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CANON INC. 30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146-8501, Japan

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CANADA — **CANON CANADA INC. HEADQUARTERS**
6390 Dixie Road, Mississauga, Ontario L5T 1P7, Canada
CANON CANADA INC. MONTREAL BRANCH
5990, Côte-de-Liesse, Montréal Québec H4T 1V7, Canada
CANON CANADA INC. CALGARY OFFICE
2828, 16th Street, N.E. Calgary, Alberta T2E 7K7, Canada
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SEQUE Soc. Nac. de Equip., Lda.,
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CENTRAL & SOUTH AMERICA — **CANON LATIN AMERICA, INC. DEPTO DE VENTAS**
703 Waterford Way Suite 400 Miami, FL 33126 U.S.A.
CANON LATIN AMERICA, INC. CENTRO DE SERVICIO Y REPARACION
Apartado 2019, Zona Libre de Colón, República de Panamá

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Canon

SPEEDLITE 420EX

E

English Edition

INSTRUCTIONS

Thank you for purchasing a Canon product.

The Canon Speedlite 420EX is an autozoom flash unit equipped with a wireless sensor for E-TTL wireless autoflash.

* E-TTL stands for Evaluative-Through-The-Lens.

The features available with Speedlite 420EX depend on the EOS camera. Refer to the table below to identify your camera type.
This instruction booklet has separate chapters for Type-A and Type-B EOS cameras. After reading the first chapter applicable to both camera types, read the respective sections that apply to your camera.

Type-A Camera	E-TTL	EOS-1D, 1V, 3, D30, ELAN 7/7E, 30/33, ELAN II/ELAN II E, 50/50E, REBEL 2000/300, REBEL G, 500N, 3000N/66, IX, IX 7/IX Lite
Type-B Camera	TTL	All other EOS cameras other than the above.

Available 420EX Features with EOS Cameras O: Available X: Not available

Feature	With Type-A Cameras	With Type-B Cameras
E-TTL autoflash	O	X
TTL autoflash	X	O
High-speed sync (FP flash)	O	X
FE lock	O	X
E-TTL wireless autoflash with multiple Speedlites	O	X

Key to Symbols

The Caution symbol alerts you to actions to prevent flash photography problems.

The Note symbol gives additional information for basic operations.

The Light bulb symbol offers helpful tips for operating the Speedlite or for taking pictures.

Keep this instruction booklet handy for future reference.

Conventions Used in this Booklet

This instruction booklet has separate chapters for Type-A and Type-B cameras. If you have a Type-A camera, read pages 9 to 30 and 39 to 53.
If you have a Type-B camera, read pages 9 to 16 and 31 to 53.

- The operation procedures in this instruction booklet assume that the main (power) switch on the camera and 420EX has been turned on. Be sure to turn on the main switch before proceeding.
- The icons in the text indicate the camera and 420EX's buttons and dials and their settings. The icons in the text are the same ones found on the camera and Speedlite. For the name of the button or dial, see "Nomenclature" on page 8. The following icons for the camera's picture-taking modes are also used:
  - ▭ : Full Auto
  - P : Program AE
  - Av : Aperture-priority AE
  - Tv : Shutter speed-priority AE
  - M : Manual
- The (⏱16) icon indicates that the respective function remains in effect for 16 sec. after the relevant button is released.
- Reference page numbers are indicated in parentheses as follows: (→page ■)

