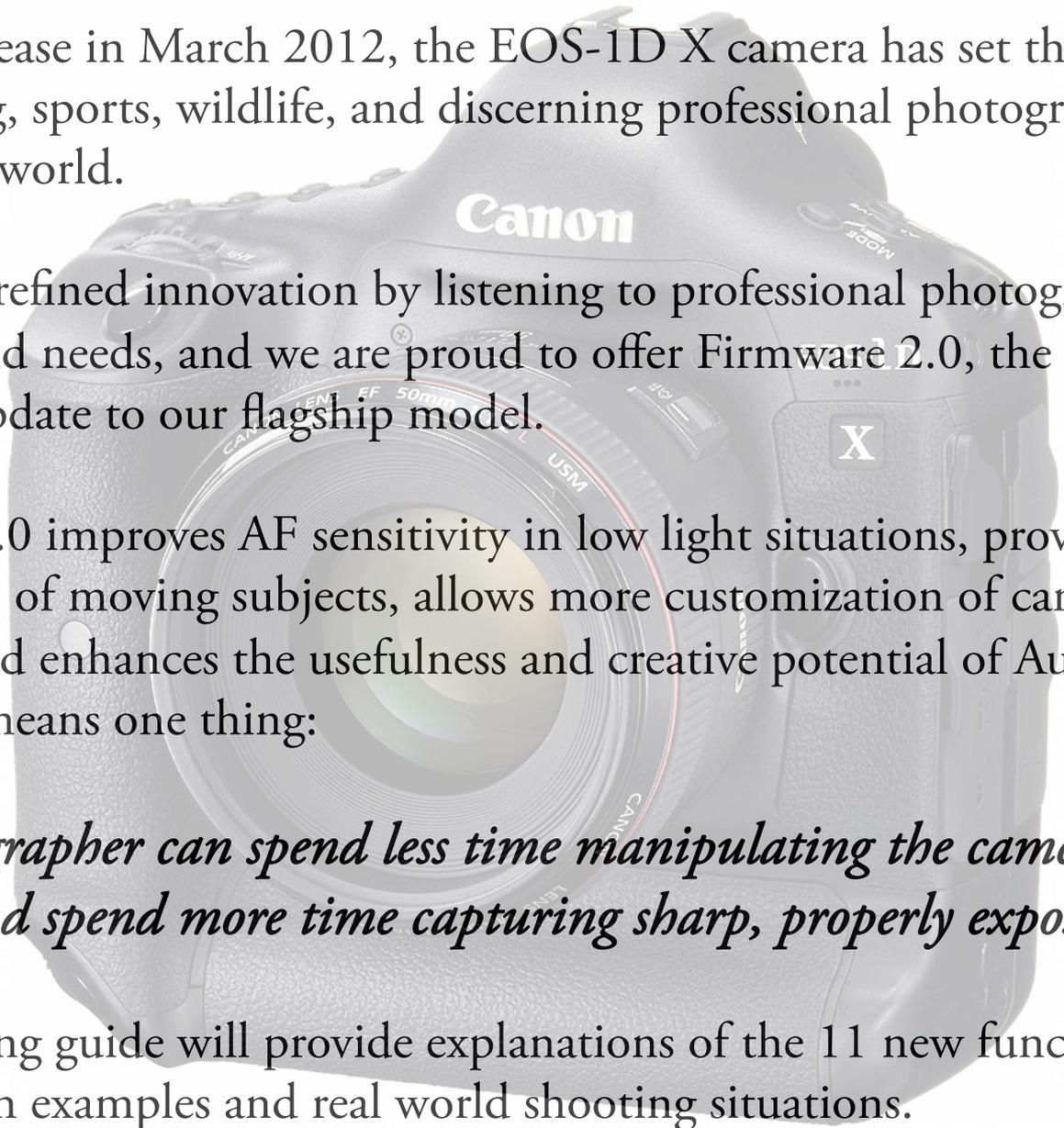




Refined Innovation



Since its release in March 2012, the EOS-1D X camera has set the standard for wedding, sports, wildlife, and discerning professional photographers around the world.

Canon has refined innovation by listening to professional photographers' concerns and needs, and we are proud to offer Firmware 2.0, the latest firmware update to our flagship model.

Firmware 2.0 improves AF sensitivity in low light situations, provides more accurate AF of moving subjects, allows more customization of camera controls, and enhances the usefulness and creative potential of Auto ISO. All of this means one thing:

The photographer can spend less time manipulating the camera's controls and spend more time capturing sharp, properly exposed images!

The following guide will provide explanations of the 11 new functions and settings with examples and real world shooting situations.

What's New with firmware version 2.0

<i>AI Servo AF Characteristics Parameters</i>	Acceleration / Deceleration tracking	Settings expanded for greater AF stability with subjects moving at steady speeds, or subjects with little movement.
<i>AF Function</i>	Low light AF performance	New AF sequence = better low-light AF
	AI Servo 2 nd image priority	Expanded settings: new +2 for superior low-light AF; new -2 for fastest FPS
<i>Custom Control</i>	Metering and AF Start	New options to instantly change AF characteristics by pressing either the rear AF-ON button, or AE Lock button.
	ONE SHOT \longleftrightarrow AI SERVO	
	Exposure Compensation in Manual mode, with Auto ISO	Lighten/darken in M with Auto ISO
<i>AF Operation Ease</i>	Orientation Linked AF points	Improved to allow faster selection of AF points and / or AF Point Selection Method.
	Use same starting AF point with Auto AF Point selection as Manual Select	
<i>Exposure Control</i>	Auto ISO: faster minimum speeds	User-defined <i>slowest</i> shutter speed with Auto ISO now can be set up to 1/8000.
	Maintain consistent final exposure if lens aperture changes in Manual	Automatic adjustment of shutter speed / ISO if f-stop changes from extender, etc.
<i>Jump Playback</i>	Display Protected images only	Additional option for playback of protected images only.

