Exploring the 580EX II and 430EX II Speedlites

The 580EX II and 430EX II are the flagships of the Canon Speedlite System, and in conjunction with E-TTL II and some simple lighting modifiers, they can create some extraordinary light in challenging situations. A revolution of small-flash lighting techniques has captured photographers who were used to carrying around all sorts of heavy studio lighting gear, and who now have the ability to carry a small studio arsenal in one bag. Set aside for a moment what you've previously thought about flash photography because it's a whole new world out there.

This chapter gets you acquainted with the main features and functions of the two major flash units of the Canon Speedlite System: the 580EX II and the 430EX II. I also cover all the features and functions of the other parts of the Canon Speedlite

Speedlites can be used to create studio-quality lighting, as in this portrait of high school lacrosse player Greg Stearns. Three Speedlites were used in this photo: one with a purple gel for the background, one undiffused for the edge light at camera-right, and one for the main, fired through a white translucent umbrella, at camera-left. Exposure: ISO 100, f/5, 1/200 second with an EF 70-200mm f/2.8L USM lens.

System, including the ST-E2 wireless transmitter, along with an overview of a smaller entry-level Speedlite and the two macro Speedlite options.

Features of the Canon Speedlite System

The main components of the Canon Speedlite System are any Canon dSLR camera and the feature-rich 580EX II and 430EX II Speedlites, which replace the 580EX and 430EX respectively in Canon's lineup. Additional components include the OC-E3 Off-Camera Shoe Cord 3, the Speedlite Transmitter ST-E2, the Macro Twin Lite MT-24EX, the MR-14EX ring-lite, and the new 270EX Speedlite, which replaces the 220EX flash. All Canon EOS dSLRs can be used with the Canon Speedlite System.

In this section, let's look at some of the cool features that are available with the Canon Speedlite System.

► **E-TTL II.** Canon's most advanced flash metering system uses preflashes and flash metering algorithms to determine the proper flash exposure. The E-TTL II system reads information from all metering zones before and after the preflash. Areas with little change in brightness are then weighted for flash metering. This is done to prevent a highly reflective surface or overly bright area from creating a false reading, thereby causing underexposure. When using certain EF lenses, distance information is also reported back to the flash and entered into the algorithm.

► **Flash Exposure Lock (FEL).** FEL enables you to pop the flash to meter the subject, get a reading for the proper flash exposure, and lock in that information. Pressing the FEL button enables you to meter the subject via a test flash and then recompose the shot while maintaining the proper flash exposure for that subject.

NOTE Some Canon camera bodies have a separate FEL button, while others have buttons that can be assigned to the FEL function.

► **Wireless lighting.** This feature allows you to use your Speedlites wirelessly. When using wireless lighting, you need to have either a 580EX II, either of the Macro Speedlites or an ST-E2 wireless transmitter set as a master unit. A master unit fires a preflash, which then transmits information back and forth between the camera and the flash. The master unit can control multiple Speedlites wirelessly, allowing for more creative lighting setups.

► **High-speed sync.** This feature allows you to use your flash at higher shutter sync speeds than your camera body is rated for. This setting is often used to freeze action or when you want to shoot outdoor images that require a wide aperture and higher shutter speed.

▶ **AF-assist beam.** The 580EX II and 430EX II have a built-in, red LED that projects a gridded light pattern onto the subject to aid the camera's autofocus (AF) system in very dark or low-contrast situations. This beam typically offers coverage for up to a specific number of AF points.

▶ **Flash color information communication.** As flash duration becomes longer, the color temperature changes slightly. The Canon Speedlites transmit this change to the camera body, ensuring a more accurate white balance.

580EX II

The flagship of the Speedlite lineup, the 580EX II debuted in May 2007 and has many improvements over its predecessor, the 580EX; it also includes many features that offer a great deal of versatility. These upgrades include a 20-percent-faster recycle time, metal mounting foot, mounting lock lever, power switch design, receive-only external PC terminal, and dust- and water-resistant seals (a blessing for sports and photojournalism photographers). This is Canon's first weather-resistant flash.

580EX II specifications and features

This section provides a brief look at different features that are available on the 580EX II Speedlite.

▶ **Guide number (GN).** A flash unit's guide number is used to determine the proper exposure when shooting manual flash without a flash meter. With today's advanced flash systems, guide numbers are most often used to compare power output between flashes. Guide numbers are usually given for both feet and meters so be sure you use the right one in your calculations. The guide number varies with the zoom settings, from GN 28/92 (meters/feet) at 24mm to GN 58/190 (meters/feet) at 105mm. See your owner's manual for more information on GNs for specific zoom ranges.

▶ **Automatic zooming flash head.** This provides lens coverage from 24mm to 105mm. It supports up to 14mm coverage with the built-in wide-angle lens panel.

