mark II body, for instance, you can use Personal Function 6 to register some basic camera settings (shooting mode, metering mode, shutter speed, aperture or exposure compensation) ahead of time, and then switch back and forth between your current settings and your registered settings by pressing and releasing your thumb off the camera's Assist button. With the EOS-1D Mark III, this same feature works with the AE lock button when Custom Function I-14 is activated.

I own (among other Canon flashes) a Speedlite 580EX, and am thinking of buying another one or the new Speedlite 580EX II. I have some compatibility questions; which of these two flashes can be used with which ones of the following?:

- SB-E1 and SB-E2 Brackets
- CP-E3 and CP-E4 Battery Packs
- CPM-E3 and CPM-E4 Battery Holders
- OSCS2 and OC-E3 Off-Camera Shoe Cords

I am hoping they are freely combinable, but in the worst case, only the TTL cables are (which means I must stick with only one kind of flash) – please clarify!

The SB-E1 and SB-E2 brackets are fully compatible with both the 580EX and 580EX II Speedlites. The same is true for Compact Battery Packs CP-E3 and CP-E4 and the Off-Camera Shoe Cords. However, the battery magazines for CP-E3 and CP-E4 are only compatible with their respective battery packs. This is because the gaskets on the CP-E4 and its battery magazine have a different shape than the corresponding parts of the CP-E3.

I recently noticed that there is no dedicated WIA driver for the EOS-1D Mark III on the EOS Digital Solution Disk CD supplied with the camera, and there is no WIA driver for the 1D Mark III on the Canon's Web site. Could you please advise where I can download the WIA Driver for the 1D Mark III for use in Windows XP Pro?

Canon does not plan to release a proprietary WIA driver for the EOS-1D Mark III camera. It is unnecessary for the following reason:

"When an EOS-1D Mark III, EOS 30D or EOS Digital Rebel XTi is connected to a PC with Windows XP or Windows Vista installed, the standard OS functions are used so there is no separate driver."

Translation: Microsoft's OS-level WIA driver can recognize the 1D Mark III once the PTP TWAIN driver supplied with EOS Solutions Disk 14 is installed.

Canon has now posted PTP TWAIN Driver 1.4 for current EOS Digital SLRs including the 1D Mark III to their Web Self-Service System, which is normally accessed from the Drivers/Software link on this page:

<http://www.usa.canon.com/consumer...>

My work deals with low-light shooting a lot, like wedding banquets in rooms that are as dark as a cave. Sharp (correctly auto focused) images are very important because my prints are mostly 8" x 10." My EF24-70mm, f/2.8L autofocuses a bit slowly in extremely low light. When focusing a subject about 25 feet @ 70mm, it doesn't hunt, but it takes a while for the focus point (a non-cross type) to focus. To improve autofocusing performance in low light, I have been considering getting either a f1.2/85mm or f1.8/85mm and/or a f1.4/35mm or f2/35mm. However, I am concerned that in extremely low light the EOS-1D Mark II will be slow to

autofocus even with an f/1.2 lens because the subject matter has very low contrast. I think the f/1.8 lens would have higher contrast which leads to better autofocus. I am also concerned that the f1.2/85mm or f1.4/35mm will autofocus slower than the f/1.8 and f/2 alternatives. Could you tell me which lenses will autofocus faster and more accurately between lenses have a larger f-stop vs. lower f-stop, please?

When it comes to AF speed in low light, the first issue is whether the camera can autofocus at all without a focusing aid such as an AF Assist beam. If it can, then differences in AF speed (without the AF Assist beam) are going to be affected primarily by differences in lens design. Generally speaking, lenses with a rear-focus optical design, such as the EF85mm f/1.8 USM, are going to autofocus faster than lenses that move their entire optical formula, such as the EF85mm f/1.2L II USM. In that particular comparison, the difference in maximum aperture is irrelevant. In the case of EF35mm f/1.4L USM vs. EF 35mm f/2, both lenses have similar AF speed despite differences in focusing systems, so there's no particular advantage to one lens or the other in the specific area of low-light autofocus performance,

If the light levels are such that all of these lenses can autofocus, then the clear advantage of the faster lenses will be the ability to use faster shutter speeds when shooting without flash. On the other hand, if light levels are so low that AF is difficult or impossible without a focusing aid, my recommendation would be to use a good flash such as Speedlite 580EX II and then pick the lenses you're most comfortable with. The AF Assist beam will minimize any differences in AF speed, especially when you're working with stationary subjects, and it will ensure that you can achieve sharp focus no matter what kind of lighting conditions you encounter.

An important concept to understand about the Speedlite's AF Assist beam is that the camera has to fire it at least twice before it allows the shutter to be released. The first time the AF Assist beam fires, the subject is typically out of focus. After that, the camera reads the focusing data and drives the lens to the calculated distance setting. Then the AF Assist beam fires a second time, to see if the subject is now in focus. If it is, then the shutter will fire. If it is not, the whole process is repeated. It works reasonably well with stationary subjects, but not so well with moving subjects since the subject distance may change between the first and second readings.

Bottom line, what you're really dealing with is the fact that the camera's AF system tends to be faster in low light without an AF Assist, as long as there's enough light for it to autofocus at all. But when there isn't enough light, the Speedlite's AF Assist beam is your only alternative, and slow AF becomes better than no AF. Hope this helps!

NOTE: Canon has recently posted some new firmware for the EOS-1D Mark III, but the situation concerning this camera's autofocus performance is still evolving as of this writing. In light of the many inquiries that have been received, Canon has decided to produce a new edition of the pamphlet entitled, "Getting the Most Out of Your EOS-1D Class Digital SLR," with detailed information on the EOS-1D Mark III. Watch this space for more information as it becomes available.

First, thank you for all the excellent information you provide. It is great to have a one-to-one about tech questions. Now my question: I replaced the focusing screen in my EOS 5D with the "Ee crop lines focusing screen set." This screen is not listed in the manual. Do I need to make any changes to C.Fn-00? Does changing the screen affect the auto focus?

Using the optional focusing screen with crop lines (as opposed to cropping mask) does not require any change to C.Fn 00 on your 5D, and neither AF nor AE will be affected. If you use one of the screens with the cropping mask, your AF will still be good but you will need to restrict yourself to Spot metering for accurate auto exposure.

I have questions about how quickly Image Stabilization (IS) kicks in:

1: If I'm shooting street photos rapidly and I autofocus with the shutter button (half-pressing then shooting very quickly) am I losing the IS (does it take a half second or so to kick in? And does the camera fire before it has kicked in?)

2: What if I focus with the thumb exposure button: once the focus has been set with that, does IS remain functional until I shoot?

3: What about in manual focus: when does IS activate then? Or does it?

4: What's the best way to street shoot and have IS working, assuming some of the shots are going to require quick shooting? (I'm aware that IS is less necessary at 35mm or less, corrected for crop factor, but I'd still like it there, as I'm more likely not to hold the camera steadily under such circumstances.)

When using Canon EF or EF-S lenses equipped with an Image Stabilizer function, it does in fact take about half a second after it has been activated for the function to become fully effective. Therefore, if you want to take full advantage of this feature, it may be necessary to modify your shooting technique to allow enough time for the system to work. With EOS Digital SLRs, Image Stabilization works in both autofocus and manual focus, so you're free to choose any focusing method you prefer. If you set up your Custom Functions with an EOS Digital SLR so that AF is operated with the AE lock button on the back of the camera, you can activate IS with either the AE lock button or the shutter release, and the choice between the two becomes a matter of personal taste. If you need to shoot

so spontaneously that there's not enough time for IS to become fully effective, you may want to consider helping yourself out by using faster shutter speeds or flash to minimize or eliminate motion blur. This may involve using higher ISO speed settings than you're used to, but with the excellent low-noise characteristics of current EOS DSLRs, that's not much of a concern any more.

I own a Canon EOS 10D and am shooting weddings with the 550EX flash, CP-E3 battery pack, and an EF24-70mm f/2.8L lens. I come from over 20 years of shooting weddings with MF and manual flash. I shoot with the camera on manual, typically ISO 400, and typically at f/5.6 with an Omnibounce. I can't seem to get consistent exposures even though I am not focus-locking and recomposing. Short of moving to a new camera, is there anything I can do to achieve greater consistency?