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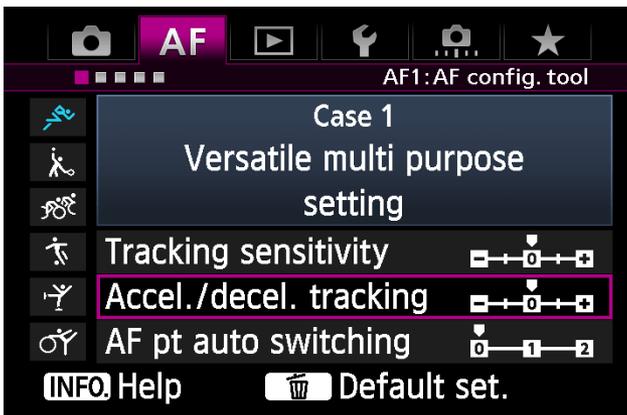
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New AI Servo AF functions



Low Light Autofocus Performance

Already superb in its ability to focus-track moving subjects, the EOS-1D X now gets enhanced low-light performance when using AI Servo AF... and no user input is required.



Low Light Autofocus Performance

- Revisions in AI Servo AF sampling sequence allow more time for light-gathering during initial stages of focus calculation... result is that from the start, the AF system has even better “look” at moving subjects
- Additionally, initial AF operation is now based on the “+2” focus priority setting of AI Servo 2nd Image Priority. Thus, as information is gathered and lens is initially driven, it’s done with focus priority.
- *On full press of the shutter button*, user-applied settings from AI Servo 1st Image Priority take over, then settings from AI Servo 2nd Image Priority are applied on any subsequent images in the burst.

These changes increase the probability that the first image in a sequence will be at maximum sharpness — again, without any user input required.

Acceleration / Deceleration Tracking

*A revolutionary aspect of the EOS-1D X's AF system is its ability to adjust for different **types** of subject movement*



Subjects moving consistently, at steady speed



Subjects that start, stop and move erratically

Acceleration / Deceleration Tracking

- New: “-1” and “-2” settings, for even greater focus stability with subjects moving steadily at consistent speeds
- “-2” *setting*:
Greater focus-tracking consistency if something *near the subject* momentarily interferes with AF system’s view of subject... AF less likely to get thrown off if another athlete approaches your subject, sprinter’s arms briefly appear in AF target area of tightly-composed picture, water splashes from swimmer, etc.
- “-1” *setting*:
Increases focus-tracking stability with moving subjects having no rapid changes in speed... from bride and groom walking down aisle, to race car coming down a straightaway. (Setting “0” accommodates some subject speed changes.)
- Settings “0”, “+1” & “+2” remain the same. “+1” and “+2” should be considered when the subject movement is likely to be more of a stop-start character, such as tennis, basketball, US football, and wildlife that might be eluding a predator.

See fig. 1 & 2 on pg. 37

AI Servo 2nd Image Priority

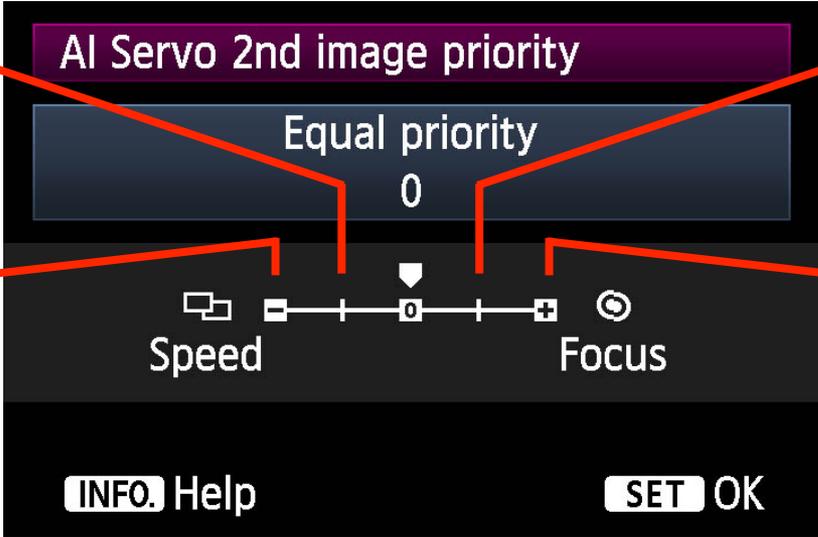
In shooting a sequence of a moving subject, do you want AI Servo AF to take the time to deliver absolute sharpest results, from one shot to the next? Or, do you want fastest possible FPS drive speed? “2nd Image Priority” lets the photographer decide.



