**Personalizing the EOS 1D Mark II with Custom and Personal Functions**
**Part 1 –Custom Functions**


Modern digital SLR's offer many ways to customize the performance of the camera to individual tastes and to optimize the camera for different types of photography. The EOS 1D Mark II offers a user 20 Custom Functions accessible via the menu on the rear panel LCD. In addition, 26 Personal Functions can be enabled while the camera is tethered to a computer. These can be switched on and off from the rear panel menu on the camera. Oddly enough, Custom Function 3 and Personal Functions 11-13, 22, and 29 do not exist. Part 1 will summarize each of the Custom Functions and explain why you might want to make use of different options. Part 2, to be published next month, will cover the Personal Functions in detail.

## Custom Functions

Custom Functions are pre-programmed into the camera's internal flash memory and may be adjusted by the user on the rear panel LCD menu.

### Focusing Screen

**C.Fn-00 must be set to the correct value for the focusing screen that you are using.** Under most circumstances you would never change this unless you switch the focusing screen to the Ec-N or Ec-R prism. There are advantages to these as they are about 1/3 stop brighter. If one of these is installed, the camera's metering system has to be recalibrated due to higher light transmittivity of the screen. To effect this, change custom function 00 from the default value of 1 to a value of 0.

### Viewfinder Display During Exposure

**C.Fn-01 controls whether or not the viewfinder information stays active during continuous shooting.** Most photographers will want to leave this function turned on, but if you are doing long exposures via the Bulb mode, it might make sense to turn this off.

### Shutter Release Without Card

**C.Fn-02 determines whether or not the shutter can be tripped if there is no media card in the camera.** For most people, it makes sense to disable the shutter when no media card is present. However, there are circumstances where you may want to allow the shutter to be tripped without a media card. If you are testing the camera and don't want to write your test images to a card, or if you are using the camera to test exposure settings for another camera, such as a film camera, the exposure histogram will still display on the LCD even without a card installed. This allows you to check exposures and then use those exposure settings on another camera.

**C.Fn-03 does not exist.**

### Shutter Button / AE Lock Button

**C.Fn-04 controls how the shutter button and the Exposure Lock button operate.** In its default mode, the shutter button is used for autofocus and autofocus lock and the AEL (*) button is used for exposure lock. Switching this function from 0 to 1 reverses this operation. The * button is then used for AF, and the shutter button is used to hold exposure.

Option 2 puts normal autofocus on the shutter button and puts autofocus lock on the * button. No exposure lock function is available in this mode.

Option 3 puts auto exposure on the shutter button and autofocus on the * button. This is similar to Option 1, but in Option 3, autoexposure lock is not possible. Some photographers prefer to use Option 1 for action such as birds in flight. By doing this with option 1, they can meter the scene, lock the exposure with a half-press of the shutter button and activate autofocus with the * key.

**Manual Tv / Av Settings for Manual Exposure**
**C.Fn-05 has two different functions. It selects which dial changes aperture and which dial changes shutter speed in manual exposure mode. C.Fn-05 also selects whether or not aperture settings are adjustable with no lens attached.** The default mode disables aperture adjustment while there is no lens attached. It places shutter speed on the main control dial (the one by the shutter release button) and places aperture adjustment on the Quick Control Dial (the thumbwheel on the back of the camera). By changing C.Fn-05 to Option 1, these two functions are reversed.

Options 2 and 3 are identical to Options 0 and 1, respectively, but allow aperture adjustment when there is no lens attached. If your usual automatic shooting mode is Aperture Priority (Av), then it makes sense to set Custom Function 5 to a value of 1. The reason is that this will cause the aperture adjustment to be on the main dial making it exactly the same as when in manual mode. If you leave it at the default setting of 0, then in manual mode the main dial adjusts shutter speed, while in Av mode, it adjusts aperture – this can get a bit confusing if you change modes often.

Similarly, if your primary automatic mode is Shutter Priority (Tv), you will probably prefer this custom function to be set to 0 as it will place shutter speed control on the main dial for both the Tv mode and manual mode; thereby, everything remains consistent. Custom function 2 and 3 work the same way but allow you to select aperture with no lens attached.