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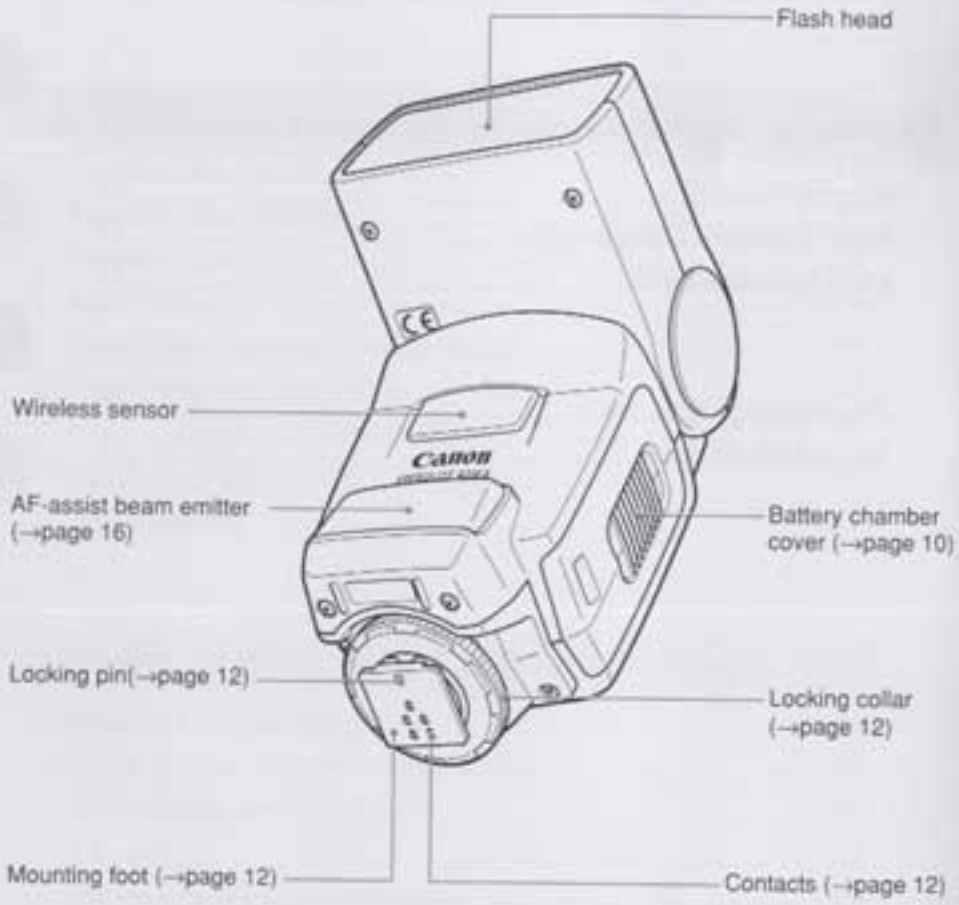
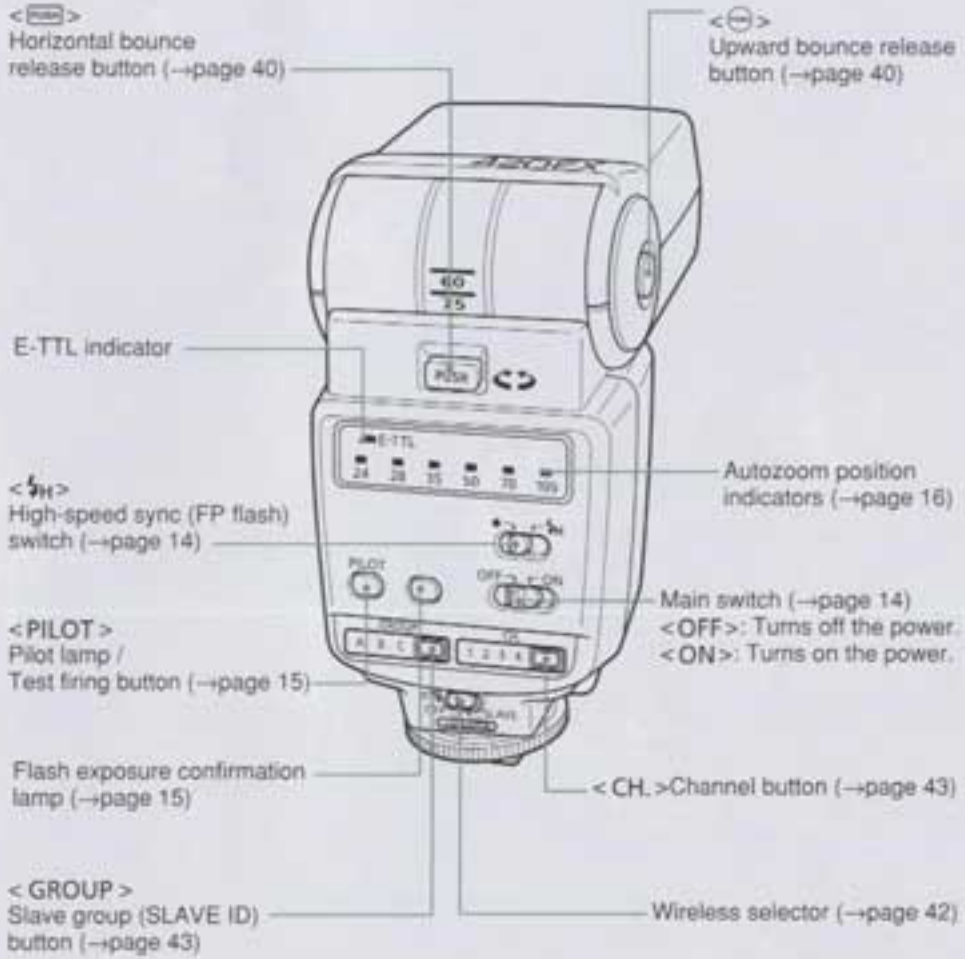
Nomenclature