See fig. 3 & 4 on pg. 37

AI Servo 2nd Image Priority

- *“Speed Priority:”*
Camera will shoot at fastest possible FPS rate, even if AI Servo AF hasn’t confirmed sharpest focus for each shot in a continuous, high-speed sequence
- *“Focus Priority:”*
AI Servo AF will slow down the FPS shooting speed, if necessary, to insure sharpest possible focus of each frame in a continuous shooting sequence
- *New: Extended range of Speed/Focus Priority settings*
EOS-1D X firmware v. 2.0 expands the range of settings, giving users two Speed Priority selections, and two Focus Priority choices.



The screenshot shows the camera's menu for "AI Servo 2nd image priority". At the top, the title "AI Servo 2nd image priority" is displayed in a purple box. Below it, a dark blue box contains the text "Equal priority" and the number "0". A horizontal slider is positioned below the "0", with a white arrowhead pointing to the center. The slider is labeled "Speed" on the left and "Focus" on the right. Below the slider, there are icons for a camera, a minus sign, a plus sign, and a target symbol. At the bottom of the menu, there are two buttons: "INFO. Help" and "SET OK".

“-1” setting:
Modest emphasis on maintaining FPS speed

“+1” setting:
Slight increase in shot-to-shot sharpness; minimal impact on speed

New — “-2” setting:
Increased emphasis on shooting speed; less emphasis on getting every frame tack-sharp

New — “+2” setting:
AF system given even more time for consistent sharpness; FPS rate can slow down.

A white picket fence runs along a snow-covered path. In the background, there is a large, rounded mound covered in snow, possibly a snowbank or a covered structure. The scene is set in a winter landscape with bare trees visible in the distance under a clear blue sky.

*New
AF Operability*

Change AF settings instantly

Dedicate either the rear AF-ON or AE Lock button to instantly change different AF characteristics, on the fly, when one of these buttons is pressed

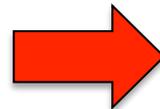
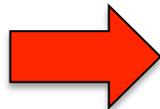


See fig. 5 – 8 on pg. 36

Change AF settings instantly

Use Custom Controls to dedicate either the rear AF-ON and/or AE Lock () buttons to instantly change any of the following on the EOS-1D X:*

- *AF start point:*
Either the currently-selected AF point or a memorized AF point will be used upon press of the button.
- *New: AI Servo AF characteristics*
Immediately switch to an entirely different AF “Case,” even in the middle of a high-speed sequence, to tailor AI Servo AF to changes in subject movement
- *New: AF Mode*
Dedicate either button to instantly switch from One-Shot AF to AI Servo AF, or vice-versa. Especially useful if a stationary subject suddenly begins to move.
- *New: immediate switch to 14 fps Super High-speed shooting*
Set either back-button to allow an immediate switch from normal high-speed shooting (maximum 12 fps) to the EOS-1D X’s special 14 fps, Super High-speed setting. (Note: only possible if set for JPEG images, and on “Continuous/H”)



Change AF settings instantly



Potential Application: Wedding photography

AF-ON button:

One-Shot AF; Instant switch to memorized AF pt.
(camera immediately ready for stationary subjects, shots of rings, cake, church, groups, and so on)

AE Lock (*) button:

AI Servo AF; Current AF point; [Case 1] AI Servo AF
(camera now ready for moving subjects: bride coming down aisle, introduction of wedding party at reception, first dance)



Potential Application: Wildlife

AF-ON button:

Current AF point; [Case 2] AI Servo AF; AI Servo AF;
(camera can instantly jump to AI Servo AF with current AF point, and AF now set to ignore obstacles like tree branches, etc.)

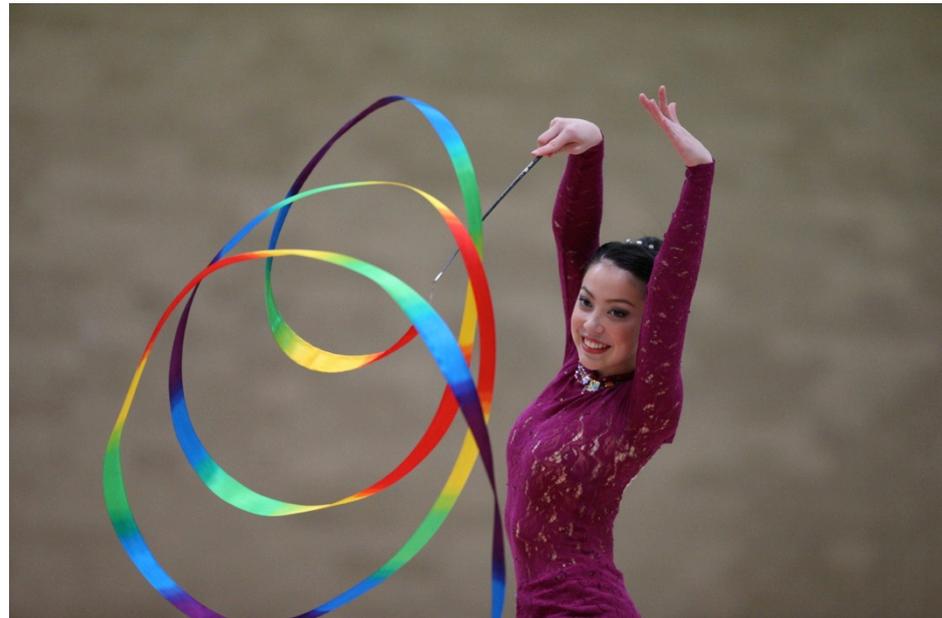
AE Lock (*) button:

Instant switch to memorized AF point; 14 fps Super Hi-speed
(EOS-1D X will instantly lock focus with memorized AF point, lock mirror and fire at 14 fps when shutter fully depressed)

Change AF settings instantly

One Shot AF ⇌ *AI Servo AF*

Immediately switch from whichever AF mode you're using — One-Shot AF or AI Servo AF — to the other, by just pressing either back button



Change AF settings instantly

One Shot AF ⇌ *AI Servo AF*



Potential Application: Fashion photography

AF-ON button:

Switch AF Mode to AI Servo AF

(camera can instantly be ready if normally stationary model begins to move; camera reverts to One-Shot when thumb removed from AF-ON button; AEL [] button could be used as well)*



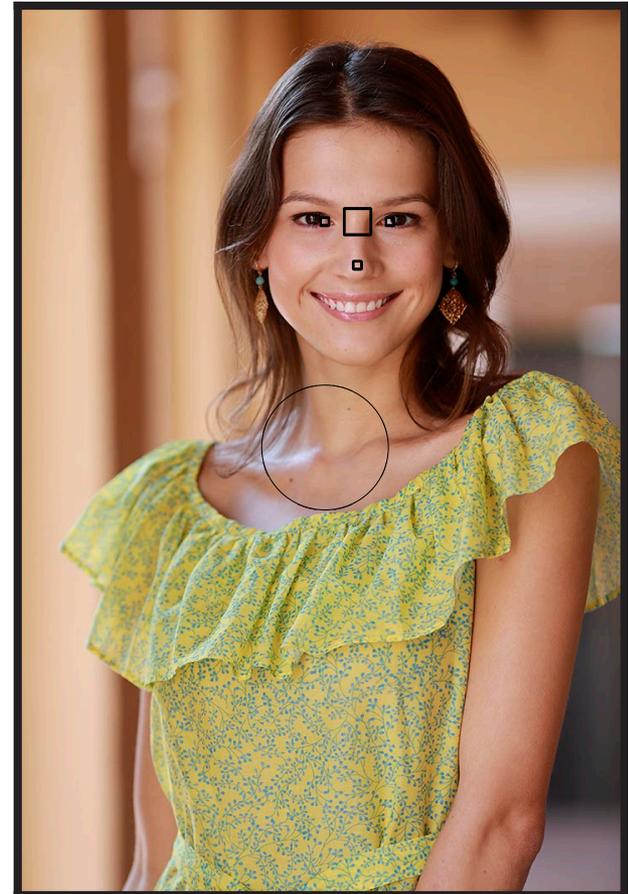
Potential Application: “back-button AF” users

Assign One-Shot AF to one button, AI Servo AF to other

Photographers who normally use “back-button AF” can now have their choice of AF mode literally at their thumb: Assign AF-ON button to one AF mode, and AE Lock (*) button to the other.

Orientation Linked AF Points

A brilliant EOS-1D X feature, allowing shooters to select one AF point for horizontal shots, another for verticals, and automatically switch from one to the other whenever the camera is rotated.



Orientation Linked AF Points

- *Same for both vertical / horizontal*
(camera default operation) Orientation Linked AF is *off* — any AF point and AF Area type can be selected; *it remains unchanged* if camera turned from horizontal to vertical, or vice-versa.
- *Separate AF pts: Area + Point*
Orientation Linked AF is *on* — different AF Area types (single AF Point, Spot AF, AF Point Expansion, Zone AF) can be set for horizontal AF point and vertical AF point. AF Area is independent for each. (*Same operation as EOS-1D X with previous firmware versions.*)
- *New: Separate AF pts: Point only*
Orientation Linked AF is *on*. New with firmware v. 2.0 and above — *same AF Area type is used* for both horizontal and vertical AF points selected by user; if AF Area for either point is changed, the other automatically changes as well.

See fig. 11 & 12 on pg. 37

Automatic AF point selection in AI Servo AF

Two EOS-1D X capabilities make using Automatic AF point selection — all 61 AF points are active — a viable option with moving subjects in some shooting situations. One is the system's ability to let the user pick the start point to begin tracking the subject. And the other is the EOS-1D X's superb use of its RGB color metering system to locate the subject, and assist the AF system in continuing to follow it as it moves around the frame.



Automatic AF point selection in AI Servo AF

New: use same starting point for AI Servo AF with Automatic AF point selection that was last used during Manual point selection

- *Initial  AF point selected:*
Same as previous EOS-1D X operation: select any individual AF point as starting point for Automatic AF point selection during AI Servo AF
 - *Starting AF point location completely independent of last AF point manually chosen by photographer*
- *New — Manual     AF point:*
Last AF point manually chosen by photographer will be starting point if AF Area is changed to Automatic AF Point Selection. Seamless and quick transition if a user suddenly wants to move from manual to automatic AF point selection.
 - *Also applies if user assigns Automatic AF Point Selection as one of variables with “Register / recall shooting function” in Custom Controls Menu*

New

*Exposure
functions*

Auto ISO: Exposure Compensation in “M”

Heavily requested by serious EOS shooters, firmware v. 2.0 now allows users to deliberately darken or lighten exposures, when Auto ISO is combined with Manual exposure mode



Auto ISO: Exposure Compensation in “M”

Auto ISO with Manual exposure mode gives shooters the ability to keep the same shutter speed and aperture, maintaining consistent motion and depth-of-field control, while ISO adjusts to give proper exposure as lighting changes.