**Exposure Level Increments**
**C.Fn-06 changes the size of the exposure when you turn the command or quick control dials.** The default mode is to adjust exposure in 1/3-stops, and this is the setting that I recommend for all users.

Option 1 sets exposure in full-stop steps and Option 2 in half-stop steps. I can't think of a reason why full-stop increments would ever be desirable, since these exact exposure settings can be set with the 1/3-stop or the 1/2-stop option. There are situations where the half-stop mode could be useful. If you need an extremely accurate exposure value, the half-stop option allows you to select an exposure that is halfway between a 1/3-stop adjustment and a 2/3-stop adjustment giving you essentially a 1/6-stop exposure change – this should be a very rare need.

**USM Lens Electronic Manual Focus**
**C.Fn-07 controls how manual focus on an Ultrasonic lens works.** The default setting of 0 should be the right one for almost all users. In the default setting, manual focus override is always available with one-shot autofocus turned on. With option 1, after focus acquisition, manual focus is no longer available. Option 2 disables manual focus altogether. These options can be useful if critical focus on a subject has been established and you want to minimize inadvertent manual refocusing.

**Top LCD Panel / Rear LCD Panel**
**C.Fn-08 allows you to control what information is displayed on the LCD panels.** Option 0 displays remaining shots on the top panel and file number on the rear LCD.

Option 1 displays the selected ISO on the top panel and remaining shots on the back panel.

Option 2 displays ISO on the top panel and file number on the back panel.

Option 3 displays how many shots are in the folder on the top panel and how many shots are remaining on the back panel.

I find Option 1 to be by far the most useful. With this option, the set ISO is always immediately available as is how many shots the camera estimates I have left before I need to change the media card. Option 0 would be very useful for the sports photographer at a specific event where the ISO never changes; having the number of shots remaining would make work faster. I haven't come up with a good reason why one would choose Option 2 or 3 other than personal preference.

**Auto Bracketing Sequence / Auto Cancel**
**C.Fn-09 is the automatic bracketing exposure sequence custom function.** In the default mode, the first shot is taken at the middle exposure, the second at the downward bracketed exposure level and the third at the upward bracketed exposure level; bracketing is cancelled for the next shot.

Option 1 is identical to option 0, but the automatic bracketing setting is retained so that the next group of photos will be bracketed in the same way.
Option 2 changes the exposure sequence to lower exposure, middle exposure, higher exposure followed by cancellation.

Option 3 duplicates Option 2 but does not cancel the bracketing sequence.

Whether you want the middle exposure first, or the lower exposure first, is very much a personal preference. From an editing standpoint, I find it easier to have the exposures be sequential in brightness, so I prefer Options 1 or 3. Whether or not the auto bracketing is cancelled depends on whether you want to bracket a series of shots or just one.

**AF Point Illumination**
**C.Fn-10: determines whether or not the AF points in the viewfinder light up and, if so, how bright they are displayed.** Option 0 illuminates the selected AF points, and the amount of illumination changes depending on how bright the image in the viewfinder is. For a dark viewfinder, the AF point brightness is toned down and for a bright viewfinder; it is set to a brighter illumination.

Option 1 turns off AF point illumination.

Option 2 uses the brighter illumination of the two used in Option 0 all the time.

Option 3 uses an extra bright illumination value all the time.

I prefer Option 3 as it allows me to clearly see the AF points at all times. Whether you use option 0, 1, 3 is very much a personal preference and probably speaks to how good your eyes are: weaker eyes may prefer the bright Option 3 while better eyes tend to go with the default, or Option 2. Option 1 is useful for photographers who do not use autofocus at all or are bothered by the lights on the image plane in the viewfinder.

**AF Point Selection Method**
**C.Fn-11 determines how the AF points are selected.** In the default mode, the AF selection button is depressed, followed by turning the command and quick dial to select the AF points.

Option 1 uses a +/- exposure compensation button to enable AF point selection via the dials.

Option 2 works the same as option 1 but allows you to change horizontal AF point with the quick command dial while exposure metering is active.