Front



- The reference page is indicated by (→page ■).
- In the text, the 420EX's controls and settings are indicated with the corresponding icons enclosed in brackets < >.

Back



This chapter helps you prepare for flash photography with the 420EX.

1 Before You Start

Installing the Batteries

Install one of the following types of batteries:
(1) Four size-AA alkaline batteries
(2) Four size-AA nickel-hydride batteries

1 Open the battery chamber cover.
- Slide the battery chamber cover as shown by arrow 1 and flip it up as shown by arrow 2.

2 Insert the batteries.
- Make sure the + and - battery contacts are properly oriented as shown in the battery chamber.

3 Close the battery chamber cover.
- Close the cover and push it down while sliding it as shown by arrow 2.

- Use four new batteries of the same type. When replacing batteries, replace all four batteries at one time.
- Size-AA lithium batteries can also be used.
- Although non-alkaline, manganese batteries may also be used, the number of flashes will be less.
- Remove the batteries when the 420EX will not be used for an extended period.
- In low temperatures, take two sets of batteries and keep one set warm in a pocket, etc., and use the batteries alternately.
- An external power pack cannot be used with the 420EX.

- To prevent faulty connections, make sure the battery contacts are clean. If necessary, use a clean cloth to wipe the battery contacts.
- In the case of size-AA nickel-hydride and size-AA lithium batteries, the shape of the contacts is not standardized. Be sure that the batteries are compatible with the flash unit before buying.

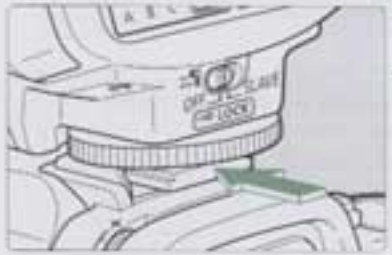
Recycling Time and Flash Count

Battery Type	Recycling Time	Flash Count
Size-AA alkaline batteries	Approx. 0.1-7.5 sec.	Approx. 200-1400

- The above specifications are based on Canon's testing standards.
- Using size-AA nickel-hydride batteries will yield only about 70 to 80 percent of the flashes (1550 mAh at full output) obtainable with size-AA alkaline batteries. The recycling time will also be about half the time with size-AA alkaline batteries.

Mounting the Speedlite

1 Loosen the locking collar.
- Turn it as shown by the arrow.



2 Mount the 420EX onto the camera.
- Slide the 420EX's mounting foot all the way into the hot shoe.

3 Tighten the locking collar.
- Turn the locking collar as shown by the arrow. The mounting foot's locking pin extends into the hot shoe's locking pin hole.
- To detach the 420EX, turn the locking collar in the opposite direction until it stops. (The locking pin retracts into the mounting foot.) Then slide out the 420EX from the hot shoe.

The hot shoe on the EOS 650, 620, 750, and 850 does not have a locking pin hole. Although the 420EX can still be mounted on these cameras, be careful not to have it slip off the hot shoe.

Wireless Selector

The wireless selector has the following settings.

For Normal Flash Operation
- Set the wireless selector to OFF to use the 420EX as a normal, on-camera Speedlite.

For Wireless Flash Operation
- Set the wireless selector to SLAVE to use the 420EX as a wireless slave unit.
- The flash coverage is set to 24mm automatically.

- Even if the wireless selector is accidentally set to <SLAVE>, the 420EX will still operate as an on-camera Speedlite for normal flash photography.

Main Switch

The main switch has the following settings.