With EOS-1D X and firmware 2.0 or above, adjust overall exposure as follows:

- Assign Exposure Compensation to the SET button (via Custom Controls); turn the Main Dial while holding down the SET button.*
- Or, press the **Q** button, highlight Exposure Comp scale, and turn the Quick Control Dial on the back of the camera.**



Deliberate exposure adjustments are frequently done by photographers who prefer Manual exposure mode; with Firmware v. 2.0, the EOS-1D X now has two methods to apply intentional Exposure Compensation when Manual exposure mode is used with Auto ISO.

*fig. 9 pg 36

**fig.10 pg. 37

Auto ISO: slowest user-defined shutter speed

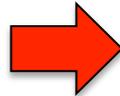
An important aspect of Auto ISO for the serious shooter is being able to set their desired slowest shutter speed, when using P or Tv exposure modes... if light levels drop enough that this minimum speed is reached, Auto ISO will immediately raise ISO level to preserve sufficiently fast shutter speeds.



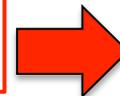
Auto ISO: slowest user-defined shutter speed

New: set user-defined slowest shutter speed for Auto ISO up to 1/8000th of a second... with EOS-1D X firmware versions lower than 2.0, the fastest speed that could be set here was 1/250th second.

ISO speed settings



Minimum shutter speeds



Min. shutter spd.					
Shutter speed					
Auto					
AUTO	1/8000	1/4000	1/2000	1/1000	
1/500	1/250	1/125	1/60	1/30	
1/15	1/8	1/4	0"5	1"	

INFO Help



Potential Application: Sports photography

Use Auto ISO; pre-set a fast "minimum" shutter speed

Especially useful for situations where half of outdoor field is in sun, and half in shade: camera in Av mode, set desired aperture, then set fast minimum speed, such as 1/1000th sec. If subject runs from sun to shade, camera will preserve minimum speed, and raise ISO automatically.

Maintain Exposure with new Aperture

Until now, photographers working in Manual exposure mode and using tele-extenders, or a variable-aperture zoom at widest (or smallest) aperture, could find themselves with an aperture that suddenly changed — such as when attaching a tele extender, changing from a wide-aperture lens to a slower one, and so on.



Maintain Exposure with new Aperture

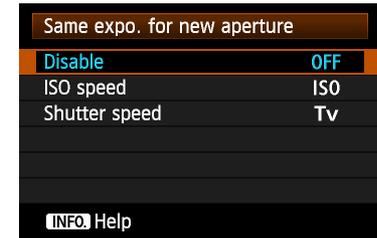
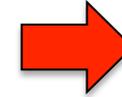
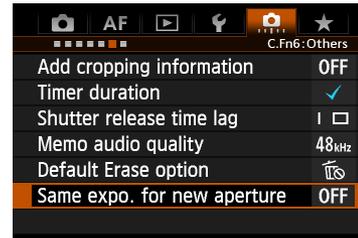
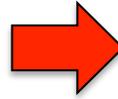
New: EOS-1D X with firmware v. 2.0 and higher can automatically vary shutter speed or ISO — even in full Manual exposure mode — if lens aperture suddenly changes, because of a change in lens, addition of a tele-extender, variable-aperture lens zoomed at widest opening, etc.

- *Disable*
Same operation as with previous versions of EOS-1D X firmware; if lens aperture shifts unexpectedly, *user must manually adjust either shutter speed or ISO to compensate*
- *New — ISO speed*
EOS-1D X will automatically adjust ISO speed, even when ISO is being set manually by the photographer, to assure consistent exposure if lens aperture unexpectedly changes
- *New — Shutter speed*
Manually-set shutter speed will be automatically adjusted by camera to provide consistent exposure level, if lens aperture unexpectedly changes

See fig. 16 &17 on pg. 37

Maintain Exposure with new Aperture

Custom Function Menu



Changing from fast-aperture lens to slower one

In Manual exposure mode and pre-set to wide lens aperture, if a “fast” lens (example — 50mm f/1.2L, used at f/1.8) is removed and replaced by 70-200mm f/4L IS, its f/4 max. aperture will under-expose by more than two full stops.

Adding tele extender

In Manual exposure mode, if proper exposure is set by photographer for a lens alone at lens’s widest aperture (such as 70-200mm f/2.8L IS, 300mm f/4L IS, or even EF 200-400mm f/4L IS Extender 1.4x lens), and then an extender is added, exposure level drops by 1 stop (1.4x) or 2 stops (2x). This new Custom Function can adjust for this, changing either shutter speed or ISO.

Variable-aperture zoom lens, at widest aperture

If proper exposure is manually-set with lens zoomed to wide setting and widest aperture (such as f/4, with EF 70-300mm L lens at 70mm), and it’s then zoomed to 300mm, the shift to f/5.6 will under-expose by one stop unless compensated for.



