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You can read the recommendations in the user guide, the technical guide or the installation guide for PENTAX AF-540FGZ. You'll find the answers to all your questions on the PENTAX AF-540FGZ in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual PENTAX AF-540FGZ  
User guide PENTAX AF-540FGZ  
Operating instructions PENTAX AF-540FGZ  
Instructions for use PENTAX AF-540FGZ  
Instruction manual PENTAX AF-540FGZ

## PENTAX



AUTO ZOOM ELECTRONIC  
FLASH UNIT

## AF-540FGZ

OPERATING MANUAL



Please read this operating manual carefully first for proper use.



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**Manual abstract:**

*@@Do not attempt to disassemble the flash unit yourself, as there is danger of an electric shock. If internal parts of the flash unit becomes exposed due to impact, etc., do not touch them as there is danger of an electric shock. Do not expose the flash unit to water or moisture as there is danger of an electric shock. CAUTION Do not use the flash near anyone's eyes, as it may hurt them. Be particularly careful with the flash around infants. The following may lead to an explosion or fire. Shorting the batteries Exposing the batteries to flames Dismantling the batteries Remove the sticker covering the battery.*

*@@@@@Use a cushion to protect the flash unit when carrying it in a motorcycle, car, boat, etc. Do not use the flash unit where it may be directly exposed to rain, water, etc.*

*Replace all the batteries at the same time. Do not mix battery brands, type or an old battery with a new one. It may cause explosion or overheating. When using the flash unit off the camera, do not try to attach any metallic object to the electric contacts or to mount incompatible accessories. Otherwise, the TTL auto mechanism may be damaged or rendered inoperable.*

*Periodic checks are recommended every 1 to 2 years in order to maintain high performance. If the unit has not been used for an extended period of time, or is being readied for an important shoot, it is recommended that you take a test flash with the test button and test shoot with it. Test flash is also important to maintain optimum performance. Avoid contact with garbage, dirt, sand, dust, water, toxic gases, salt, etc. When the flash unit is subjected to rain or moisture, wipe it off with a dry soft.*

*When photographing black subjects or white subjects, use exposure compensation. Do not attach any accessories having either fewer or different (layout other than PENTAX standard) electrical contacts for the hot shoe or grip. Otherwise, some functions may not work properly. We will not be held responsible for any accidents or damage, etc. caused due to the use of this product with cameras and accessories made by the other companies. 3 Cautions Regarding Batteries This flash unit uses four AA alkaline, lithium, or nickel metal hydride batteries. Do not use any other type of battery. The flash unit may not be able to operate correctly or demonstrate sufficient performance, or the flash unit itself may generate heat, depending on the type of batteries used. AA alkaline and lithium batteries themselves are not rechargeable. Also, do not dismantle the batteries.*

*Trying to recharge or dismantle these batteries may cause an explosion or leakage. When changing batteries, do not mix batteries of different manufacture, type and capacity. Do not insert the batteries with the positive (+) and negative (-) terminals the wrong way around. Incorrect insertion may lead to an explosion or fire. Battery performance may temporarily be hindered in low temperatures. Batteries should be kept warm in temperatures below freezing for proper performance. If you do not intend to use the flash unit for an extended period of time, remove the batteries. Leaving the batteries in may cause damage to the flash unit due to leakage etc. 4 Contents FOR THE SAFE USE OF YOUR FLASH UNIT ..*

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Pressing it again will turn off the illumination.

The camera's LCD panel lights up also when you press the LCD illumination button (LIGHT) and the exposure metering timer is on for the following camera.

**MZ-S Auto Check Display** If the correct flash output is obtained, the flash mode indicator and ( ) in the viewfinder will begin blinking. If the auto check display does not blink, the flash output is insufficient. Verify the effective flash range (refer to page 80) and adjust the distance to the subject, or open the aperture further. Even if the auto check display is blinking, the flash output may be incorrect if the subject is too close.

Depending on the combination of flash mode and camera, the auto check display may not display correctly. 11 Inserting the Batteries 1 Slide the battery chamber cover as shown in the figure to open. 2 Insert four AA batteries, making sure the plus/minus markings (+, -) match the diagram inside the battery chamber cover. 12 Types of Batteries This flash unit uses four AA batteries of the same type, as shown below. - Alkaline battery (LR6) - Lithium battery (FR6) - Nickel-Metal Hydride battery (Ni-MH) (Nickel manganese (Ni-Mn) and nickel cadmium (NiCd) batteries cannot be used.) For information about recycling times and total number of flashes, refer to "Specifications" on page 88.