▶ **E-TTL.** The 580EX II supports E-TTL II, E-TTL, and TTL, along with full manual flash output operation.

▶ **Wireless lighting.** You can control up to three different groups of Speedlites in E-TTL II or Manual mode.

Understanding the Guide Number

Although the actual power of the flash is fixed, the guide number (GN) of the flash changes with the ISO setting of the camera and also varies with the zoom setting of the flash. This is due to the increased sensitivity of the sensor and the actual dispersion of the light when set to a specific zoom range. When the ISO is at a higher setting, the sensor is more sensitive to light, in effect making the flash more powerful, hence a higher GN.

Also, when the zoom is set to a wide angle, the flash tube is positioned farther back in the flash head, spreading the light and giving it wider coverage. This makes the flash somewhat less bright, thereby warranting a lower GN.

Remember that the guide number is exactly that — a guide. In reality, it is nothing more than a number assigned by the manufacturer to assist you in obtaining the correct exposure (and also a means of comparing light output among different Speedlites). Refer to your owner's manual for a table with the GN of the Speedlite at specific zoom ranges.

▶ **Second-curtain sync.** This function fires the flash at the end of the exposure, as opposed to the beginning of the exposure. This helps you capture more natural images when shooting long exposures, as it causes a trail to appear behind a moving subject and not in front of it, which occurs when the flash is fired at the beginning of the exposure.

▶ **AF-assist beam.** The 580EX II emits a grid of light from a red LED to assist in focusing in low-light situations.

▶ **High-speed sync (FP flash).** This function allows you to shoot with a shutter speed higher than the rated sync speed of the camera. This feature is useful when shooting portraits in bright light using a wide aperture with fast shutter speeds.

▶ **Flash Exposure Lock (FEL).** You can use this feature to get a reading from your subject and then recompose the shot while retaining the original exposure.

▶ **Flash Exposure Compensation.** Similar to the way exposure compensation is set on the camera, this function allows you to adjust the light output up or down in 1/3-stop increments over a +/– 3-stop range and still enjoy all the benefits of E-TTL II flash metering.

▶ **Modeling flash.** The 580EX II fires a short burst of flashes, allowing you to see what the light falling on your subject will look like.

▶ **Multi-Stroboscopic Flash mode.** The 580EX II fires a user-specified number of flashes per second, similar to a strobe light, for creative effect.

▶ **Tilting/rotating flash head for bouncing flash.** This allows you to tilt the flash head up to bounce light from the ceiling, or to the side to bounce light off of a wall. The 580EX II also allows you to tilt the flash head downward –7 degrees for close-up subjects.

▶ **Wide panel.** A pull-out wide panel is included to extend flash output to 14mm lens coverage. This is a huge plus when doing group photography in tight quarters or using a wide-angle lens for flash work.

▶ **Catchlight panel.** Just above the wide panel is a retractable white catchlight panel that allows you to create catchlights in your subjects eyes that add sparkle and vitality to the portrait.

▶ **PC terminal.** Included for the first time is a receive-only PC terminal for triggering the Speedlite with radio frequency remotes like PocketWizards or optical slave attachments.

▶ **External power supply socket.** For faster recycling times and longer flash shooting sessions, an external power supply socket is provided for the Canon CP-E4 Compact Battery Pack or third-party power supplies such as those marketed by Quantum and Digital Camera Battery.

▶ **External Speedlite control.** The latest Canon cameras include a menu option that allows you to set some or all of your Speedlites controls directly from the camera depending on the model of Speedlite. The benefit of this is that the camera's External Speedlite control menu provides more detail for the settings than the Speedlite's LCD.

Main components

The 580EX II Speedlite is an awesome tool for creating beautiful lighting and will start you on your way to "making" pictures instead of "taking" them. This is all the more reason why this flash can at first seem a little daunting to understand. I'll begin by going over all the buttons and controls and describing what each one does. I'll get to the "why" in later chapters.

▶ **Flash head/Wireless transmitter.** This is where the flashtube is housed. Inside is a mechanism that zooms the flashbulb forward and back to provide flash coverage for lenses of different focal lengths. The flash head is adjustable; it can be tilted upward to a full 90 degrees and downward to –7 degrees. It can also be adjusted horizontally 180 degrees to the left or to the right.

▶ **Bounce Lock Release button.** This button releases the flash-head lock, allowing you to adjust the angle of the flash head for bounce flash.

▶ **Battery compartment cover.** This cover is a vast improvement over the old 580EX. You slide the center button left and then downward to open the spring-loaded battery compartment to load or change the batteries.

1.1 The front of the 580EX II Speedlite

Bounce flash angle scale

LCD panel   Bounce Lock Release button

Pilot lamp   Mounting foot lock lever

Control buttons

Flash exposure confirmation lamp

1.2 The back of the 580EX II Speedlite

▶ **Wireless sensor for E-TTL II wireless flash.** This sensor reads signals from the master unit, enabling wireless flash operation.