Option 3 uses the FEL button combined with the dials to select AF points.

Which button you use for AF point selection is one of personal preference and ergonomics. I find the default option to be most comfortable for me, and this allows the button that is labeled with AF points to be used to select them, thus eliminating confusion. If you are shooting action with horizontal movement only, Option 2 can be very useful as it allows you to change AF points horizontally on the fly while you are metering with the shutter button allowing very fast AF point selection followed by an exposure.

**Mirror Lockup**
**C.Fn-12 is called the mirror lockup function by Canon, but it is misnamed; no Canon camera offers true mirror lockup.** What it does offer is mirror pre-fire. In mirror lock-up, one is able to lock the mirror up and take as many exposures as the photographer wants. The Canon system pre-fires the meter with the first shutter button release, and then fires the shutter on the second release. Alternately, the self-timer can be used to fire the mirror on a push of the shutter release button followed by an exposure after the self-timer duration expires. This is not as useful as true mirror lockup as the mirror needs to be moved out of the way prior to every exposure resulting in a delay on every shot.

To enable this mirror pre-fire, Custom Function 12 must be set to 1.

It is very inconvenient to have to access “mirror-lockup” via a menu with a number of button pushes rather than a single control that enables true mirror lock-up.

**Number of AF Points / Spot Metering**
**C.Fn-13 determines how many autofocus points are available and to which AF point the spot meter is linked.** In the default option, all 45 points are available and spot metering is always done in the center.
By switching to Option 1, the AF points are limited to 11 points. Additionally, the spot meter is linked to the active AF point.

Option 2 is identical to Option 1 with 11 AF sensors available and spot metering is done in the center.

Option 3 further reduces the AF points to 9 and spot metering is linked to the active point.

I prefer to have all 45 points available, but a new user who is not used to adjusting AF points with two dials and having 45 of them available can greatly simplify operation by switching to either 9 or 11 AF points. Options 1 and 3 are also very useful for photographers who prefer spot metering, as they can change the spot that is metered by simply moving the AF point.

**E-TTL II Autoflash System**
**C.Fn-14 determines how flash exposures are calculated.** Setting 0, the default option, calculates how much reduction in flash power is needed to properly balance the exposure in a fill-flash situation. The algorithms are very much biased toward flash over ambient, so most photographers dial in significant negative flash exposure compensation to better balance the flash versus the ambient illumination. As much as two stops of reduction are not uncommon to get a more natural looking effect.

With the introduction of the EOS 1D Mark II, Canon changed the function of Option 1. On older models, this simply turned off automatic flash exposure reduction making it useful only for extreme backlit situations such as a person standing in front of a sunset. In any other situation, even with three stops of flash exposure reduction, the image would be heavily overexposed.

On the Mark II, Option 1 changes that significantly. Like before, automatic flash power reduction is turned off, but the way the flash power is calculated has changed significantly. It now ignores the outer four metering segments thereby making it a center-weighted flash system. It also incorporates distance information fed to the camera by the lens and bases the flash exposure on that. This basically eliminates the background in the flash calculation giving us much more accurate flash output.

**Shutter Curtain Synchronization**
**C.Fn-15 determines when the flash fires during an exposure.** The default setting is front curtain sync. This means that the flash fires immediately after the shutter curtain has opened.

Option 1 changes this so that the flash fires just before the shutter curtain closes. Option 1 is more useful for moving objects as it will leave any motion blur behind the subject which is much more natural than leaving motion blur in front of the subject. For stationary objects it doesn't matter. I recommend rear-curtain sync, or Option 1, for most users.

**Safety Shift Setting**
**C.Fn-16 is the Safety Shift function.** Basically, it changes the aperture in Aperture-Priority AE mode or the shutter speed in Shutter-Priority AE mode if a proper exposure is no longer possible at a selected exposure value. For example, if you have a lens set to f/2.8 and you are shooting in bright conditions, the safety shift function will automatically set a smaller aperture. If the shutter speed required to obtain a proper exposure is faster than 1/8000 of a second, the camera will automatically adjust the aperture to maintain proper exposure. Similarly if you have set the camera at a specific shutter speed, if there is no aperture available that will give the proper exposure at that shutter speed, the camera will adjust the shutter speed to maintain a useable exposure.