If the indicators on the LCD panel or the ready lamp does not light up, the batteries may be exhausted or not inserted correctly. Verify the orientation of the batteries or, if the indicators and ready lamp still do not light up, replace them with new batteries. If you let the flash unit discharge successively using lithium batteries, the batteries will overheat, activating a safety circuit that temporarily disables the flash unit. If this occurs, rest the flash unit so that the temperature of the batteries returns to normal. Using the Optional External Power Source Use the optional TR Power Pack-3 (sold separately) as an external power source. For information on how to use the TR Power Pack-3 and connect to the flash unit, refer to the manual provided with the TR Power Pack-3. For information on how to recharge the flash unit using the TR Power Pack-3, refer to "Charging the AF540FGZ with the Optional External Power Source" on page 60. Quick Power On Function If the flash unit is mounted on autofocus cameras, press the shutter release button half way to turn on the power. The Quick Power On function can be utilized both when only internal batteries are used and when an external power source is used. 1 2 3 4 5 Slide the setting switch up.

Press the LCD panel illumination button (LIGHT) for 2 seconds or more. SL 1 or SL 2 will be displayed. Press the flash mode button (MODE). Press the select button (S) the number of times required to select PH 1 or PH 2. PH1: Enables the auto power off function. PH2: Disables the auto power off function.

Press the LCD panel illumination button (LIGHT). The Auto Power Off function can be utilized both when only internal batteries are used and when an external power source is used. In the auto flash mode (A), the power will shut off after about 6 minutes. In the wireless mode, the power will turn off after about 1 hour of non-operation.

17 Select Button (S)/Adjes, \*ist D series (645D) 13mm\* 16mm 19mm 24mm 34mm 48mm 58mm 25mm\* 30mm 35mm 43mm 62mm 87mm 106mm When the wide-angle panel is used, the zoom button (ZOOM) will not work. (The wide-angle panel is in a slit on the top of the flash head. Pull it out so that it covers the front of the flash head. If the catchlight panel is not necessary, leave it in the slit.) 22 35mm Camera 645 Camera 67 Camera Digital Camera (K series, \*ist D series) Digital Camera (645D) 23 In the (A.

Zoom) mode, the flash coverage angle will be adjusted automatically to suit the lens focal length when you press the shutter release button halfway, and the camera exposure metering timer is on. A warning signal appears as follows when the flash cannot cover the focal length of the camera. - The zoom indicator blinks for the combination of the following camera and lenses. Camera \*ist D series 35mm autofocus single lens reflex cameras 645N2, 645N Lens Types DA, D FA, FA J, FA, F D FA, FA J, FA, F FA645 In the (A.Zoom) mode, if there is no lens focal length information, the flash coverage angle will be set automatically to 24mm with a 35mm camera.

With a 645 camera, it will be set to 45mm, with a 67 camera it will be 60mm, with a digital camera (K series, \*ist D series) it will be 16 mm, and with a digital camera (645D) it will be 30mm. When using the wide-angle panel, the angle will be fixed at 20 mm for a 35 mm camera, 35 mm for a 645 camera, 55 mm for a 67 camera, 13 mm for a digital camera (K series, \*ist D series), and 25mm for a digital camera (645D) in both A.Zoom and M.Zoom. - The warning signal does not appear for the combination of the following cameras and focal lengths. Camera \*ist, MZ-L/ZX-L/MZ-6, MZ-S \*ist DL, \*ist DS, \*ist D Focal length 20 mm and over, less than 24 mm 13 mm and over, less than 16 mm 24 Using the Flash Modes The AF540FGZ has the following flash modes. Select the mode best suited for the subject. Before photographing, confirm the following. 1. Whether your camera supports the desired flash mode.

Cameras that Support Each Flash Mode (page 60) 2. Whether you can use the desired function with the combination of your camera and the flash mode you have set. Functions Related to Each Flash Mode (page 64 - 71) TTL auto flash (TTL) Based on the amount of light reflected off the film of the camera, the camera adjusts the flash output automatically to obtain a correct exposure. Refer to page 27 for instructions on how to use this flash mode. Auto flash (A) The built-in flash metering sensor adjusts the flash output automatically. Use with cameras that are not PTTL or TTL Auto flash compatible. Refer to page 28 for instructions on how to use this flash mode. Manual flash (M) When the camera is set to manual exposure, manual flash can be set to suit the subject distance and aperture. The manual flash output can be set to 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, or 1/64. Refer to page 30 for instructions on how to use this flash mode.