New

*Image
Playback
function*

Display Protected Images Only

EOS-1D X allows users to “protect” images on a memory card from accidental erasure. A dedicated PROTECT button on the back of the camera, with an icon like an old-style key, allows quick access.



Display Protected Images Only



New: Firmware v. 2.0 (and up) for EOS-1D X provides option to only play back those files that have been protected, in-camera.

Playback Menu

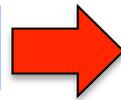
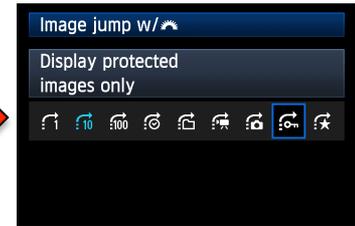
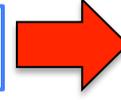


Image Jump



- With dedicated, external PROTECT button on rear of camera, it's easy to quickly mark pictures for playback
- An easy way to rapidly show only selected images to clients, other photographers, and so on — avoid showing out-takes, etc.

See fig. 18 on pg. 37



fig. 1

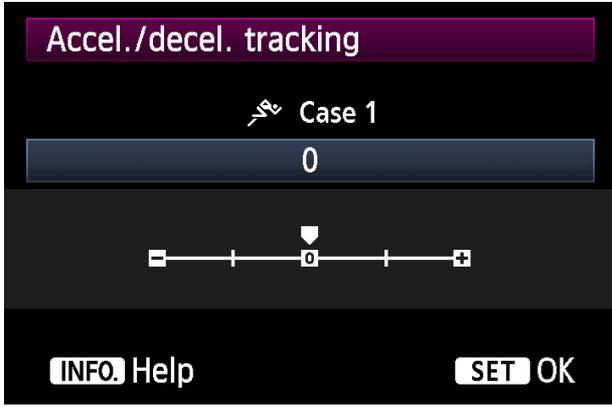


fig. 2

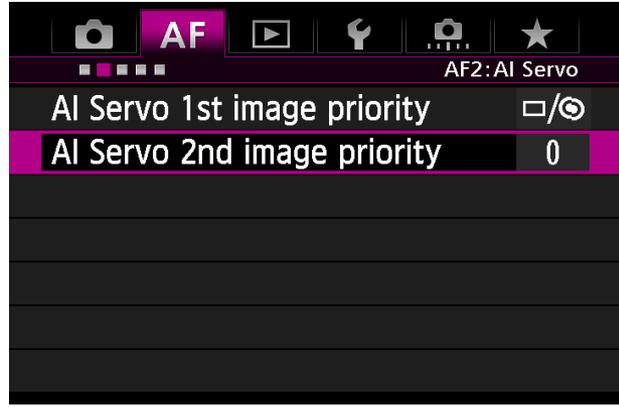


fig. 3

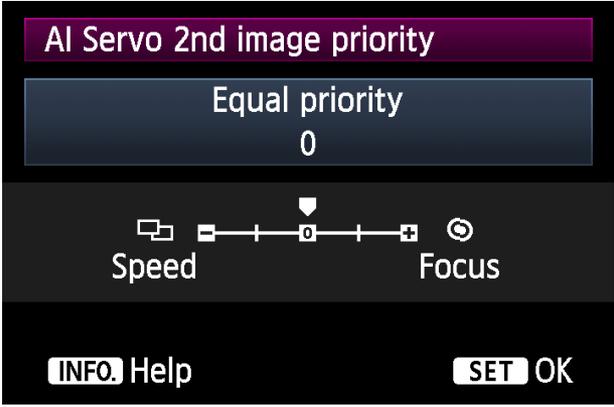


fig. 4

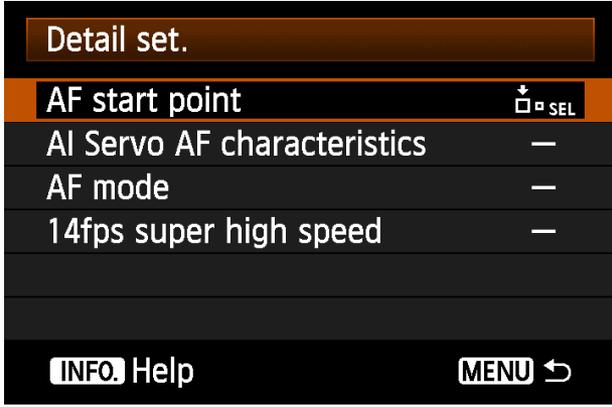


fig. 5

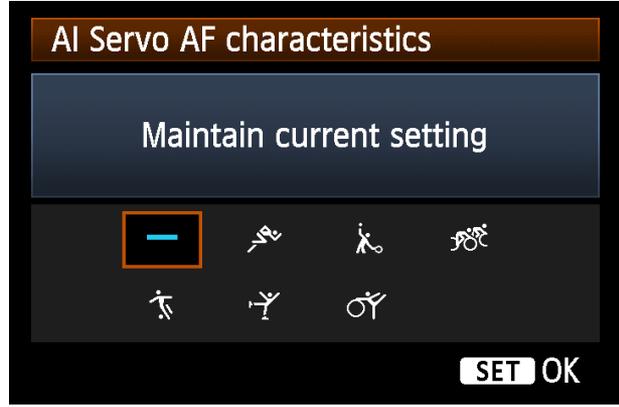


fig. 6

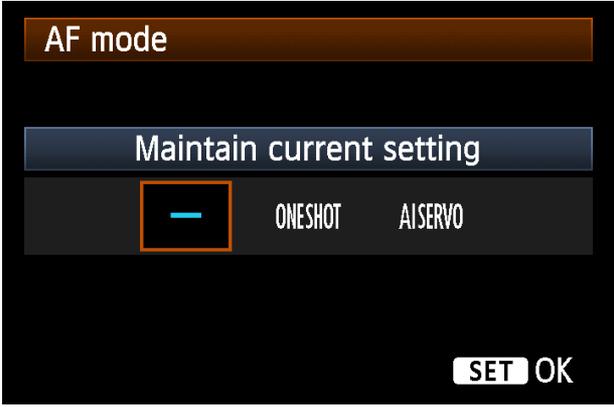


fig. 7

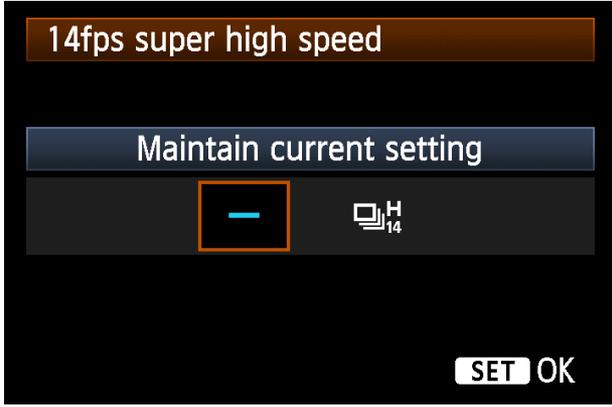


fig. 8

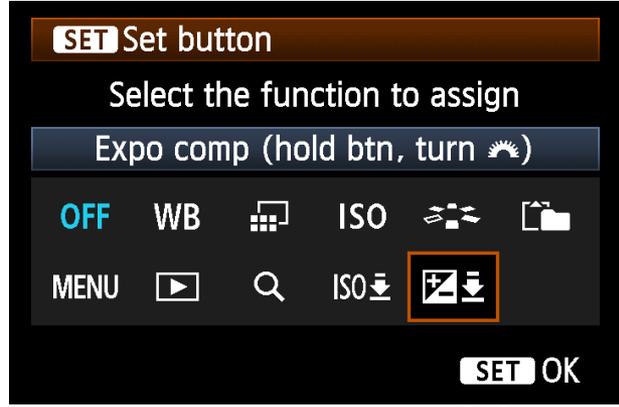