The default option is "off", while Option 1 turns this safety shift option on.

I prefer to keep the camera in the default option. The viewfinder blinks if you are out of available aperture or shutter speed, so I prefer to make the selection rather than have the camera do it. This is again personal taste. The danger of turning this option on is that it can lull you into thinking you are taking good photographs when you are not. Take an example where you are shooting a certain scene at f/8 for adequate depth of field. Once the shutter speed hits 1/60 of a second, it will open up the lens probably without you noticing that it is doing that, thereby reducing the DOF and possibly ruining the shot.

**AF Point Activation Area**
**C.Fn-17 is the autofocus point expansion function.** In the default mode, only the selected AF point or points are active.

Set to Option 1, the 7 AF sensors immediately around the selected AF point are also activated.

Option 2 increases this to 13 points. Either option can be very useful to keep an AF point over the subject especially during fast action. The downside is that there are now sensors available that may not be on the subject and this could result in the AF system "grabbing" the wrong area to autofocus on. The shooting situation will dictate which is the best option. My personal preference is the default option where only one sensor is active in single point AF mode.

**Switch to the Registered AF Point**
**C.Fn-18 determines how you register and access the registered AF point.** The default mode is to push the Assist + AF button.

Option 1 changes this to the assist button only. Option 2 also uses the assist button only, but the registered AF point is active only while the button is pushed. I find the default option almost impossible to work with, as it is a two-handed operation on the right side of the camera forcing the photographer to remove their eye from the viewfinder. Option 1 and 2 are much more useful as the AF point can be changed to the registered point easily while looking through the viewfinder.

**Lens AF Stop Button Function**
**C.Fn-19 is the Lens AF Stop Button Function.** It is confusing and the literature on it is nonsensical. It is designed to only work with the super telephoto lenses that have AF stop buttons on the outer barrel of the lens. I recommend that virtually all photographers leave this in the default function. The default function causes the lens to immediately stop autofocus activity when one of these buttons is pushed.

Option 1 starts AF only when these buttons are pushed.

Option 2 forces auto-exposure lock when the lens buttons are pushed.

Option 3 causes the AF system to revert to 45 pointAF when the lens buttons are pushed.

Option 4 causes these buttons to toggle between One Shot and AI Servo autofocus modes.

Option 5 allows a press of the button to engage the Image Stabilization (IS) system on the lens and deactivates IS coupled to the shutter button.

As you can see, these could be potentially useful functions but reading the Canon documentation can cause confusion. Use this brief description as your guide if you wish to use one of these options.

**AI Servo Tracking Sensitivity**
**C.Fn-20 is only active in AI Servo autofocus mode. It controls how fast the lens will jump from a subject that it is focused on to another subject if it enters the AF point zone.**

Option 0 is the default and is a medium sensitivity while options 1 and 2 cause the AF to jump slower and options 3 and 4 cause it to jump faster. Note that this has nothing to do with focus acquisition speed. It only affects how quickly the AF system will jump to another focus plane. I did extensive tests on this with the EOS 1Ds and found that the standard setting is best in most cases. However, if you are shooting moving objects that occasionally pass behind other objects and then emerge on the other side, setting this to a slower setting could be beneficial as the lens will be less likely to grab the area that the subject momentarily moves behind.

**AI Servo Continuous Shooting and Shooting Priority**
**C.Fn-21 determines whether or not a shot will be taken in AI Servo autofocus mode even when the AF system has not locked onto anything.** In the default mode, depressing the shutter will not cause the shutter to trip if the AF system determines that it has not locked onto anything.
With Option 1 enabled, the shot will be taken anyway. I recommend Option 1 – at least you will get something and who knows, maybe the depth of field was enough to still get a useable photograph.

The custom functions available on the rear panel of the EOS 1D series cameras allow quite a bit of customization to tailor the camera for specific uses and specific preferences. The camera can be customized to an even higher degree with Personal Functions which we will cover next month.

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