The EOS 10D, which was replaced in 2004 by the EOS 20D and subsequently in 2006 by the EOS 30D, used the original version of E-TTL, which has a flash metering pattern that is very sensitive to variations in the reflectance of subject matter. Because of this sensitivity, wedding photography can be difficult with this camera unless you essentially "trick" the flash metering system into an averaged flashmeter reading that looks at the entire picture area rather than the small zone around the active focusing point. There are two ways to do this when using Canon Speedlites with an EOS 10D:

- 1) Set the focus mode switch on the lens to manual. This setting forces the flash metering to be averaged across the entire picture area.
- 2) Leave the focus mode switch on the lens set to AF, but use Custom Function 4-1 on the 10D *and* refrain from autofocus during the exposure. C.Fn 4-1 initiates AF from the AE lock button on the back of the camera, but it averages the flash metering pattern whenever the AE lock button is not being pressed. Using this approach, you would autofocus the subject first by pressing the AE lock button with your thumb, and then make sure to lift your thumb off the AE lock button before taking the picture.

Either of these techniques should improve the consistency of your flash exposures during wedding photography with the EOS 10D and a compatible Canon Speedlite, but if you're looking for something better than that, I would recommend upgrading to a current EOS model with E-TTL II.

I have an EOS 30D and a Speedlite 580EX. I was thinking about buying a Speedlite Transmitter ST-E2 and also a Speedlite 430EX so I can use both flashes off-camera. Will it work? Will it work on TTL? Or do I have to buy another 580EX so I can work with both flashes off-camera in TTL mode?

Speedlite Transmitter ST-E2 can control any number of off-camera 430EX, 550EX, 580EX or 580EX II Speedlites in E-TTL/E-TTL II or Manual flash

exposure mode as long as they are set to slave mode and they are in range. The 550EX, 580EX and 580EX II can also be used as master units to fire off-camera 430EX, 550EX, 580EX and 580EX II Speedlites set to slave mode.

I've just bought an ST-E2 and I can't make my Speedlite 580EX fire in manual mode when it's not on camera. When I try to change the mode in the strobe head to manual flash it just doesn't change. I didn't find any reference in the instructions about using a flash in manual mode off camera with the ST-E2. How can I do it?

In this case, switching to manual flash exposure mode is done on the Speedlite when it is set to Slave mode, by holding the Mode button down for several seconds.

I just purchased an EOS-1D Mark III and thoroughly enjoy just about every aspect of it. I upgraded from the 20D so you can understand it was a large upgrade. My question to you is, I am having problems with AI Servo tracking of birds in flight. Correct me if I am wrong, but my understanding is that once you lock into the bird with the center focus spot the tracking should follow the bird even when it goes outside that area. My camera seems to lose the focus the moment the bird leaves that center spot. My question then is, assuming this is a problem, how can I address it? I did notice that on the forums that some people have different firmware versions. Will I need to send my camera to Canon Repair (not my 1st choice) or will there be a firmware upgrade to address this? Or perhaps there is some kind of custom function I need to adjust. Any help in regards to this will be greatly appreciated.

If you have selected the center focusing point manually and all other settings are at their defaults, then the center focusing point is the only one that's active. If you want the camera to track the bird using all 45 focusing points, then you must set the camera for automatic focusing point selection. When AI Servo AF is combined with automatic focusing point selection, focus tracking starts from the center point, as mentioned on page 83 of the EOS-1D Mark III owner's manual.

"When the AF point selection is automatic (p. 84), the camera first uses the center AF point to focus. During autofocus, if the subject moves away from the center AF point, focus tracking continues as long as the subject is covered by the Area AF."

Page 84 shows how to set the camera for automatic focusing point selection. Hope this helps! By the way, I'll have more on EOS-1D Mark III autofocus in the next edition of *Tech Tips*.

Thank you very much for taking the time for responding to my question concerning the 420EX flash not firing on my 1D Mark II in your June *Tech*

Tips. Your insights are greatly appreciated. I wanted to follow up to clarify the nature of the issue. As mentioned, my 420EX -- very rarely, without apparent reason, but sometimes as many as 10 times in a row -- fails to fire on my 1D Mark II in single shot mode, even with high ISO settings and large apertures, where flash output should be very minimal. In these instances, all indications are that the flash is ready and more than amply charged for the light called for by the metering. Likewise, the green indicator light illuminates after the shot, incorrectly suggesting that the flash did fire. The Exif data even shows that the flash fired, although the shot is underexposed as if the flash did not fire at all. I attempted to reproduce the problem by using the 420EX on a 20D body, and by using a different flash, but of course, when you want the problem to repeat so that you can analyze it, it won't! Likewise, even the 420EX / 1D II combo will go thousands of shots without exhibiting the problem at all. It seems to be a truly mysterious phenomenon. Any further insights you have now or in the future would of course be appreciated. Likewise, if I ever figure it out, I will plan to drop you a line to give the story an ending. Thanks again.

Thanks for clarifying the problem. It may very well be that the combination of lighting conditions and camera settings you've selected in terms of ISO, aperture value, flash-to-subject distance is such that the 420EX cannot provide a proper exposure. One way you could troubleshoot the issue would be to run through a series of test exposures at various apertures, starting with a relatively small one like f/8 and then progressively working your way towards the maximum aperture of your lens. This would enable you to determine when you're getting close to the limit of what the 420EX can handle in terms of accurate exposure with minimum output. If it turns out that you need more control, you may want to consider using a bounce card or diffuser to force the Speedlite to produce a longer burst than it ordinarily would in a direct flash situation.

Can you provide any info on write speeds for the EOS-1D Mark III with Compact Flash cards? I am using Sandisk Extreme IIIs now (have used previous generations for years and never had one problem). I am wondering what speeds the Mark III can write at to determine whether the Sandisk Extreme IIIs are sufficient or whether I should go for the Extreme IVs.

It's tough to provide definitive information at this stage. On one hand, Canon Inc. does not publish specifications for card writing speeds. On the other hand, mass production samples of the EOS-1D Mark III have just started to hit the market, so up to now, independent reviewers like Rob Galbraith have been forced to rely on tests conducted with pre-production samples of the camera that may not be 100 percent the same as mass-production pieces in terms of performance. Nevertheless, the results of Rob's testing with a pre-production sample of the 1D Mark III are promising. Here's what he said in a recent Web article:

"The EOS-1D Mark III has about all the options one could imagine for storing pictures on memory cards, and it does so faster than any previous Canon digital SLR too. CompactFlash write speed is approaching 11MB/second with the fastest cards in our testing, and well over 14MB/second with SD. The camera doesn't support UDMA, so it doesn't take full advantage of the speed possible from cards like SanDisk's Extreme IV and Lexar's 300X. Nevertheless, it is the fastest writing Canon (or Nikon) digital SLR we've tested."

I would suggest that you keep checking Rob's CF/SD Performance Database for updates once he gets a chance to measure the performance of an EOS-1D Mark III mass-production sample camera.

<http://www.robgalbraith.com...>

A question about dust on the sensor. I'm fastidious about keeping the interior of my 1D Mk2 cameras as clean and dust-free as humanly possible. I regularly - and carefully - clean the sensor using a squeeze-type air bulb. I probably do 90 percent of my shooting at wide-open aperture (f/2.8 or f/4) and never see dust spots on the image. But on the occasions when I go to f/16, f/22 or farther, dust shows up markedly, in places I thought I cleaned well. Can you explain this? I guess a trip up the N.J. Turnpike to Jamesburg is in my plans this week! Thanks for your input.

Due to the design of EOS Digital SLRs as well as digital SLRs from most other manufacturers, dust particles usually end up on a low-pass filter that's positioned a couple of millimeters in front of the actual image sensor surface. When pictures are taken at fairly large apertures like f/2.8 or f/4, the depth of focus at the camera's focal plane is so shallow that the dust particles don't show up in recorded images. However, just like depth of field at the subject plane, depth of focus at the focal plane expands progressively as the lens is stopped down. As a result, dust particles on the low-pass filter begin to show up in images that are recorded at smaller apertures like f/16 or f/22. They're usually not in sharp focus, but the smaller the aperture, the more distinct they become. Getting rid of dust spots in digital images can be a tedious process, but that's a story for another day.

I have an EOS 20D, and when the ISO is jacked up higher than 100, a white, almost glowing speck appears in the same spot on the image. Also, I guess it's important to tell you that you can only see the spot when the image is expanded or you zoom in on its location. Again, this only happens when the ISO is above 100. Please get back to me and tell me what you think.