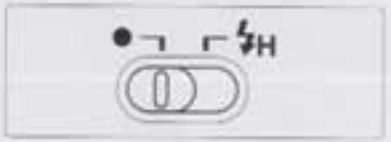
Turns off the power.

Turns on the power.

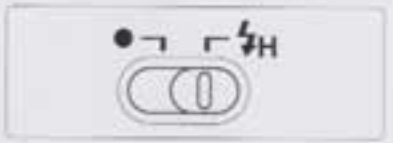
- After 90 sec. of non-use, the SE (Save Energy) mode takes effect automatically to turn off the 420EX and save battery power.
- To cancel the SE mode, press the test firing button.

High-Speed Sync (FP Flash) Switch

The high-speed sync switch has the following settings.



Sets the normal sync mode.

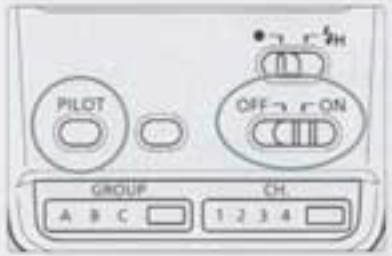


Sets the high-speed sync mode.

- When the 420EX is used with a Type-A camera and the switch is set to <H>, setting a shutter speed faster than the camera's fastest sync speed sets the high-speed sync mode. And using a shutter speed slower than the fastest sync speed sets the normal sync mode.
- When a Type-B camera is used, the normal sync mode takes effect regardless of this switch's setting.

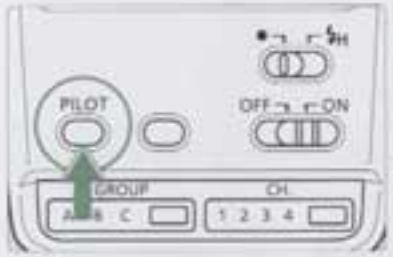
Pilot Lamp and Test Firing

Before taking the flash picture, you can fire a test flash.



1 Check that the <PILOT> lamp is lit.

- When the flash is ready, the <PILOT> lamp lights.

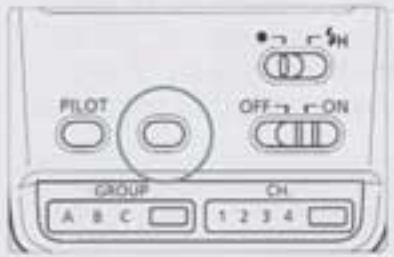


2 After the <PILOT> lamp lights, press it to fire a test flash.

- A test flash fires.
- The <PILOT> lamp also works as a test firing button.

- Test firing is not possible while the camera's exposure metering is active after you press the shutter button halfway.
- If the SE mode is in effect, pressing the test firing button cancels the SE mode and turns on the 420EX.

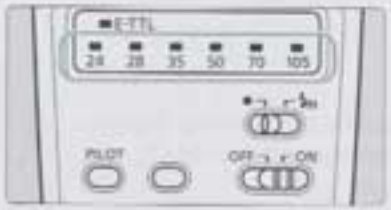
Flash Exposure Confirmation



If the correct flash exposure has been obtained, the flash exposure confirmation lamp lights (in green) for about 3 sec. after the flash fires.
If the flash exposure confirmation lamp does not light after the flash fires, the picture may have been underexposed. Move closer to the subject and try again.

Flash Coverage

The 420EX's flash head zooms automatically to provide adequate flash coverage for the lens focal length in use. Flash coverage is provided for the 24mm to 105mm focal lengths. The corresponding autozoom position indicator on the Speedlite lights.
When a zoom lens is used, the flash coverage changes automatically to suit the focal length you zoom to.



Press the shutter button halfway.
- The autozoom position indicator for the corresponding lens focal length lights.

If a lens focal length shorter than 24mm is used, the picture's periphery will look dark.

- When the flash coverage changes, the Speedlite's Guide No. also changes. See the Guide No. table on page 50 to see how the Guide No. changes.
- If the lens focal length is 105mm or longer, the 105 autozoom position indicator lights.
- When the wireless selector is set to <SLAVE> (→page 42), the flash coverage is set automatically to 24mm.

AF-Assist Beam

If where you focus lacks sufficient light or contrast, the 420EX's AF-assist beam is emitted automatically so that the camera can autofocus. The AF-assist beam can cover the focusing points of the EOS 30/ELAN 7E and almost all other EOS cameras. The AF-assist beam is effective from 0.7 to 7 m/2.3 to 23ft. at the center focusing point.