▶ **External metering sensor.** The external metering sensor allows the flash to calculate its own light output without relying on the camera's metering system. The flash has to know camera settings (ISO, shutter speed, aperture) to calculate the

correct amount of output. Similar to older Thyristor-type flashes, external metering has to be set to manual mode and all the camera setting must be entered into the flash manually.

▶ **AF-assist beam emitter.** The 580EX II projects a red LED light-grid onto the subject to aid the camera's autofocus system to operate successfully in low-light or low-contrast situations. The AF-assist beam is compatible with 28mm and longer lenses.

▶ **Wireless remote ready light.** This operates as a ready light when the Speedlite is being used as a remote flash.

▶ **Flash head tilting-angle scale.** This feature allows you to tilt the flash head from normal (0) to 45, 60, 75, or 90 degrees and to –7 degrees for close-ups. While the flash head has detents at the values indicated on the scale, you can operate the flash at any angle between the detents.

▶ **Flash head rotation scale.** This feature denotes the horizontal rotation of the flash head from 0 to 60, 75, 90, 120, 150, and 180 degrees from the left. To the right, it can be adjusted from 0 to 60, 75, 90, 120, 150, and 180 degrees. While the flash head has detents at the values indicated on the scale, you can operate the flash at any angle between the detents.

1.3 Flash head tilting- and rotating-angle scales for bounce or creative flash

▶ **LCD panel.** This is a display panel where you view all of the Speedlite settings, Custom Functions, and controls.

▶ **Control buttons.** You can use the control buttons to specify settings and Custom Functions on the Speedlite.

▶ **Pilot lamp.** This light indicates that the Speedlite is ready to fire. After the Speedlite is fired, this light glows green for Quick flash, then red when the Speedlite is fully recycled and ready to fire again. Quick flash allows the flash to be fired again before it has totally recycled to its full power capacity once the lamp glows green. Quick flash is limited to between 1/6 and 1/2 of the full light output and is ideal for close subjects and when you want a shorter recycling time. Quick flash will not operate in Continuous shooting, FEB, Manual flash, or Multi-Stroboscopic Flash modes.

▶ **Flash exposure confirmation lamp.** This indicator glows green for about three seconds when standard flash exposure is attained.

▶ **Mounting foot locking lever.** This is a huge improvement over the old 580EX. This lever locks the Speedlite with a click into the camera's hot shoe or the included Speedlite stand.

▶ **Wide panel.** This built-in diffuser enables you to use the Speedlite with a lens as wide as 14mm without having light fall off at the edges of the image.

▶ **Catchlight panel.** This white plastic card reflects light back into the eyes, providing a catchlight when the flash is used in the bounced position.

▶ **External power source socket.** Canon's optional Compact Battery Pack CP-E4 external power source or a third-party power supply can be plugged into this socket.

▶ **Bracket mounting hole.** This is used to attach the Speedlite to the Canon SB-E2 Speedlite bracket. The SB-E2 allows the Speedlite to be attached to the side of the camera rather than to the hot shoe.

Wide panel
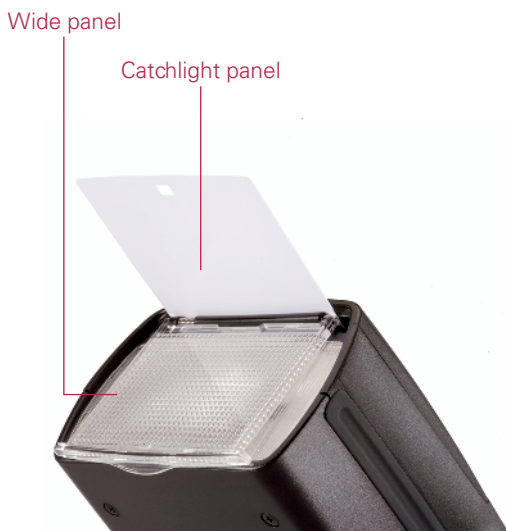
Catchlight panel

1.4 The wide panel and the built-in catchlight panel

Rubber covers

External power source socket

Bracket mounting hole

PC terminal

1.5 The side view of the flash

▶ **PC terminal.** New on the 580EX II, this receive-only PC (Prontor-Compur) terminal accepts a standard flash sync cord and allows the unit to be fired by a sync cord, third-party wireless remotes such as PocketWizards or Radio Poppers or optical slaves.

▶ **Hot shoe mounting foot.** A major improvement over the mounting foot of the old 580EX, this new one is now made of

1.6 The hot shoe mounting foot

metal and coupled with the new locking lever that securely connects the flash with the camera. This connector slides into the hot shoe on your camera body, locks the Speedlite to the camera with the locking lever, and is the important electrical communication connection between the flash and the camera.