Based on your description, it sounds like your EOS 20D has developed what's called a "hot pixel." In other words, one of the photodiodes on the image sensor has become defective and as a result, shows up as a bright spot in your images. Like you said, it becomes more noticeable at higher magnifications and higher

ISO speed settings. This is a fairly common occurrence, and nothing to worry about, but it can be annoying. If you send your camera to one of our Factory Service Centers, they can repair any hot pixels on your sensor, using a procedure called "pixel mapping." If you want to take advantage of this service, I would suggest calling ahead to determine costs and turnaround time. Here is the contact information for Canon Factory Service in the USA:

Canon Factory Service
Jamesburg, N.J.
(732) 521-7007

Canon Factory Service
Irvine, Calif.
(949) 753-4000

I heard that intermediate ISO setting gives lower image quality than full ISO setting. An example for Canon 5D, ISO 640 would result in higher noise than ISO 800 in a similar lighting and correct exposure conditions, even though ISO 640 requires more exposure. Is this true? If so, why?

I've seen discussions of this topic on various Web sites, complete with graphs and charts that claim to prove the theory that images taken at intermediate ISO settings with various EOS Digital SLRs have more noise and/or less dynamic range than images taken with the same cameras at full-step ISO speed settings. However, to the best of my knowledge, none of these Web discussions have provided actual pictorial images that prove the claims. In my experience, there is no perceptible loss of quality in actual images shot with the EOS 5D or any other EOS DSLR that provides intermediate ISO speed settings. Canon's official statement on this subject is simply that the image quality of all EOS Digital SLRs conforms with Canon's internal quality standards at all available ISO speed settings. In the case of the EOS 5D in particular, image quality is exceptionally high at ISO 3200, and even higher at lower ISO speed settings.

My 420EX flash sometimes fails to fire as many as 10 times in a row on my 1D Mark II body, despite the ready lamp on the flash being lit, and the ready indicator showing in the viewfinder. I have tried to tighten any loose connections, but there don't really seem to be any. The screws in the hot shoe are tight and there is no noticeable play between the flash and the camera. The flash may then go hundreds or even thousands of shots without failing to fire once. No clear patterns seem to have emerged, although I have found that the problem sometimes comes during / after shooting with the flash in AI SERVO (as opposed to one-shot) focus mode. Do you have any thoughts on whether the problem lies in the flash or the camera and what the solution might be?

Because of its limitations (auto exposure only, no support for external power supplies), the recycling speed of Speedlite 420EX depends greatly on the condition of the batteries you're using and the level of flash power that the camera's metering system is calling for. If you want to fire the flash continuously during an 8 fps motor drive sequence with your EOS-1D Mark II, it is entirely possible that the 420EX will not fire until the batteries have had enough time to recycle the flash sufficiently. You can maximize performance by using non-rechargeable lithium AA batteries, shooting at relatively high ISO speed settings, using relatively large apertures, and keeping fairly close to the subject. However, in order to achieve significantly better performance, you'll need to upgrade to a more powerful flash unit that can accept an external power supply, such as Speedlite 580EX II. No matter what kind of Canon Speedlite you use, please observe the warning printed on the first page of the instruction book to prevent degradation of the flash head due to overheating.

I own two 550EXs that I want to use in a master-slave wireless configuration. I need the flashes to fire in manual mode, that is, the same amount of output power each frame according to settings I program. I'm avoiding E-TTL flash for maximum control and repeatability. I hope you can shed some light (no pun intended!) on how the master's ratio settings function when both the master and slave flashes are set to manual ("M") mode. The 550EX allows me to set an "A group" ratio and a "B group" ratio, separately from one another. What exactly is this ratio referring to, i.e., the ratio of *what* to *what*? I tried influencing the flash output of the slave unit by playing with the master's ratio settings to no avail. I am using a Sekonic L-358 flash meter to measure the flash output. A fair amount has been written about wireless E-TTL flash, but I have found nothing on the subject of wireless manual flash. The 550EX user manual is silent on the subject. I am sure you are inundated with questions from Canon users, but I hope you can find time to answer this particular question of mine.

My copy of the instructions for Speedlite 550EX outlines the procedure for "Wireless Manual Flash with Varied Output," starting on page 72. You'll need to read the whole chapter for complete details, but the gist of it is that you set the master unit to Manual flash mode (M), and then use the ratio settings to control the output of the master unit and the remote flashes. As I mentioned in last month's column, the master unit is considered part of Group A when it is set to fire during the exposure. Assuming you want the master unit to fire during the exposure, you have the option of choosing Group A, B or C for the remote flashes. If you select Group A for the remote flashes, they will fire at the same power setting as the master unit. If you select Group B or Group C for the remote flashes, you can control their power settings from the master unit. In a wireless manual flash set-up such as I've described here, the A:B ratio refers to the difference in power settings between the master unit and any remote flashes set up in Group B. Typically, Group A and B flashes are used for frontal illumination

of the subject, whereas Group C is intended to illuminate the background area behind the subject. Hope this helps!

I am having a Canon EOS 5D converted to an IR-only camera. If I wanted to use a Canon flash with this camera, does Canon make any kind of filtered hood to attach over a flash? Any third-party vendors with a solution?

Canon does not currently offer any filter holders for its shoe mount flash units, but you can cut and mount gel filters inside a third-party attachment such as the Sto-Fen OmniBounce. However, keep in mind that you really don't need any special filters on the flash for photography with a 5D converted to IR-only. The biggest issue you're likely to face is exposure control. E-TTL may be problematic, because with a converted 5D, the flash metering sensor isn't seeing the same thing as the image sensor. Experimentation is advisable, and in my opinion you'll probably be better off to set the flash to its manual exposure mode for greater consistency.

I have a question about my Canon EOS 30D. Can the Print Button be reprogrammed? I've seen references to changing button function outside the Custom Settings, but there seems to be nothing about the Print Button.

On the EOS 30D, the Print/Share button has two functions: Direct printing and direct downloading to compatible personal computers or storage devices. No other options are available, but both of these functions come in handy for various applications. The direct print function, for example, is extremely useful for event imaging, such as photos taken at youth sports events, at amusement parks, on cruise ships, etc. It's also useful for ID photos, insurance claim adjustments, medical applications, and more. The direct download function is simple to use and effective for many photographers who want a speedy workflow.

Just a brief note before I begin that this edition of *Tech Tips* marks the second anniversary of the column. A sincere thanks to our readers for your continued support and interest!

Maximum ISO settings always grow higher and higher: 800, 1600, 3200 and now 6400 (whow !) with Canon EOS-1D Mark III. As far as I understand it is done by amplifying the nominal signal provided by the sensor. But is there a technical reason why Canon DSLRs have a minimum in-camera ISO setting of 100? If not, could in-camera ISO settings like 12, 25, and 50 ISO be added as additional choices? In other words, is it possible to "downplifye" the sensor signal (using something like a virtual neutral density filter)? This feature would be very helpful to replace the use of various neutral density filters in order to obtain long exposure time in bright light situations and, if still possible, to increase noise performance.

There is a lot more to high ISO ratings on digital cameras than signal amplification alone, but the drive towards image quality improvement has led to some remarkable accomplishments recently. The EOS-1D Mark III is a good case in point, with greater maximum sensitivity and better tonal gradation than any previous Canon digital camera.

The same degree of sensitivity that makes it possible to achieve amazingly good image quality at high ISO ratings on EOS Digital SLRs makes it difficult if not impossible to maintain adequate levels of image quality with these cameras when ISO settings are reduced past a certain point. That's because, unlike traditional film emulsions, which can be made with smaller silver halide particles to reduce sensitivity, today's digital image sensors feature individual photodiodes whose size is fixed and therefore cannot be freely enlarged or reduced. Even if the size of an individual photodiode were somehow adjustable, smaller photodiodes would not necessarily be desirable because of issues with degraded signal to noise ratios. Under the circumstances, the use of ND filters on your lens is still the best available solution to achieve lower ISO speed settings on your digital SLR while maintaining maximum tonal range. By the way, it is technically possible to provide ISO settings lower than 100 with modern digital SLRs; in fact, Canon offers ISO 50 as an optional setting with all current EOS models above the Digital Rebel series. The extended dynamic range of current Canon CMOS sensors makes it possible to simulate ISO 50 by changing the processing of the sensor data, but exposure latitude in highlight areas of the image is less at this setting than at higher ISOs.

I have a Canon EOS 20D with two 580EX and one 430EX flashes. Parts of the wireless flash control system are confusing to me. If I use a 580EX as the master on camera, does it become part of one of the slave groups? I have read in a forum that it is part of slave group A, but don't remember seeing this in any Canon manual. Or another way of asking this question: If I have the 580EX on camera as the master, can I control the automatic flash exposure (E-TTL) to make it behave as a "fill" flash by adjusting its exposure compensation without affecting all the other (slave) flashes? Or, can I reduce the master's output (in E-TTL) along with just one of the slave groups? I know I can turn the master off, but can I simply reduce its output and maintain high output from the slaves in E-TTL mode?