fig. 9

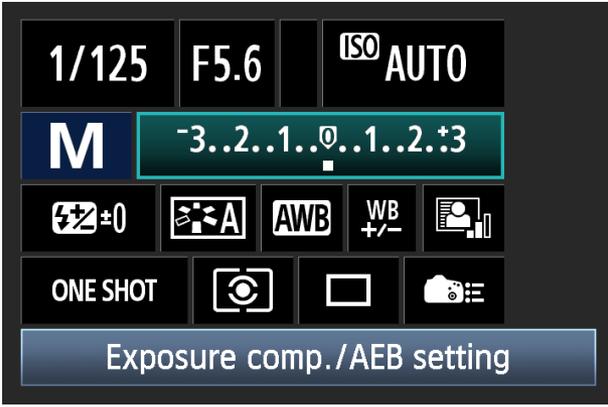


fig. 10

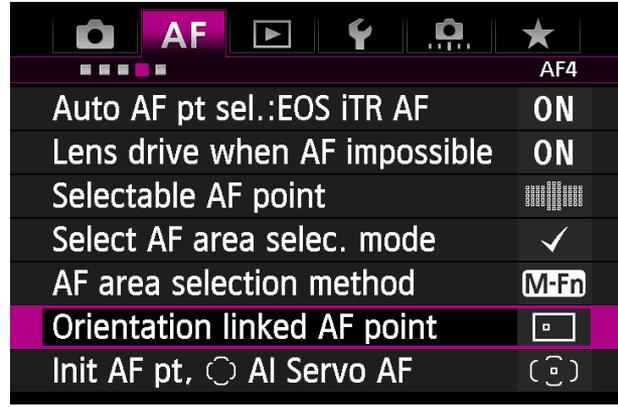


fig. 11

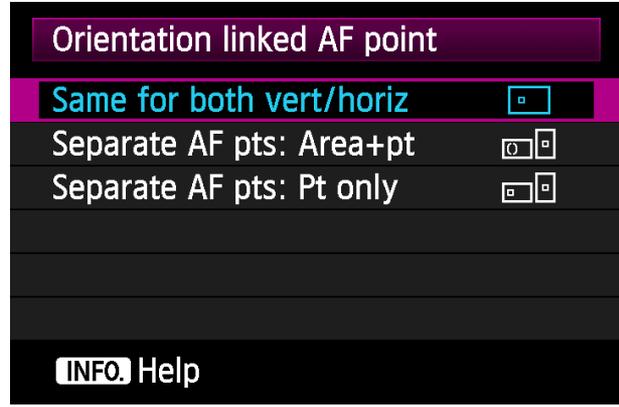


fig. 12

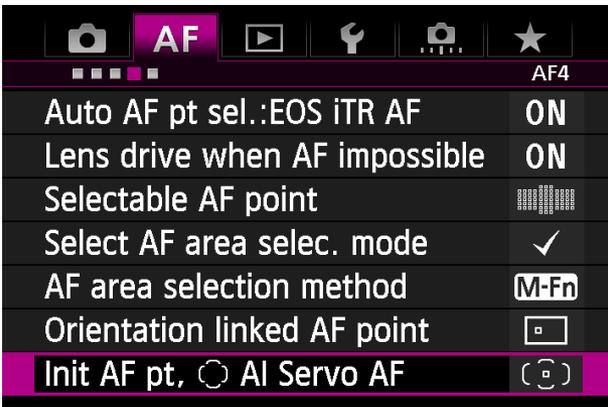


fig. 13

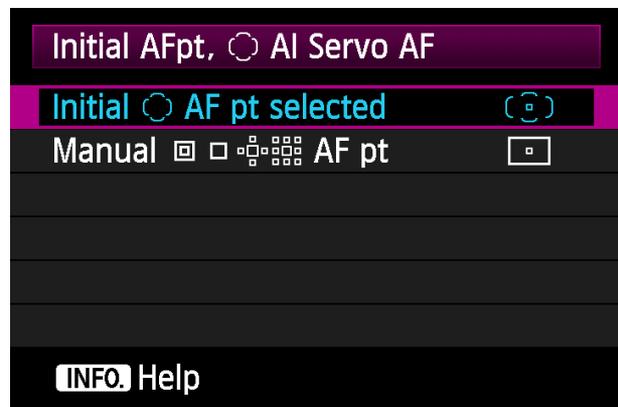


Fig.14

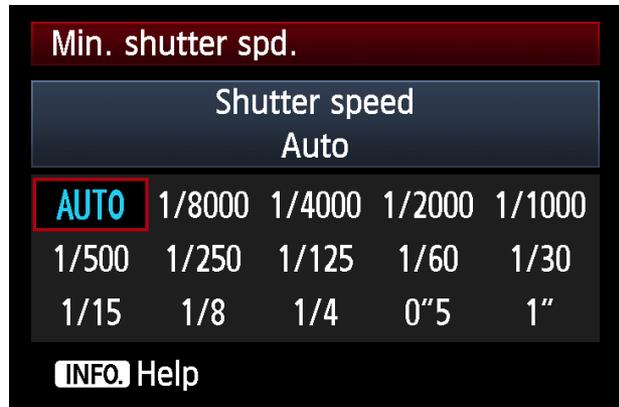


fig. 15

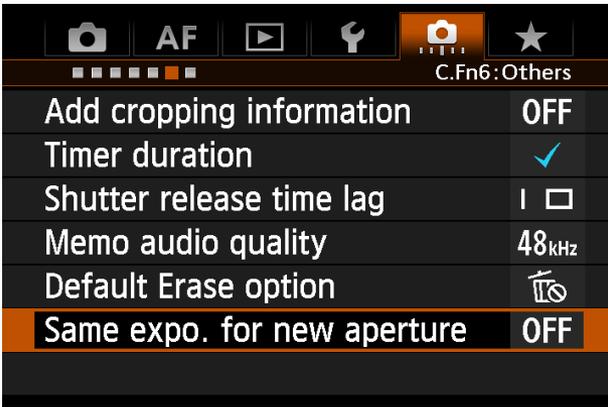


fig. 16

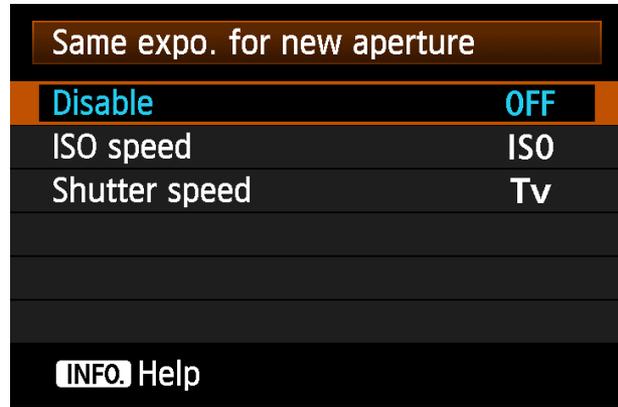


fig. 17

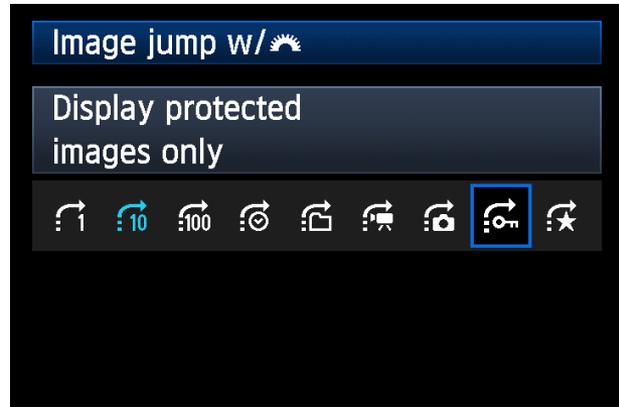


fig. 18



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EOS-1D

X

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