Control buttons and Select dial

There are several control buttons, a dial, and a switch on the back of the 580EX II, so I'll describe how each one operates in order to get the best results from your new Speedlite. Some of them are obvious, such as the On/Off switch, but others control the menus and settings that you select. Spend some time getting acclimated to these controls so you can be ready to make future adjustments on the fly.

▶ **LCD Panel Illumination/ Custom Functions (C.Fn) button.** Pressing this button once turns the LCD light on for about 10 seconds for viewing settings in dim light. Pressing and holding this button brings you to the Custom Functions menu. You can scroll through the Custom Functions using the Select dial and choose them by pressing the Select/Set button.

1.7 The 580EX II's main panel, showing the control buttons and Select dial

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CROSS REF See Chapter 2 for tables displaying all the Custom Functions and their applications.

▶ **Mode button.** The Mode button is used to cycle among the different flash exposure modes of the 580EX II Speedlite and during wireless operation to manually adjust flash output. The three modes are:

- **E-TTL.** The exposure is determined by a brief pre-flash before the main flash in order to obtain a more correct exposure and measures the light coming through the lens. The camera then uses this information to blend the flash output with the ambient light.

- **M (full Manual mode).** You can use guide numbers or determine the flash output power by taking test shots then reviewing on the camera's LCD monitor. Output is adjustable in 1/3-stop power settings so that you can fine-tune your lighting or dial in each Speedlite individually in multi-flash lighting setups. You can also use an external flash meter to determine the flash and camera settings.

- **Multi-Stroboscopic Flash.** This mode allows you to fire the flash multiple times during a single exposure for creative effect.

▶ **High-Speed Sync (FP flash)/Second-Curtain Sync button.** Pressing this button once allows you to set the flash to High-Speed Sync. A digital camera shutter is comprised of two "curtains," one that opens the shutter to begin the exposure and one that closes it to end the exposure. High-speed sync allows you to shoot flash photos at higher than normal sync speeds due to the flash perfectly pulsing out light as the shutter curtains move across the sensor instead of just one pop when the shutter first opens.

Pressing it a second time turns on the second-curtain sync feature. In standard flash photography, the normal operation sequence is the shutter opens and the flash fires immediately. In this mode, the flash fires at the very end of the exposure, just before the second curtain closes. To return to standard flash, push the button once again.

Both of these features only work in ETTL and Manual flash modes, and not in Multi-Stroboscopic or wireless modes.

▶ **Zoom/Wireless Select/Set button.** Press this button to manually change the flash head zoom using the Select dial/Set button. Press and hold this button to enter the wireless control menu, where you set master/slave status, channel number, group designations, and slave ratios.

▶ **Pilot Lamp button.** Press this button when lit to test-fire the 580EX II to ensure it is functioning properly or to take a test reading using a handheld flash meter. This button also lets you know when the flash is fully charged and ready to fire. When the lamp glows green, the unit is ready for Quick flash; when it glows red, the flash is ready to fire at full power.

▶ **Select dial and Select/Set button.** You rotate the Select dial left and right, and confirm the settings by pressing the center Select/Set button.

  • **Left and right.** When scrolling left or right, you use this button to change the zoom of the flash, select custom functions settings, flash exposure compensation, manual flash output, wireless status, master/slave settings, multi-stroboscopic frequencies, or flash bracketing settings.

  • **Select.** The center button is the Select/Set button. You use this button to confirm the flash settings that you have selected by turning the Select dial.

▶ **On/Off switch.** You use this thumb switch to turn the Speedlite on or off.

580EX II accessories

The Speedlite ships with a soft, ballistic nylon case for storing and carrying your 580EX II, and includes a tabletop Speedlite stand that enables you to mount your flash to a light stand or tripod.

> **CROSS REF** Third-party manufacturers such as Sto-Fen and ExpoImaging market other accessories for your 580EX II, and these accessories are discussed in detail in Chapter 5.

430EX II

Introduced in the fall of 2008, the 430EX II is the middle child in the Canon Speedlite System; it includes many of the improvements built into the 580EX II, such as wireless control, a built-in wide-angle lens panel, and the very popular metal mounting foot and quick lock/quick release lever to securely mount it to your camera. The 430EX II is a step up for photographers used to shooting with their camera's built-in flash, and offers more power, a higher guide number, and a tilting/rotating flash head for bounce-flash lighting techniques, which is not possible with the pop-up flashes.

430EX II specifications and features

As the intermediate flash in the Canon line, the 430EX II has less power, a few less features, a lower guide number range, and about 35-percent less reach than the 580EX II. Its major limitation for advanced use is that it cannot be used as a wireless controller in a multiple flash system. It can only operate as a slave, and so a master control capable Speedlite (550EX, 580EX, or 580EX II) , a Speedlite Transmitter ST-E2, or either of the Macro Speedlites must be mounted on the camera's hot shoe in order to use a 430EX II wirelessly off camera as a fill flash.