Any time the master unit in an E-TTL wireless configuration is set up to fire during the exposure, it is considered to be part of Slave Group A. Adjusting the output of Group A versus Group B is done with the ratio settings on the back of the master unit, rather than adjusting flash exposure compensation. A photographer by the name of Chuck Gardner has posted an excellent Web tutorial showing the correct method of setting up a 2-flash E-TTL wireless system such that the master flash on camera fires during the exposure as a fill light and the off-camera flash is used as the main, or key light:

<http://super.nova.org/DPR/Canon/>

You should read the whole article, but be sure to scroll down to the diagram marked: *"My Recommended A:B Fill:Key Configuration"* to learn more about this particular set-up. Next, check your 580EX manual on page 36 to see how to set the master flash to fire during the exposure. Finally, review pages 38 and 39 to see how to use the controls on the master unit to adjust lighting ratios between Group A and Group B. (Ignore the part about setting the master unit not to fire during the exposure.) In this case, you would set ratios such as 1:2, 1:4 or 1:8 if you want the slave unit to put out more light than the master.

I've been using a wonderful, 25-year-old, 500 mm f/8 fixed aperture, Tamron mirror lens on my EOS-1Ds Mark II and 5D bodies for some amazing shots. The lens mates to the EOS mount via a Tamron to M42 adapter and then an M42 to EOS adapter. With the camera set to Aperture Priority and the aperture control set to f/1, the meter works perfectly. Of course, the viewfinder is a tad dark as the lens's largest (and only aperture) is f8, and focusing is sometimes challenging. But the lens, which I've had since around 1981, is a champ and is capable of remarkable images. My problem is this: When I add a 1.4 tele-converter to this rig, theoretically turning the lens into a 700 mm f/11 optic, the EOS cameras refuse to work properly. When I trip the shutter release, the shutter seems to open -- but it stays open for several seconds even in bright sunlight, and when it closes, no image has been captured! The CF card simply has no data for that shot. Even though the lens, the two adapters, and the camera function absolutely perfectly together when it's just a 500 mm optic, the addition of the 1.4 tele-converter seems to stop the camera from functioning correctly. I tried this with my Canon 1.4 TC and also with a Tamron SP TC -- neither worked. What's causing this failure? And is there any fix, such as perhaps taping over some of the contacts on the tele-converter -- and if so, which ones? Back in the Middle Ages, when I originally bought the lens, I sometimes used it with a 2x tele-converter on the Olympus OM series cameras I was shooting back then -- it worked great with a tripod -- and, if possible, I'd like to do something like that with this lens and the brilliant Canon digital cameras. I'd be grateful for any advice about this.

The phenomenon you are reporting is normal and to be expected. It arises from the fact that the extender you are using "expects" to see a lens with fully functional electronic coupling. When it does not, the camera is programmed to lock up, just as you've reported. You may notice that it does the same thing when you remove the mirror lens, leaving the extender mounted to the camera by itself.

There is more to the story. The reason your mirror lens is able to function properly when mounted directly to the camera is that its lens mount is slightly modified compared to a regular EF lens. Specifically, one of the claws on the bayonet is shorter than the corresponding part of a regular lens. There is a

mechanical switch on the camera's lens mount to inform the camera when a coupled lens has been mounted, thus causing the camera to send an ID request through the electronic contacts. When the mechanical switch is not engaged, as is the case with your mirror lens, the shutter releases normally. When it is engaged, as is the case with a regular lens or extender, the shutter locks up unless the camera determines that the lens or extender is responding correctly.

It sounds like a "catch-22" situation, but there is a workaround. You can fool the camera into releasing the shutter by pressing in the camera's lens mount release button and twisting the extender just enough to disengage the mechanical switch. This is not 100% secure, but in the case of mounting the lens on a tripod, assuming the lens has a tripod collar, you should be able to get away with it as long as the camera isn't bumped while the extender is unlocked.

I currently use Windows XP x64 and I would really like to try tethered shooting. This is currently not possible due to there being no drivers. Are there any plans for x64 drivers?

According to Canon Inc., there are no plans to offer XP-compatible x64 drivers for EOS Digital SLRs. However, tethered shooting via EOS Utility 2.0 is supported with 64-bit and 32-bit versions of Windows Vista for the following models:

EOS-1D Mark III
EOS 30D
EOS Digital Rebel XTi/400D

When these cameras are connected to a PC running any version of Windows Vista, no additional drivers need to be installed. Incidentally, 32-bit versions of Windows Vista also support tethered shooting with the following additional models:

EOS-1Ds Mark II
EOS-1D Mark II N
EOS-1D Mark II
EOS 5D
EOS 20D, 20Da
EOS Digital Rebel XT/350D

For these cameras, Canon supplies Vista-compatible drivers that must be installed along with EOS Utility 2.0 for tethered shooting with PCs running 32-bit versions of Windows Vista.

From the April '07 question/answer on AF adjustment settings:

"To delete the registered lens settings, select 1 or 2, then press the Erase button. All the registered AF micro-adjustment settings will be cleared."

Why the all-or-nothing (if I understand correctly)? Isn't it likely that a user will obtain a different example of a given lens, and wish to adjust for the new example without having to reset all the other individual settings?

The easiest way to handle the situation you describe is to overwrite an existing AF Microadjustment setting for an individual lens model. This method preserves registered microadjustments for other lens types. Let me know if this answers your question.

I cannot get my computers to communicate with my EOS-1D Mark II N. I have tried two different PC notebooks with Windows XP and Windows 2000 and with all the correct drivers (and programs) installed but still I am unable to get connected and talk with the camera or download images straight from camera to the notebooks. Any help?

There's not enough information here for me to provide a definitive solution, but based on your description, here are a few suggestions:

1. As a first step, be sure to use a genuine Canon interface cable. As I mentioned in an earlier *Tech Tips* column, some of the generic IEEE1394 cables and plug adapters on the market have proven to be unreliable for use with EOS Digital SLRs. If your notebook computer has a 4-pin plug (same as the camera's), you might have to purchase an optional Canon IFC-200D44 or IFC-450D44 4-to-4 pin cable. They're basically the same, except for length. The IFC-200D44 is 2 meters long, while the IFC-450D44 is 4.5 meters long.

2. For your Windows XP computer, make sure to install the correct WIA driver for the 1D Mark II N. Currently, we're recommending Version 5.8, which is available for download through our Web site here:

<http://www.usa.canon.com/consumer...>

2A. On Windows 2000, you'll need TWAIN driver 5.8 instead, which is available from the same Web site as mentioned above.

3. After installing the correct driver, connect your EOS-1D Mark II N with a compatible interface cable and check the LCD data panel to verify whether the camera is communicating with the computer. You should see the connection icon on the back of the camera in the lower right corner of the LCD data panel below the LCD color monitor.

If you don't see the connection icon, it might be necessary to have the computer checked out by a technician to determine if its IEEE1394 interface is working correctly.

I own a Canon Rebel XTi. I was wondering with the sensor cleaning mechanism at shutdown whether it is better to shut off the camera during short pauses when taking pictures or to let the camera go into 'sleep' mode.

As a matter of "best practice," it's a good idea to run the XTi's Self Cleaning Sensor Unit after changing a lens, but there is no need to shut the camera off during short pauses between shots. For most situations, I would recommend simply letting the camera go to sleep to conserve battery power if the interval between shots exceeds the default 1 minute Auto Power Off setting.

Your tips are always great here, on Digital Wedding Forum, and other sites. I was wondering if Canon has a statement on storing batteries in Compact Battery Pack CP-E3 when not in use. Do the batteries drain faster in the unit or is it the same as a normal drain of a NiMH battery in a holder?

Thanks for the kind words! I haven't seen any official statements from Canon that address your question, but in my experience it's always better to remove batteries from a device if it's not going to be used for several weeks. If that's not the issue for you (in other words, you're using your CP-E3 regularly), then I would say leave the batteries in the magazine during storage between assignments. I have not experienced any significant battery drain with the CP-E3, nor have I heard any claims about it from other photographers.