AF-Assist Beam Preconditions

The preconditions for the AF-assist beam to be emitted are explained on page 51.

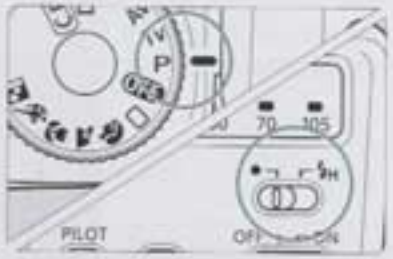
When the 420EX is mounted on a Type-A camera such as the EOS 30/ELAN 7E, using E-TTL autoflash is just as easy as normal autoexposure (AE). E-TTL autoflash uses the camera's multi-zone metering sensor for highly precise flash exposure control. A preflash is fired for evaluative flash metering and the reading is used to determine the main flash output. The result is a flash picture with excellent balance between the flash illumination and ambient light.

2 Easy Flash Photography (For Type-A Cameras)

- This section uses the EOS 30/ELAN 7E as the sample Type-A camera.
- Before proceeding, first turn on the main switch on the camera and 420EX.
- Set the 420EX's wireless selector to <OFF>.
- For EOS 30/ELAN 7E operations, refer to the EOS 30/ELAN 7E instruction booklet.

Flash in Full Auto Mode

With the 420EX attached to a Type-A camera set to <▢> (Full Auto) or <**P**> (Program AE), flash photography will be fully automatic and as easy as normal AE photography without flash. The camera sets the shutter speed and aperture automatically to suit the lighting situation, whether it is dark or daylight (fill flash). E-TTL autoflash thereby sets the flash exposure automatically.

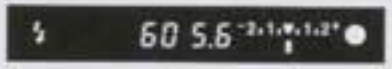


1 Set the camera to <▢> (Full Auto) or <P> (Program AE).

- Fully automatic flash photography takes effect when any Basic Zone mode is set with the camera.
- Set the high-speed sync switch to <●>.

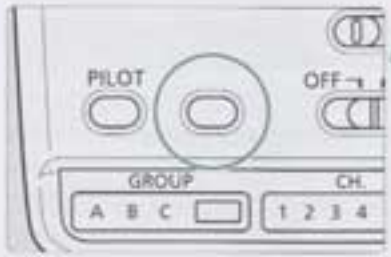
2 Focus the subject.

- The shutter speed and aperture settings are displayed in the viewfinder and on the LCD panel.
- The sync speed is set automatically anywhere from 1/60 sec. to the camera's fastest sync (varies depending on the camera). The aperture is also set automatically. (→page 52)



3 Take the picture.

- Check that the <ϟ> icon is lit in the viewfinder, then take the picture.
- Immediately before the picture is taken, a preflash is fired. The main flash then follows. The subject brightness metered with the preflash is used to determine the optimum output of the main flash.



4 Check that the flash exposure confirmation lamp lights.

- When a correct flash exposure has been obtained, the lamp lights for about 3 sec. If it does not light, underexposure may have occurred. Check that the <PILOT> is lit, then move closer to the subject and take the picture again.

- The preflash is fired to obtain a meter reading of the subject.
- The main flash is used for the actual flash exposure.

Fill Flash

Even in daylight, you can use flash as fill light to soften harsh shadows or illuminate a dark, backlit subject.

With fill flash.

Without fill flash.

With fill flash, the subject illuminated with flash might look unnatural compared to the background's brightness. To prevent this, the flash output is reduced automatically to obtain a more natural balance between the subject and background brightness. This is called automatic flash output reduction.

Flash in Other Picture-Taking Modes

You can also use E-TTL autoflash with the camera set to <**Av**> (aperture-priority AE), <**Tv**> (shutter speed-priority AE), or <**M**> (manual).