The 430EX II also cannot be run from an external power source, which may be required to extend flash capacity and shorten recycle time in high-use situations such as weddings.

This section provides a brief look at different features that are available on the 430EX II Speedlite. It is important to note, however, that some of its features may not be available, depending on the camera body you are using.

▶ **Guide number (GN).** The guide number varies with the zoom settings of the flash head, from GN 25/82 (meters/feet) at 24mm to GN 43/141 (meters/feet) at 105mm. Guide numbers are usually given for both feet and meters so be sure you use the right one in your calculations. See your owner's manual for more information on GNs for specific zoom ranges.

▶ **Automatic zooming flash head.** The 430EX II provides lens coverage from 24mm up to 105mm. It provides 14mm with the included wide panel.

▶ **E-TTL.** The 430EX II supports E-TTL II, E-TTL, TTL, and full manual operation.

▶ **AF-assist beam.** The 430EX II emits a grid of light from a red LED to assist in focusing in low-light situations.

▶ **High-speed sync (FP flash).** This function allows you to shoot with a shutter speed higher than the rated sync speed of the camera. This feature is useful when shooting portraits in bright light using a wide aperture with fast shutter speeds.

▶ **Flash Exposure Lock (FEL).** You can use this feature to get a reading from your subject and then recompose the shot while retaining the original exposure.

▶ **Flash Exposure Compensation.** Similar to the way exposure compensation is set on the camera, this function allows you to adjust the light output up or down in 1/3-stop increments over a +/– 3-stop range and still enjoy all the benefits of E-TTL II flash metering.

▶ **Modeling flash.** The 430EX II releases a short burst of flashes, allowing you to see what the light falling on your subject looks like.

▶ **Tilting/rotating flash head for bouncing flash.** This allows you to tilt the flash head up to bounce light from the ceiling, or to the side to bounce light off of the wall.

▶ **Wireless sensor for E-TTL II wireless flash.** This sensor reads signals from the master unit, enabling wireless flash operation. The 430EX II can only be used as a slave unit in wireless flash operation.

Main components

The main controls of the 430EX II are located in the same configuration as the 580EX II with the exception of the Select/Set dial, which has been replaced with +/– buttons to the left and right of the Set button.

▶ **Flash head.** This is where the flashtube is housed. Inside is a mechanism that zooms the flashbulb forward and back to provide flash coverage for lenses of different focal lengths. The flash head is adjustable; it can be tilted upward to a full 90 degrees. It can also be adjusted horizontally 180 degrees to the left or 90 degrees to the right.

▶ **Flash-Head Lock Release button.** This button releases the flash-head lock, allowing you to adjust the angle of the flash head for bounce flash.

▶ **Battery compartment cover.** You slide the cover downward to open the battery compartment to load or change the batteries.

▶ **Wireless sensor for E-TTL II wireless flash.** This sensor reads signals from the master unit, enabling wireless flash operation.

▶ **AF-assist beam emitter.** The 430EX II projects a red LED light-grid onto the subject to aid the camera's auto focus system to operate successfully in low-light or low-contrast situations. The AF assist beam is compatible with 28mm and longer lenses.

▶ **Wireless remote ready light.** This operates as a ready light when the Speedlite is being used as a remote flash.

▶ **Flash head tilting-angle scale.** This feature allows you to tilt the flash head up from 0 (normal) to 45, 60, 75, or 90 degrees and down -7 degrees. While the flash head has detents at the values indicated on the scale, you can operate the flash at any angle between the detents.

Flash head   Wide panel

Bracket mounting hole/cover

Battery campartment cover   AF-assist beam/
Wireless remote ready light

Wireless sensor

1.8 The front of the 430EX II Speedlite

▶ **Flash head rotating-angle scale.** This feature denotes the horizontal rotation of the flash head from 0 (normal) to 60, 75, 90, 120, 150, and 180 degrees from the left. To the right, it can be adjusted to 60, 75, and 90 degrees. While the flash head

1.9 Flash head tilting/rotating-angle scale

has detents at the values indicated on the scale, you can operate the flash at any angle between the detents.

▶ **LCD panel.** This is a display panel where you view all of the Speedlite settings, Custom Functions, and controls.

▶ **Control buttons.** You can use these buttons to specify settings and Custom Functions on the Speedlite.

Bounce flash angle scale

LCD panel

Bounce lock release button

Pilot lamp

Control buttons

Mounting foot lock lever

Flash exposure confirmaton lamp

1.10 The back of the 430EX Speedlite

▶ **Pilot Lamp button.** Press this button when illuminated to test-fire the 430EX II to ensure it is functioning properly or to take a test reading using a handheld flash meter. This button also lets you know when the flash is fully charged and ready to fire. When the lamp glows green, the unit is ready for Quick flash; when it glows red, the flash is ready to fire at full power.