Is there a technical reason why Canon DSLRs have a maximum in-camera exposure duration setting of 30 seconds? If not, could in-camera exposure settings like 45, 60, and 90 seconds be added as additional choices? Alternatively, could the TC80-N3 be enhanced to allow for intervals of less than 1-second (i.e., zero seconds, 1/4 second, or 1/2 second)? This feature would be very helpful for the type of photography I do:
<http://www.cosmotions.com/index.htm>

There is no technical reason that prevents our camera designers from adding shutter speeds up to 90 seconds to an EOS SLR, but historically, the demand for this functionality has been very low. However, from your Web site I can see why this capability would be beneficial for astrophotography. I'll be happy to forward your request to our Product Development Center in the next monthly market feedback report.

I have always wondered about a certain aspect of the auto-white balance function on my Canon EOS 20D (or any camera for that matter): I often see people refer to a lens as being cool or warm. While I can understand that

the lens may introduce a slight color shift, does this have any practical significance with a digital camera? I would think that if you use a gray card to balance the light color, that this would also take out any color shift introduced by a lens, whether working in RAW or JPG (in custom WB). Is there any difference when using Auto White Balance?

A properly adjusted white balance setting essentially mitigates any possible color balance shift that might be induced by a lens on a digital camera. Theoretically, at least, the auto-white balance (AWB) setting on most current cameras has the capability of making such adjustments automatically. However, there are so many variables in terms of individual cameras and individual shooting conditions that it makes more sense to use a custom white balance setting for the conditions at hand, especially if there's enough time to register a CWB reading before taking your photos. AWB should be considered a convenience rather than a precise white balance adjustment method.

This comes up every time digital camera sensor cleaning is discussed: An assertion that the digital sensor carries (at least as long as the camera is switched on) an electrostatic charge that attracts dust. However, I've never seen that stated other than as word of mouth. I have seen some comments that the Digital Rebel XTi has a low-pass filter that has been somehow "treated" to be anti-static. What are the facts about electrostatic charges on sensors and the effect of attracting dust?

I cannot speak for other manufacturers' products, but EOS Digital SLRs with Canon CMOS image sensors do not carry electrostatic charges at any time. Also, when DSLR image sensors are discussed, it's important to remember that the surface of the sensor itself is never exposed to dust. Instead, a low-pass filter is permanently mounted in front of the sensor at a distance of a millimeter or so. The gap between the low-pass filter and the image sensor is hermetically sealed during the manufacturing and assembly process. Once that happens, additional dust particles are prevented from reaching the surface of the sensor. Loose dust particles will eventually end up on the front surface of the low-pass filter during normal use of the camera, such as changing lenses. For this reason, the low-pass filters used in EOS DSLRs are treated with an anti-static coating during the manufacturing process. This coating passively repels dust particles, but at no time is the filter electrically charged in the camera.

Of course, there are many different kinds of dust particles. Most are relatively dry, and small enough that they can be easily dislodged from the surface of a low-pass filter with ultrasonic vibration or a soft puff of air. But others are wet or sticky, and once this type of particle adheres to a low-pass filter, it usually cannot be removed by vibration or air movement. This is the reason why Canon developed the EOS Integrated Cleaning System, which applies Dust Delete Data recorded by the camera to remove residual dust spots in images during post-processing with Digital Photo Professional software in the photographer's

computer. It's also possible to clean the low-pass filter manually in order to remove sticky dust particles. Let me know if this answers your questions.

The new Canon EOS-1D Mark III looks to be quite an impressive camera. One question: A friend of mine said someone at a trade show told him the EOS 1D Mk III has a way to determine the focus point of a specific lens. I think he was trying to relay information about the camera selecting the AF points if you set it for that. Is there some feature like what he was referring to on this new camera? I read through all the specs and just think he misunderstood, but wanted to check with you to see if perhaps I missed something.

It's likely that your friend is referring to the EOS-1D Mark III's new AF Microadjustment feature. It doesn't determine the point of focus; it adjusts it. Here's how we describe it in the EOS-1D Mark III White Paper:

AF Microadjustment

AF precision is adjusted for the camera and lens to fall within the lens' maximum aperture's depth of focus. However, there are users who want to adjust it more minutely. They have had to go to a Canon Service Center to have it done. AF microadjustment is a feature developed for these users. Users themselves can now finely adjust the AF focusing position (with a menu setting). The adjustment range is ± 20 steps in front of (-) or behind (+) the point of focus.

The adjustment increment of one step differs depending on the maximum aperture of the lens. You should shoot, check the focus, and adjust it. Repeat this procedure to adjust the point of focus. When a lens registered with a point-of-focus adjustment is attached, the point of focus will be automatically shifted by the correction amount set. If you set 1 (Adjust all lenses by the same amount) or 2 (Adjust by lens) and press the INFO button, the adjustment screen will appear. The focus shift amount per step is calculated by multiplying the maximum aperture's single-side depth of focus by 1/8. If 1 is set, the focus shift amount will always be the same number of steps (but the actual amount will vary according to maximum aperture) for all lenses. If 2 is set, the focus shift amount will change for each different lens. You can register the focusing shift amount for up to 20 lenses. Then, when you use one of the registered lenses, the focus will shift by the set amount.

Note that since the camera does not recognize the unique ID of the lens, the same shift amount will be applied to the same lens model even if it has a different serial number. In the case of zoom lenses which have variable maximum apertures, the focus shift amount is technically different at the wide-angle end and telephoto end. However, since the focus shift amount cannot be adjusted individually for the wide and telephoto ends (there is only one shift amount per lens), adjusting it for the telephoto end is better. If an extender can be attached,

the camera recognizes whether it is 1.4x or 2x and makes a different shift adjustment from when no extender is attached. When an extender is attached, the adjustment screen will display the lens name and extender name. To delete the registered lens settings, select 1 or 2, then press the Erase button. All the registered AF micro-adjustment settings will be cleared.

You can download the EOS-1D Mark III White Paper PDF here:

http://www.usa.canon.com/templatedata/pressrelease/images/whitepaper/EOS-1D_MarkIII_WP_070223.pdf

I was playing around with my wireless flash setup just now in preparation for my wedding tomorrow and then I remembered that I can control the 550EX slave flash in Manual mode via the master 580EX (i.e., I can set the 580EX to Manual and to not fire and the 550EX will fire at the specified Manual power setting). However, when I set the Master to Manual (i.e., 1/32), my 5D locks the shutter speed at 1/200 in Av mode, even though I've set the custom function to "Auto." If I set the Master back to E-TTL, the shutter speed goes back to Auto. Does anyone know of a way to get this setup to work with an auto shutter speed?

When an EX Speedlite flash is set to its manual mode, wireless or not, the only way to set the shutter speed to something other than maximum X-sync is by setting the camera to its manual mode.

Is there a technical reason for that? I assume maybe it's because the camera can't meter the scene not knowing how much light the flash is going to output, and therefore, what's the point of a slower shutter?

Actually, that behavior extends all the way back to Canon's first TTL flash system in 1986, the T90 camera and 300TL Speedlite. As I recall, the explanation at the time was that setting up Av mode to default to maximum X-sync when the flash was set to manual mode was to make it more intuitive for photographers to set apertures using the main dial and LCD data panel. Fixing the shutter speed at maximum X-sync was (and still can be) appropriate for handheld flash photography indoors, in situations where the ambient light is contributing nothing significant to the overall exposure. Manual mode on the camera combined with manual mode on the flash makes it possible to control shutter speed and aperture freely and independently, which becomes useful when you want to drop the shutter speed to pick up more of the ambient lighting in indoor scenes.

I guess there's no way to use High-Speed Sync with Manual flash, eh?

FP flash mode (high-speed sync) is still supported when manual flash is combined with manual exposure mode on the camera, but if you set high-speed

sync with manual flash when the camera is set to Av mode, the shutter speed defaults to the camera's maximum shutter speed, such as 1/8000 for most current EOS digital SLRs.

I recently posted a question regarding the safe maximum sync voltage for an EOS 30D on <http://www.openphotographyforums.com/>. A reply led me to an article called *Tech Tips* answering a number of Canon-related FAQ. You addressed the safe sync voltage for a number of models, including the 20D, but I was wondering where I might be able to find published data on the safe sync voltages for the entire range of Canon cameras (or maybe just the 30D, as that's the body I'm using now).