Shutter Speed and Aperture Settings According to Mode

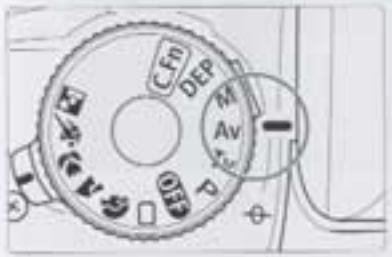
Mode	Shutter Speed	Flash Aperture
P (Program AE)	Automatically set (1/60 sec. - 1/x sec.)	Automatically set
Av (Aperture-priority AE)	Automatically set (30 sec. - 1/x sec.)	Manually set
Tv (Shutter speed-priority AE)	Manually set (30 sec. - 1/x sec.)	Automatically set
M (Manual)	Manually set (buLb, 30 sec. - 1/x sec.)	Manually set

- Manually set: Set by you.
- Automatically set: Set by the camera.
- 1/x sec.: Camera's fastest sync speed. (→page 52)
- When you press the shutter button completely, a preflash is fired immediately before the main flash is fired for the picture taken. The preflash is used to obtain subject brightness information to determine the optimum output of the main flash.
- The background exposure is set according to the shutter speed and aperture combination.
- While the 420EX's main switch is on, the E-TTL indicator lights automatically when you press the camera's shutter button halfway.

If flash is used in the <**DEP**> (depth-of-field AE) mode, it will be the same as using flash in the <**P**> (Program AE) mode.

Av : E-TTL Autoflash and Aperture-Priority AE

When you want to control the depth of field or when you want both the subject and background exposed correctly, use aperture-priority AE. You set the aperture, and the camera sets the shutter speed automatically to expose the background correctly. The E-TTL autoflash exposure is based on the aperture you set.



1 Set the camera's Command Dial to <Av> (aperture-priority AE).
- Set the high-speed sync switch to <●>.

2 Set the desired aperture.
- Turn the camera's electronic dial to set the aperture.

3 Take the picture.
Focus the subject, check that the <ϟ> icon is lit in the viewfinder, then take the picture.

In low-light conditions, a slow sync speed is set automatically. A tripod is recommended for slow sync speeds.

If the camera's fastest sync speed blinks, the background will be overexposed. If the *30"* sync speed blinks, the background will be underexposed. Change the aperture setting until the sync speed stops blinking.

Slow-Speed Sync for Dark Backgrounds

By using a slow sync speed with flash, you can correctly expose both the subject and a dark background. For automatic slow-speed sync, set the camera to the <**Av**> mode.
When using slow-speed sync, use a tripod to prevent camera shake.

Flash with slow-speed sync.

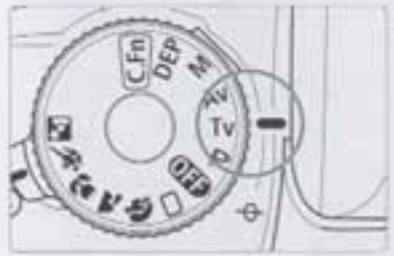
Flash in Full Auto mode.

Under fluorescent lighting, a greenish color cast may result in the picture. And under tungsten lighting, an orange color cast may result.

- To cancel automatic slow-speed sync, set the camera to the <**M**> mode (→ page 24) and set the desired shutter speed and aperture.
- E-TTL autoflash will then automatically control the flash exposure.
- If you use an EOS camera mounted with an EF 135mm f/2.8 Soft Focus lens during hand-held flash photography, note the following:
  1) To obtain a better soft-focus effect, set the aperture manually toward the maximum opening.
  2) Set the shutter speed as slow as possible while preventing camera shake.
  3) Check that the flash is ready, then take the picture.

Tv: E-TTL Autoflash and Shutter Speed-Priority AE

When you want to use the shutter speed to create a certain effect, set the camera to shutter speed-priority AE. In this mode, you set the shutter speed anywhere from 30 sec. to the camera's fastest sync speed. The camera then sets the aperture automatically to obtain the correct background exposure. E-TTL autoflash controls the flash output based on the set aperture.



1 Set the camera's Command Dial to <Tv>.

- Set the high-speed sync switch to <●>.

2 Set the desired shutter speed.

- Turn the camera's electronic dial to set the shutter speed.
- Set the shutter speed anywhere from 30 sec. to the camera's fastest sync speed.

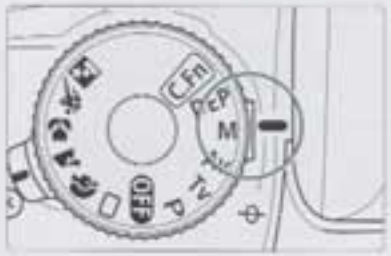
3 Take the picture.