▶ **Flash exposure confirmation lamp.** This indicator glows green for about three seconds when standard flash exposure is attained.

▶ **Mounting foot locking lever.** This is a huge improvement over the old 430EX. This lever locks the Speedlite with a click into the camera's hot shoe or the included Speedlite stand.

▶ **Wide panel.** This built-in diffuser enables you to use the Speedlite with a lens as wide as 14mm without having light fall off at the edges of the image.

1.11 Hot shoe mounting foot and lock lever

1.12 Wide panel

Control buttons

There are eight control buttons and a switch on the back of the 430EX II, so I'll describe how each one operates in order to get the best results from your new Speedlite. Some of them are obvious, such as the On/Off switch, but others control the menus and settings that you select. Spend some time getting acclimated to these controls so that you can be ready to make future adjustments on the fly.

▶ **LCD Panel Illumination/Custom Functions (C.Fn) button.** Pressing this button once turns the LCD light on for about 10 seconds for viewing settings in dim

light. Pressing and holding this button brings you to the Custom Functions menu. You can access the Custom Functions by using the +/– buttons, and choose them by pressing the Select/Set button.

See Chapter 2 for tables displaying all the Custom Functions and their applications.

▶ **Mode button.** The Mode button is used to cycle among the different flash exposure modes of the 430EX II Speedlite and in wireless operation is used to manually set flash output. The two modes are:

1.13 The 430EX II control panel

- **E-TTL.** The exposure is determined by a brief pre-flash before the main flash in order to obtain a more correct exposure and measures the light coming through the lens. The camera then uses this information to blend the flash output with the ambient light.

- **M (full Manual mode).** You determine the flash power by guide numbers or taking test shots and then reviewing on the camera's LCD monitor. Output is adjustable from 1/1 (full) to 1/64 power in 1/3-stop intervals so that you can fine-tune your lighting or dial in each Speedlite individually in multi-flash lighting setups. You can also use a flash meter to determine the flash and camera settings.

▶ **High-Speed Sync (FP flash)/Second-Curtain Sync button.** Pressing this button once allows you to set the flash to High-speed sync. A digital camera shutter is comprised of two "curtains," one that opens the shutter to begin the exposure and one that closes it to end the exposure. High-speed sync allows you to shoot flash photos at higher than normal sync speeds due to the flash perfectly pulsing out light as the shutter curtains move across the sensor instead of just one pop when the shutter first opens.

Pressing it a second time turns on the second-curtain sync feature. In standard flash photography, the normal operation sequence is the shutter opens and the flash fires immediately. In this mode, the flash fires at the very end of the exposure, just before the second curtain closes, freezing your subject yet retaining any movement trails due to a longer exposure. High-speed sync produces a

more natural look to moving subjects. To return to standard flash, push the button once again.

▶ **Zoom/Wireless Selection/Set button.** Press this button to manually change the flash head zoom using the +/– buttons. Press and hold this button to enter the wireless control menu, where you set slave status, channel number, and slave groups.

▶ **Pilot Lamp button.** Press this button when lit to test-fire the 430EX II to ensure it is functioning properly or to take a test reading using a handheld flash meter. This button also lets you know when the flash is fully charged and ready to fire. When the lamp glows green, the unit is ready for Quick flash; when it glows red, the flash is ready to fire at full power.

▶ **Select/Set and +/– buttons.** You press the right and left +/– buttons to change the settings, and confirm them by pressing the center Select/Set button.

  • **+/– buttons.** You use these buttons to change the zoom of the flash, flash exposure compensation, manual flash output, wireless status, slave settings, flash bracketing settings or when setting custom functions.

  • **Select.** The center button is the Select/Set button. You use this button to confirm the flash settings that you have selected by turning the Select dial.

▶ **On/Off switch.** You use this thumb switch to turn the Speedlite on or off.

430EX II accessories

The Speedlite ships with a soft case for storing and carrying your 430EX II, and includes a tabletop Speedlite stand that enables you to mount your flash to a light stand or tripod.

> **CROSS REF** Third-party manufacturers such as Sto-Fen and ExpoImaging market other accessories for your 580EX II, and these accessories are discussed in detail in Chapter 5.

Other Components of the Speedlite System

Becoming familiar with your new flash equipment is the first step in learning about lighting and understanding the creative possibilities of wireless flash. As exciting as that might seem, it's only the first phase of the complete Canon Speedlite System.

There are five more major items that round out the system, and each is designed for specific tasks to light your subjects just the way you want them.

270EX

Released in May 2009, the Speedlite 270EX replaces the 220EX as Canon's entry-level Speedlite. Compact and lightweight, the 270EX expands your camera's capabilities over the on-board pop-up flash in a highly portable unit that fits in a shirt pocket. The 270EX is powered by two AA batteries instead of four, like almost all other Speedlites, and this seriously lightens the weight of this flash.