It's likely you'll never see an official list of all Canon SLRs according to this specification, because Canon Inc. (our parent company in Japan) simply doesn't do things like that. I've been with Canon USA since 1982, so I'm in a pretty good position to know Canon Inc.'s habits. However, I'll be happy to provide you with my unofficial list:

Canon Digital SLRs safe for TCV up to 250 volts:

EOS-1D Mark II N, EOS-1D Mark II, EOS-1Ds Mark II, EOS-1D, EOS-1Ds
EOS 30D, 20D, 5D
EOS Digital Rebel XTi, XT (400D/350D)
EOS D6000/D2000, Kodak DCS560/DCS520 (circa 1998)
EOS-DCS series (circa 1995)

Canon Digital SLRs safe for TCV up to 6 volts:

EOS 10D, D60, D30
EOS Digital Rebel (300D)

Canon 35mm SLRs safe for TCV up to 250 volts:

EOS-1V, EOS-1N, EOS-1, EOS 3

Canon 35mm and IX240 SLRs safe for TCV up to 6 volts:

EOS 650, 620, 630, RT
EOS 850, 750, 700
EOS Rebel Series
EOS Elan Series
EOS 10s, A2E, A2
EOS IX, IX Lite
T90

Canon SLRs released earlier than the T90 did not have TTL flash circuits, and comprehensive information on safe TCV levels is not available.

The trigger circuit voltage (TCV) rating for any EOS SLR is the same on the hot shoe as it is on the PC terminal (if the camera has one), but the acceptable TCV

level varies according to the camera model. Incidentally, the main reason for the difference is the way the X-sync signal is generated. With the 250V cameras, the X-sync signal is generated electronically. With the 6V cameras, the X-sync signal is generated mechanically. There are no guarantees, but going forward I anticipate that most if not all future EOS SLRs will be safe for TCV up to 250 volts.

I typically shoot in Av mode with the flash in High-Speed Sync, for fill when I'm out shooting bird photos. This is because I always want a shutter speed above the X-sync speed of the camera if possible. I realize that in HSS mode, the flash output will be less than normal flash with shutter speeds above 1/250 (EOS-1D Mark II N). But what occurred to me is if I happen to shoot in that scenario in lower light, and I'm getting a shutter speed such as 1/100 (in Av mode) will I get less flash with the 580EX Speedlite still in high-speed sync mode than if I had switched it to normal? I have always believed that it doesn't matter, and that the flash output is the same if you are shooting below the X-sync speed of the camera, but I'm not positive about it. In other words, I keep the flash in HSS because if the situation calls for a shutter speed above 1/250 on the Mk II N, then I won't have the problem of the camera shooting at exactly 1/250 and overexposing the shot. In my mind, it's fail-safe fill flash. But am I correct?

Here's what our "Flash Work" Web site says:

<http://web.canon.jp/Imaging/flashwork/flashwork/index.html>

"...the FP high-speed sync flash setting fires repeatedly at roughly 50kHz intervals during the exposure to achieve flash synchronization at all shutter speeds. The camera automatically reverts to normal flash firing when the shutter speed is set slower than the flash X-sync speed."

I would modify this somewhat:

"...the FP high-speed sync flash setting fires repeatedly at roughly 50kHz intervals during the exposure to achieve flash synchronization at all shutter speeds faster than the camera's maximum X-sync speed. The camera automatically reverts to normal flash firing when the shutter speed is set to be equal to or slower than the camera's maximum X-sync speed."

In other words, you can safely leave the Speedlite set to high-speed sync at all times if you like, without worrying about losing range when the shutter speed is equal to or slower than the camera's maximum X-sync speed.

On a somewhat related note, why is HSS an option and not just automatically enabled if shooting with a shutter speed faster than maximum X-sync speed? Why isn't it just always on?

Canon has never officially commented on that question, so I can only speculate that they intended the use of high-speed sync to be an intentional decision on the part of the user. There's no harm in leaving the function turned on all the time, but it's the photographer's responsibility to realize that maximum flash-to-subject distance range drops off substantially as soon as a high shutter speed is used.

I'm using a 20D to do time lapse photography, and I'd like to minimize the wear and tear on the camera, and maybe make each shot a little quieter. If I fix the focus and metering before starting, is it possible to lock the mirror up and keep it up while shooting several thousand frames? Typically I'll take an image every second or two, but it could be as slow as one shot a minute. On a related note, it would be helpful to be able to set some custom image sizes instead of using the fixed factory ones. For example, I'd like to shoot at 1920x1080 directly for HD work - this would save me a whole resizing step later, and fit more images on a card. And lastly, why did Canon engineers use a IMG_xxxx naming format on a camera whose shutter should be good for tens of thousands of images? I suppose there's some value in sticking with 8.3 naming for old systems, but surely they could have done IMGxxxxx instead. Now I have an extra renaming step every time I download a card.

It's not possible to shoot more than one exposure with the mirror locked up on an EOS 20D, but this capability has been added to the newly announced EOS-1D Mark III. It's a default feature of the new Live View mode, but it can also be activated during normal shooting via Custom Function III 15-2.

Thanks for your suggestions on variable resolution settings and in-camera file naming options. They are both good ideas, but they are also both unlikely to be implemented on future cameras for different reasons.

- 1) All of the downsampling and compression for in-camera JPEGs is executed in hardware by the DIGIC image processor for speed reasons, so the resolution settings have to be burned into the chip when it is programmed and cannot be adjustable.
- 2) All in-camera file names must adhere not only to the 8.3 convention, but also only the last 4 characters can be numerical. This is the requirement of the file format that all Canon (and all other Japanese-manufactured) digital cameras use. This format provides some limited flexibility in terms of the ability to adjust the first 4 characters in an individual file name, and we exploit that capability on the EOS-1D Mark II N and EOS-1D Mark III. But there will never be any ability to customize in-camera file names to any greater extent unless the camera's file

format is updated. For more information on the file format currently mandated by the Japanese digital camera industry, see the following information:

<http://ceres.informatik.fh-kl.de/pbw/lehre/20041/foto/resources/Dokumentation/Exif/cp3461.pdf>

I have an EOS-1D Mark II and Mark II N. I recently noticed that I had inadvertently created some folders on the SD card in my Mark II. There was nothing in the folders. I tried hooking up my camera to the computer to delete these empty folders, and could not get the computer to communicate with my camera. I'm on a PC, and the Wizard opened and wanted to look for or install some software. I thought I had what I needed – EOS Utility 1.1. But even this didn't work. None of the other software programs I have would connect or let me connect to the camera to manage the folders. I also have EOS Viewer Utility 1.2, ZoomBrowser EX 5.7 and Digital Photo Professional 2.2. Can you help me figure this out? What software do I need and how does it need to be configured for me to be able to manage files on cards in-camera? Thanks for any help you can give me.

If you are using Windows XP, you can manage folders on memory cards in your EOS camera by means of Windows Explorer, after you install the WIA driver for your camera from the EOS Solutions Disk supplied with the camera. You can install just the WIA driver if you wish, but the driver is a prerequisite for accessing the camera and its folders. Assuming the WIA driver is installed, here is the procedure for accessing folders and files in the camera:

1. Open "My Computer" and locate the camera icon at the bottom of the screen.
2. Open the camera icon and select Detail View. "CF_Slot" and/or "SD_Slot" folder(s) should appear, as long as there is at least 1 image on the card.
3. Open the "CF_Slot" and/or "SD_Slot" folder(s) to locate the image folders in each memory card.
4. Right-click the desired folder and select a task, such as Delete.

For what it's worth, you can also manage folders on your SD or CF cards in Windows Explorer by means of a card reader.

I have a few questions in regard to using the EF12 II &/or EF25 II extension tubes with the current version EF70-300 IS USM lens. The book for this suggests that it be used in manual focus but does not say if AF will work. Do you know if AF will work, especially in bright light? Also will the Image Stabilizer still work with either or both of these tubes on that lens?

Someone asked a similar question in last October's *Tech Tips*, and here is my answer: The main reason why Canon advises users not to stack extension tubes or other coupled lens accessories like extenders is the possibility that the camera's shutter may not release. Each extra accessory increases the level of electrical resistance. But, you are welcome to try; many users have reported successful results using 2 or 3 coupled extension tubes.

Autofocus performance with extension tubes is a separate issue. Assuming no problems with shutter release, there is still the possibility that the effective maximum aperture of your coupled lens with one or more extension tubes may become smaller than f/5.6, which is the limit for most EOS cameras other than the EOS-1D series. If so, the camera's AF system may not get enough information to determine an accurate focus. Additionally, extreme close-up photography results in extremely shallow depth-of-field. Even if the subject matter is reasonably contrasty and the effective maximum aperture isn't an issue, the focusing motor in the lens might be driven so fast during the AF search procedure that the AF sensors won't have enough time to recognize and lock on to the subject. This is not to say that AF with extension tubes is impossible, but it's important to realize that the odds are stacked against it. Manual focus is often the only practical option, even when autofocus is technically available. Under such circumstances, you may find that focusing manually while pressing the shutter button halfway allows the circular green LED in-focus indicator in the camera's viewfinder data display to function as an effective focusing aid. The Image Stabilizer function of the EF70-300mm f/4-5.6 IS USM lens is supported when using a single extension tube. As I mentioned earlier, we do not recommend stacking extension tubes, but it's entirely possible that IS will function when two tubes are mounted between the lens and the camera body.