- Focus the subject, check that the <ϟ> icon is lit in the viewfinder, then take the picture.

If the minimum aperture setting blinks, the background will be overexposed. If the maximum aperture setting blinks, the background will be underexposed. Change the shutter speed until the aperture setting stops blinking.

M: E-TTL Autoflash and Manual Exposure

When you want to set both the shutter speed and aperture, use manual exposure. E-TTL autoflash controls the flash output according to the aperture you set. The background exposure is determined by the shutter speed and aperture combination.

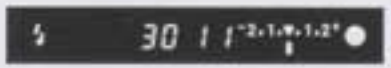


1 Set the camera's Command Dial to <M>.

- Set the high-speed sync switch to <●>.

2 Set the desired aperture and shutter speed.

- Turn the camera's electronic dial.
- Set shutter speed anywhere from 30 sec. to the camera's fastest sync speed.



3 Take the picture.

- Focus the subject, check that the <ϟ> icon is lit in the viewfinder, then take the picture.

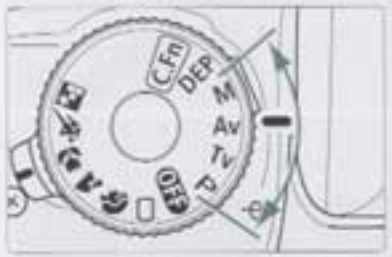
High-Speed Sync (FP Flash)

When the flash mode is set to high-speed sync (FP flash), the flash can synchronize with shutter speeds faster than the camera's fastest sync speed. When high-speed sync is set, the <ϟH> icon lights in the viewfinder.

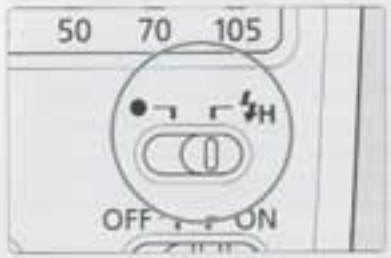
- High-speed sync can be used in the <**P**>, <**Tv**>, <**Av**>, and <**M**> modes.
- High-speed sync is effective when you want to:
  (1) Blur the background for a daylight portrait.
  (2) Create a catchlight in the subject's eyes.
  (3) Soften harsh shadows on the subject's face.

With FP flash.

With normal flash.



1 Set the desired picture-taking mode.



2 Set the high-speed sync switch to <ϟH>.

3 Take the picture.

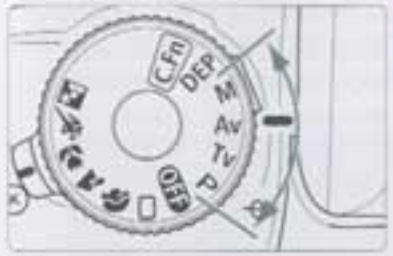
- Focus the subject, check that the <ϟH> icon is lit in the viewfinder, then take the picture.

- Using high-speed sync changes the Guide No. See page 50.
- If you want to set the aperture, first set the camera to the <Av> or <M> mode.
- With high-speed sync, the Guide No. changes depending on the sync speed. The faster the sync speed, the shorter the effective flash range will be.
- To cancel high-speed sync, set the high-speed sync switch back to <●>.

When the <Av> mode is set for fill flash and high-speed sync is set, the sync speed will not be limited to the normal sync speed. If necessary, a faster sync speed will be set automatically in the high-speed sync mode.

FE Lock

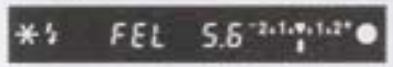
FE (flash exposure) lock is the flash version of AE lock. With the 420EX attached to the camera, the camera's AE lock button becomes an FE lock button. With FE lock, you can lock the correct flash exposure reading for any part of the picture.



1 Set the camera's Command Dial to a Creative Zone mode.

2 Focus the subject.

- Press the shutter button halfway.



3 Aim the center focusing point on the subject where you want to lock the flash exposure reading, then press the <✱> button. (⏱16)

- In the viewfinder, the <✱> icon is displayed.
- The 420EX fires a preflash and the required flash exposure is locked.
- In the viewfinder, <FEL> is displayed for 0.5 sec.
- Each time you press the <✱> button, a preflash is fired to obtain the correct flash exposure which is then locked.
- FE lock is canceled when the (⏱16) icon turns off or when the Command Dial is turned.