The Canon Speedlite 270EX flash's biggest improvement over the 220EX is the bounce-capable flash head. While the adjustment range is limited (90 degrees tilt, no rotation), the bounce capability is a big improvement over a fixed flash head like the 220EX. A new 2-position manual Tele-zoom option allows the 270EX to concentrate its light on the subject, making more efficient use of its power and extending its useful distance.

1.14 The Canon Speedlite 270EX

Several features incorporated in Canon's newer flashes are inherited by the 270EX. These include the ability to control flash settings from a compatible camera's menu (including Manual flash mode settings), the communication of color temperature information with a compatible camera (for optimal white balance), and silent recycling.

1.15 The Canon Speedlite 270EX Tele-zoom/bounce head

OC-E3 Off-Camera Shoe Cord

The Canon OC-E3 Off-Camera Shoe Cord supports all Speedlites and maintains all on-camera flash functions, including E-TTL II for Canon Speedlites used off-camera at distances up to 2 feet. It is compatible with all Canon EOS cameras, except for the 630 and RT.

One end of the cord mounts in the camera hot shoe, and the Speedlite mounts in the hot shoe foot at the other end of the cord. The foot is threaded so that it can be mounted on a tripod. The OC-E3 is an improvement on the now-discontinued Off-Camera Shoe Cord 2.

The OC-E3 has been improved with better sealing against dust and moisture, similar to the weather-resistant design of the EOS 1D Mark III and the 580EX II flash. It also now features a sturdier metal foot.

1.16 The Canon OC-E3 Off-Camera Shoe Cord 3

The Off-Camera Shoe Cord allows you to use your flash either handheld or with a flash bracket. Using the cord with a flash bracket allows the flash to stay above the lens axis, and communicate with the camera whether in a horizontal or vertical position.

Shooting flash off axis from the lens allows you to light your subject directionally and adds three-dimensionality to your flash photos by having the light come from the side, thus creating highlights and shadows.

1.17 The Canon OC-E3 Off-Camera Shoe Cord used with a flash bracket

ST-E2 wireless transmitter

For the ease of controlling multiple wireless Speedlites, or when the OC-E3 Off-Camera Shoe Cord is just not long enough, the Speedlite Transmitter ST-E2 is an attractive option. Attached to the camera's hot shoe, the ST-E2 is an infrared wireless master control unit for the Canon Speedlite System. It functions in much the same way as the 580EX II does in master mode. This wireless flash controller transmits an infrared trigger, exposure information, and flash ratios to all EX-series Speedlites. The ST-E2 also includes a powerful infrared AF-assist beam, a welcome feature in night-time shooting or for EOS cameras that lack one.

The ST-E2 transmitter slides into the hot shoe of your camera like any other Speedlite and is used to wirelessly control the Speedlites. It is smaller and lighter than any Speedlite, and its power source is a 2CR5 lithium battery, common in older EOS film cameras. It attaches to the camera with a plastic mounting foot much like older Speedlites, but it includes a very secure shoe lock slider switch instead of a mounting lock wheel.

1.18 The Canon ST-E2 wireless transmitter

Each channel can be used to control any number of flashes in two groups. From the ST-E2, you can control the output of each group individually in a ratio of up to a 3-stop range in 1/2-stop increments. The wireless range is greater indoors than outdoors, but I have achieved good communication results by turning the Speedlite's base to face the camera/transmitter and repositioning the flash head toward the subject.

The ST-E2 transmitter also has four independent channels, for those rare situations where you may be working near other photographers using ST-E2 wireless transmitters. You can change your wireless setup to a different channel so that someone else's transmitter won't fire your flashes and your transmitter won't fire theirs. I have never come upon this situation, but it's nice to know the technology is there.

1.19 The rear control panel of the Canon ST-E2 wireless transmitter

The ST-E2 transmitter is a great tool for wireless control of Canon Speedlites, but it does have a few limitations. The main one for me is that it only allows you to shoot in E-TTL mode. This is fine for those setups where I'm only using a few Speedlites off camera, and I want to control the flash output ratio of the flashes right from the camera. But when things really get creative out in the field, I'll switch to Manual exposure, and replace the ST-E2 with PocketWizards for wireless control and full manual output. Secondly, the ST-E2 has a much shorter range and effectiveness outdoors. This is because the triggering signal is light based (infrared) unlike the radio frequency operation of remotes such as PocketWizards or radio Poppers. It also only controls two groups of flashes, A + B, while the 580EX II set as the Master can control three, A + B + C.

Macro Twin Lite MT-24EX

Macro photography presents the photographer with specific problems to overcome. Often, the close subject distances of macro photography require smaller aperture openings to obtain adequate depth of field. Smaller f-stops require a lot of light or very slow shutter speeds, which is not always possible with subjects such as swaying

flowers or flying bees. Slower shutter speeds usually necessitate the use of a tripod and a stationary subject.