The Canon PowerShot A95 has been discontinued. Which of the new Canon compact cameras would be best to use with a spotting scope for digiscoping. (Have a KOWA TSN 883 88 mm spotting scope). Thanks for your help!

In our current lineup, the best cameras for this purpose are the PowerShot A640 and A630 models. They are the "descendants" of the A95, and both of them share its key attributes of folding screens combined with fully manual exposure control. The two cameras are functionally nearly identical except that the A640 is a 10-megapixel model with remote control capability, while the A630 is an 8-megapixel model without remote control capability. In order to fit either of them to a spotting scope, you'll need the optional Canon LA-DC58F Conversion Lens Adapter. For more information on the A640 and A630 cameras, see these Web pages:

<http://web.canon.jp/Imaging/psa640/index-ext-e.html>

<http://web.canon.jp/Imaging/psa630/index-ext-e.html>

Does Canon have recommended sharpen parameters for 5D to counter the AA filter blur effect? I use Adobe® Photoshop® CS2.

The default sharpness setting for the EOS 5D is Level 3 on a scale from 0 to 7. This setting can be accessed and adjusted on the camera's LCD menu in the Picture Style submenu, along with similar adjustments for contrast, saturation and color tone. Considered as a group, these settings go a long way towards allowing photographers to customize the "look and feel" of in-camera JPEGs. The Level 3 sharpness setting overcomes the blurring effect of the camera's anti-aliasing filter, and it is intended to minimize or eliminate the need to adjust sharpness for inkjet prints on glossy paper. Of course, individual photographers have individual preferences when it comes to sharpening, so I would suggest that you experiment with different sharpness settings in the camera to determine the setting that's most comfortable for you. For maximum control over sharpness levels in your 5D images, it's best to shoot in RAW mode and make your adjustments in post processing.

I have a Canon EOS 5D. I recently downloaded the "Emerald" and "Twilight" Picture Styles from Canon's Web site, but these were not recognized by Adobe Camera RAW, even if I select "As Shot" in the program. I also use Photo Mechanic and iView Media Pro 3.0, and both of these applications render the Picture Styles as shot. Is there anything I can do so that ACR recognizes the Canon Picture Styles?

Current versions of Adobe Camera RAW do not support Canon Picture Styles, so the answer is no. You may want to check with Adobe to see if they have any plans to add this feature. In addition to the programs you mention, which display Canon RAW images but do not have full image editing capabilities, current versions of Canon's RAW Image Task and Digital Photo Professional software support Picture Style settings for RAW images captured by EOS Digital SLRs.

Should one turn off the camera when changing the flash cards? You said before it isn't necessary to turn off the camera when changing lenses.

With most current DSLRs it's OK to change memory cards while the camera is on, as long as you're sure that the card busy signal is off before you open the memory card compartment cover. However, turning the camera off before changing memory cards is a good habit to acquire if you really want to play it safe.

I'm one of those film photographers that still hasn't made the transition to digital. I guess my greatest concerns are regarding archiving files. Given

that so many photojournalists are shooting digital, and I assume have concerns over archival stability for historical purposes, is this concern of mine really valid?

Archiving is important for all conscientious photographers, whether they choose to capture their images digitally or on film. In both cases, a good asset management system is crucial. Key concerns include not only a robust classification system that's scalable as your image collection grows over time, but also feasible plans for recording media and storage facilities. One of the best resources I've come across for digital asset management is "The DAM Book" by Peter Krogh. This book does an excellent job of explaining professional-grade image classification and media storage strategies. For more information, be sure to visit [this Web site](#).

I am a pro shooter as well as a biologist. I find the Nikon D200's ability to record GPS location in EXIF data extremely useful (and it's the reason I've chosen it over the Canon EOS 5D for my work - the Nikon D2X and the Canon EOS-1Ds MarkII are too heavy). However, I have one question: Why have no DSLR manufacturers incorporated Bluetooth into their bodies so one can use a Bluetooth GPS with the camera? The cable from the GPS to the camera is, quite frankly, a real pain in the ass when one is trying to walk through the bush. Mounting a small GPS unit on top of the camera is also a clunky and expensive solution. It is far better to have a GPS in your backpack or in a shoulder pouch and have it connect via Bluetooth to the camera. I know you're connected to Canon, but can you give me some way of communicating this suggestion to Nikon, too?

Thanks for the raising this issue! I'm happy to forward your comments to my friends at Nikon as well as Canon's Product Development Center.

Will any Canon software provide a full-screen display of an image on my laptop when using remote software like EOS Capture? I want to give a demonstration that requires the image to be projected via a digital projector when I press the shutter. Thumbnails are of no use to me as I would have to click on them. I have a 20D.

There are two potential solutions to your request:

1) For a true full-screen view, you can connect the camera's video out function to your digital projector.

2) If you prefer the higher resolution of a computer, Canon's Digital Photo Professional (DPP) software comes the closest to a full-screen view during remote capture. There will still be a toolbar at the top of the screen, but it occupies only a small percentage of the total area, especially with a high-

resolution projector. You can see a demo of EOS Capture with DPP 2.1 in [our online tutorial](#).

Keep in mind that we've updated to DPP 2.2 recently, and also that EOS Utility 1.1 (not to be confused with the older EOS Viewer Utility software) has replaced EOS Capture 1.5. If you use DPP 2.1 you must use EOS Capture 1.5, but if you update to DPP 2.2 (which I recommend), you must also update to EOS Utility 1.1. In both cases, the remote capture functions are similar for supported cameras. DPP 2.1 works with all EOS models up to the 30D, but you'll need DPP 2.2 if you're using a Digital Rebel XTi. Of course, DPP 2.2 also works with all previous EOS models as well as the XTi.

Assuming you update to EOS Utility, you can set the preferences of that program so that it downloads to DPP. You can set DPP's preferences so that the program switches itself automatically to the Edit Image Window (for nearly full-screen viewing) during remote capture operation. Once you've identified a folder on your system for captured images, you can use DPP's toolbar to turn off the folder view window and tool palettes to increase the size of the image.

A question you answered previously in *Tech Tips* is giving me some grief. When I try to upload a curve, all the file selections are greyed out, so I can not choose a file to upload. This is to an EOS-1D with current firmware, over Firewire, from MacOS 10.4, EOS Utility 1.108.

I just rechecked the custom tone curve upload function with my sample of the EOS-1D and it's working fine. To clarify, here are the procedures that must be executed in order to upload a custom tone curve with EOS Utility. These steps are outlined in the EOS Utility instructions on page 3-7 in both the Macintosh and Windows versions:

1. Using an image recorded by your EOS-1D camera, create and save a .TCD custom tone curve file in RAW Image Task software. (This is a component of the ZoomBrowser EX software for Windows and the ImageBrowser software for Mac OS X). Free updaters for the latest versions of ZoomBrowser EX and ImageBrowser [are available here](#).

Click on the Drivers/Software link and follow the prompts to download the correct software for your computer's OS. Check the onscreen installation instructions if you have any questions.

2. Once the software is installed and you've created a custom tone curve file, connect your EOS-1D camera and launch EOS Utility.

3. Follow the steps I outlined in my previous *Tech Tips* column, and when you get to the Parameters Setting screen, click on one of the "Add" buttons.

4. Use the resulting pop-up window to navigate to the .TCD file you saved in Step 1. Click "Open," which will lead you back to the Parameters screen and display the file you selected under the corresponding Add button.

5. Click on Apply to Camera.

Once this has been done, the custom tone curve file will be available in your camera. You still have to select Parameters from the EOS-1D's Record menu, and then you can select your custom tone curve from Set 1, 2 or 3 depending on where you uploaded it.

What digital SLRs are recommended by photojournalists right now? Why? What would be a good digital camera for an entry-level job as a photojournalist?

Most professional photojournalists currently use digital SLRs from Canon or Nikon. There are plenty of reasons why, but usually the top five are image quality, camera performance, reliability, lens selection and good service after the sale. Each company offers a broad range of models with different feature sets and price points to match the needs of a variety of customers. At the moment, Canon's EOS-1D Mark II N and Nikon's D2Hs are the speed champions with maximum framing rates of approximately 8 fps, making them the optimum choices for breaking news coverage and sports photography. These cameras are also among the sturdiest and most ruggedly built cameras in their respective lines, which can be important for some assignments. Nikon's D200 and Canon's EOS 30D are very popular with entry-level photojournalists because of their lower costs. These cameras provide outstanding image quality without sacrificing much in terms of features and performance compared to the high-end models. Nikon's D2Xs and Canon's EOS-1Ds Mark II and EOS 5D are high-resolution cameras that are better than either the high-speed or the low-cost models for certain photojournalistic applications such as product or food photography. Lens selection is comparable between the two brands, and both Canon and Nikon provide dedicated Professional Services programs (CPS and NPS) to qualified full-time professional photographers. Each company has many loyal, long-term customers. For more information on product features, be sure to visit these Web sites:

<http://nikonusa.com/>

<http://www.usa.canon.com/>

I photograph through a microscope, copy stand, and hand-held. I have migrated to a Canon SLR for my microscope from dedicated digital cameras. I am looking at your 180mm macro for copy stand and possibly tripod work, and was wondering if it is considered an outstanding lens in general or if it really should be used only in the macro mode, i.e., with a

copy stand. I have read a few reviews which rave about its macro ability but never talk about other capabilities as they do concerning your 100mm macro. I am only interested in the best possible result since in the science world we cannot manipulate images with software. Any advice concerning your opinions regarding scientific imaging would be appreciated.

In my experience, the EF180mm f/3.5L Macro USM is an excellent lens for all-around use, though it's clearly at its best for close-ups. You won't see any significant deterioration in sharpness for long-range shooting, but it's a relatively heavy lens to walk around with. If I were looking for something lighter but comparable in sharpness, and didn't need to focus any closer than five feet, I would probably prefer the EF200mm f/2.8L II USM or the EF70-200mm f/4L IS USM. But if versatility is a priority and you plan on doing a lot of close-ups, then the EF180mm Macro is the best lens for the job. You can find a variety of user reviews on the Fred Miranda Web site:

<http://www.fredmiranda.com/reviews/showproduct.php?product=48&sort=7&cat=2&page=1>

From a practical perspective, my other comment would be that the EF180mm lens is too long (in terms of focal length) to use on most copy stands, unless you are photographing extremely small objects. The working distance from the front of the lens to the subject at 1:1 is over 9 inches, so if you are photographing large objects, you'll need a very tall stand. The EF50mm f/2.5 Compact Macro would probably be my first choice for copy stand work if I were using a full-frame SLR like an EOS 5D or EOS-1Ds Mark II. If I were using an EOS 30D, 20D or Digital Rebel, I would prefer the EF-S 60mm f/2.8 Macro USM. The EF100mm f/2.8 Macro USM is another possibility, but like the 180mm lens, it is a bit too long in terms of focal length for most copy stand work. If you plan on copying photographic prints or other documents, you're better off using a flatbed scanner.

I recently purchased a Canon iPF5000 printer. My question is whether the ICC profiles installed in the print drivers are optimized for 16-bit printing using the DPP/Photoshop plug-ins, or do I need to create special profiles to use for printing "16" bit? Any insight you can provide would be appreciated.

If you plan on printing 16-bit images directly with the iPF5000, you'll need to use the Export Module Print Plug-in for Adobe Photoshop, rather than the standard print driver. In that case, Canon provides optimized ICC profiles for all supported media, although you can also create and use your own custom profiles if you wish. The Export Module automatically uses the Canon ICC profile assigned to the media you select, unless you override it with a custom profile instead.

I use DPP for remote firing my 1Ds and 1D cameras when shooting tethered for architectural and industrial photography. I am curious as to why I lose

the ability to use the mirror up and two-second timer option. If I suspend the camera in the air on an extension I am concerned about camera movement and do all I can to reduce it. The option would be nice. Any chance of a change in an upgrade?

I understand your request, and will be happy to pass it along to Canon Inc. as a part of our next monthly market feedback report. In the meantime, the workaround for this particular issue is to fire the 1D series camera through its remote control socket. This can be done whether or not the camera is tethered to a computer. Canon provides wired and wireless accessories for this purpose, and there are various third-party wireless solutions as well:

<http://www.pocketwizard.com/HTML/products.asp>

http://www.qtm.com/RadioSlave/?res_set=yes&res=1280&resh=1024

I was curious about something. The color matrix modes on the 1D series are a slight bit confusing, specifically on the 1D. What's the real difference in the modes, especially mode 4 (which according to the manual is Adobe RGB), if the camera does not assign that color space to the image?

The color matrix modes used in the original EOS-1D, 1Ds, 1D Mark II and 1Ds Mark II varied primarily in terms of contrast and saturation levels. Matrices 1, 3 and 5 could most accurately have been described as Normal, High and Low saturation settings respectively, with in-camera JPEG files written to the sRGB color space. In addition to moderately high saturation, Matrix 2 also applied a color tone adjustment that was primarily intended to increase the red channel levels for midtones and highlights to make certain kinds of skin tones appear more vibrant. Matrix 4 was unique because it reduced contrast and saturation while writing the files to the Adobe RGB color space. The intent was to preserve as much image information as possible when the camera was set to a JPEG recording mode, under the assumption that the photographer would have more flexibility in terms of increasing contrast, saturation and sharpness during post-processing.

Due to the limitations of the Exif 2.2 standard that was in force when the cameras were introduced, Canon could not embed an Adobe RGB profile in Matrix 4 JPEGs from the original EOS-1D and 1Ds. Users were recommended to embed the profile manually during post-processing in the image editor of their choice.

When the EOS-1D Mark II and EOS-1Ds Mark II appeared in 2004, they were the first Canon cameras to support the new Exif 2.21 metadata standard. This coincided with Adobe's introduction of Photoshop CS, which was the first version of that program to be able to read the Adobe RGB tag in Exif 2.21 files. This allowed Photoshop to display such files in the Adobe RGB working space automatically without user intervention. All EOS models introduced since then

have supported Exif 2.21, as do Adobe Photoshop CS2 and other current image editing software applications.

The EOS-1D Mark II N and EOS 5D introduced last year were the first Canon models to incorporate Picture Style settings, which have replaced the Color Matrix settings used in earlier EOS-1 class digital SLRs. Picture Style settings are also available with the EOS 30D and the EOS Digital Rebel XTi. Picture Styles centralize the control of sharpening, contrast, saturation and color tone, and are separate from color space settings. For more information on the Picture Style concept, please visit our Web site:

<http://web.canon.jp/Imaging/picturestyle/index.html>

What is exactly meant by 'embedding' the Adobe RGB color space once you open the image? If you have Photoshop CS2, does that mean go to the 'Edit' menu, then select 'Assign Profile,' then choose the Adobe RGB space?

That's correct. Once you've assigned the Adobe RGB profile in Photoshop, be sure to save the image to complete the profile embedding process.

I was curious [as to] what your experience is with respect to printing Canon EOS-1Ds Mark II files? I will be printing using a LightJet 430 and have the need to print up to 4 x 8 feet. I need to run tests given my subject matter, but you are an expert in this area, so I thought I would run the question by you. If you can provide any info, it would be most appreciated.

We regularly print EOS-1Ds Mark II files to sizes of 4 x 8 feet and larger, especially now that Canon is marketing the ImagePROGRAF iPF9000 with its 60-inch media-width capability. There's no problem with image quality even at these large sizes as long as you resize the image properly in your image editing software. I would suggest the following workflow procedure.

1. Start by editing the image in its normal size for aspect ratio, exposure level, contrast, saturation and color space. It's best to use RAW data for these tasks if possible. Once you're satisfied with the quality of the image, use your RAW converter to generate an RGB TIFF file.
2. Resize the image to 4 x 8 feet in your image editing software. If you use Adobe Photoshop, consider using the Bicubic Smoother interpolation setting, and increase the resolution in 10 percent increments until you reach the desired output size. Be careful about selecting an output dpi setting: You probably don't need to go any higher than 200 dpi. Choosing this setting instead of 300 dpi will cut your file size to 527MB rather than 1.16 GB, which will reduce processing time on your computer and make the file easier to store.

3. After the file has been resized, adjust its sharpness according to your personal preferences. There are many sharpening methods available, some of them proprietary. Whichever one you choose, I would suggest avoiding the temptation to oversharpen the image. This is a case where evaluating the image at 100 percent pixel magnification on a high-quality computer monitor pays off in terms of pre-visualizing the final result.