The Macro Twin Lite MT-24EX addresses these concerns in a compact and balanced unit. Two small flash heads complete with connect to a mount ring that attaches directly to the front ring of the Canon EF 50mm f/2.5 Macro lens, Canon EF 100mm f/2.8 Macro USM lens, MP-E 65mm 1–5x f/2.8 Macro lens, or Canon's new EF 100mm f/2.8L Image Stabilized USM lens.

1.20 The Canon Macro Twin Lite MT-24EX

To mount the Canon Macro Twin Lite on the Canon EF 180mm f/3.5 L USM Macro lens, you need the optional Canon Macro Lite Adapter 72C. These flash heads can be positioned, locked in place, individually turned on or off, or even removed from the mount ring and repositioned for greater creative control.

Two features are included to make focusing and illuminating your subject easy. On-board focusing lamps in each of the flash heads light up for twenty seconds or until you depress the Shutter button. Modeling flash releases a short burst of flashes, allowing you to see what the light falling on your subject looks like.

The MT-24EX incorporates many of the features of the top-of-the-line Canon flashes, such as Flash Exposure Compensation, Flash Exposure Bracketing, high-speed sync, and adjustable output ratios between the two flashes by a 3-stop range in 1/2-stop increments.

The MT-24EX supports wireless operation and can act as a master to trigger other compatible Speedlites for full E-TTL flash metering. It can also be set up to work in conjunction with any number of other Speedlites on the same or different channels. To further fine-tune your macro lighting, you can set flash IDs A and B for the built-in flash heads and set any additional slave units to A, B, or C. This is helpful when you want to use a slave flash for backgrounds that typically go black in macro photography.

Other convenient features include full E-TTL exposure, as well as M (Manual) for full control, incandescent focusing lamps, modeling flash operation from camera buttons, and many user-set Custom Functions.

A more typical use for an additional slave flash is to set the unit to its own channel to control the lighting of the background. Because light fall-off from the main flash heads used with small apertures often renders a background black, a slave flash can be utilized to add light behind the subject. Individual flashes can be repositioned or turned on or off as well.

The Macro Twin Lite MT-24EX is powered by four AA lithium, alkaline, or NiMH rechargeable batteries and includes a socket for Canon's optional Compact Battery Pack CP-E4 external power source or a third-party power supply.

For general macro photography, you may find the flash illumination to be a little harsh. To resolve this situation, you can change the ratios so that one flash is stronger than the other; Sto-Fen also makes a nice little set of frosted diffusers specifically for the MT-24EX to soften the light for a more natural look.

1.21 Control panel of the Macro Twin Lite MT-24EX

1.22 Photographing flowers and insects in the field with the Canon Macro Twin Lite MT-24EX

 Chapter 6 covers more macro lighting techniques and examples.

CROSS REF

Macro Ring Lite MR-14EX

Similar in design to the Macro Twin Lite MT-24EX, the Macro Ring Lite MR-14EX is a Speedlite flash that is geared toward macro and close-up photography but yields a different look due to its unique construction. Two output-adjustable flash tubes encircle the lens and produce shadowless lighting of small subjects, and two on-board incandescent focusing lamps help facilitate sharp images.

Image courtesy of Canon, Inc.
1.23 The Canon Macro Ring Lite MR-14EX

Two features are included to make focusing and illuminating your subject easy with the Macro ring lite. On-board focusing lamps between the flashtubes light up for twenty seconds or until you depress the Shutter button. Modeling flash releases a short burst of flashes, allowing you to see what the light falling on your subject looks like.

Long a staple in the medical and dental industries for producing detailed before-and-after images of procedures, the ring lite creates the most uniform lighting of small subjects. Because the light is emitted from all around the lens, shadows are eliminated and any reflective surfaces on your subject, such as an insect's covering or eyes, may reveal a round highlight similar to a lifesaver, an easy indicator of ring lite use.

With an identical hot shoe-mounted control unit and similar features to the MT-24EX, the MR-14EX incorporates

1.24 Control panel of the MR-14EX

many of the functions of the top-of-the-line Canon flashes, such as Flash Exposure Compensation, Flash Exposure Bracketing, high-speed sync, and adjustable output ratios between the two flash tubes by a 3-stop range in 1/2-stop increments.

Like the ST-E2 and the MT-24EX, the MR-14EX can be used to trigger off-camera slave flashes, such as the 580EX II or the 430EX II, in multiple channels and groups. This is a great feature if you need to illuminate the background separately from the sub-ject to prevent the background from going completely black.

The Canon Speedlite System offers a variety of solutions for simple to com-plex lighting situations. Next, you set up your Speedlites and fire in some common applications, and learn sev-eral techniques to take your flash pho-tography beyond the ordinary.

1.25 **Photographing flowers and insects in the field with the Canon Macro Ring Lite MR-14EX**