P-TTL auto flash (P-TTL) A pre-flash is discharged before the main flash so that the multi-segment metering sensor can measure the subject's distance, brightness, brightness difference, backlit condition, etc. The data obtained is incorporated to set the output of the main flash. This mode obtains more accurate results than with the conventional TTL mode. Refer to page 26 for instructions on how to use this flash mode. 25 P-TTL Auto Flash Effective flash range Set the sync mode switch to leading curtain sync ( ), trailing curtain sync ( ), or contrast-control ( ), according to the subject.

(Refer to page 32.) After turning the power (ON), the setting will be (P-TTL) and (A).



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Zoom). 3 Refer to page 25 for the features and conditions of use of this flash mode. Procedure 1 2 Turn on the flash unit.

Press the flash mode button (MODE) until (P-TTL) is displayed on the LCD panel. Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. In the following cameras, if the correct flash output is obtained, the flash mode indicator and ( ) in the viewfinder will blink. \*ist, MZ-S, MZ-L/ZX-L/MZ-6 For details, refer to "Auto Check Display" on page 11. The correct flash output is obtained in P-TTL auto mode only when the flash unit is used with autofocus lenses. If necessary, an exposure compensation amount can be set between +1.0 to -3.0 steps in 0.5-step increments.

(Refer to page 18.) 4 5 Set the zoom position. (The setting method differs according to your camera and lens. Refer to page 21.) 26 TTL Auto Flash Refer to page 25 for the features and conditions of use of this flash mode. Procedure 1 2 3 4 5 Turn on the flash unit. Press the flash mode button (MODE) until (TTL) is displayed on the LCD panel. Set the sync mode switch to leading curtain sync ( ), trailing curtain sync ( ), or contrast-control ( ), according to the subject. (Refer to page 32.) Set the zoom position.

(The setting method differs according to your camera and lens. Refer to page 21.) Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. In the following cameras, if the correct flash output is obtained, the flash mode indicator and ( ) in the viewfinder will blink. 35 mm single lens reflex cameras except for SF7/ SF10, 672, 645N2, 645N, 645, LX, Super A/ Super Program For details, refer to "Auto Check Display" on page 11. 27 Auto Flash Refer to page 25 for the features and conditions of use of this flash mode. 28 Procedure Set the aperture value and ISO. Press the select button (S) so that (f/stop) on the LCD panel blinks. Turn the adjustment dial to set the aperture value.

The effective flash range is displayed on the LCD panel bar graph. Confirm that the subject is within the effective flash range and press the select button (S). Turn the adjustment dial to set the ISO after (ISO) starts blinking. Press the select button (S). The setting is complete if (ISO) stops blinking. Set the lens aperture to the same aperture value as that set on the LCD panel. The camera's aperture value is synchronized with that of the flash unit when the camera exposure mode is set to Programmed AE or Shutter Priority AE. 1 2 3 Turn on the power switch. Press the flash mode button (MODE) until (A) is displayed on the LCD panel. Set the zoom position.

(The setting method differs according to your camera and lens. Refer to page 21.) Select (M.Zoom) regardless of the type of lens being used. Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. In the following cameras, if the correct flash output is obtained, the flash mode indicator and ( ) in the viewfinder will blink. 645, LX, Super A/Super Program, MZ-M/ZX-M, P30T, P30N/P3N, P30/P3, P50/P5, A3Date, A3DateS, Program A/Program Plus For details, refer to "Auto Check Display" on page 11. If the power is turned temporarily OFF, the flash will be set to P-TTL or TTL auto. Return the setting to Auto flash.

The sync mode will be fixed in leading curtain sync. 5 6 4 29 Manual Flash Refer to page 25 for the features and conditions of use of this flash mode.

Procedure Press the flash mode button (MODE) to display (M) (1/xx) on the LCD panel. You can set the flash output from 1/1 to 1/64. See page 18.

1 2 3 4 Turn on the power switch. Set the zoom position. (The setting method differs according to your camera and lens. Refer to page 21.) Set the lens aperture according to the distance to the subject.

Example: If the flash zoom position is 50mm, subject distance (between the AF540FGZ and subject) is 4 m, and sensitivity is ISO 100, the calculation will be as follows: With flash output (1/1), the Guide No. will be 45 (according to the Guide No. table). Aperture = Guide No. 45 / Subject distance 4 m = 11.25 Approx. 11 (f/Stop) Refer to page 82 for the guide number table. 30 Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. In the following cameras, if the correct flash output is obtained, the flash mode indicator and ( ) in the viewfinder will blink.

645, LX, MZ-M/ZX-M For details, refer to "Auto Check Display" on page 11. 5 31 Using the Sync Mode The AF540FGZ has the following sync modes. Select the mode best suited for the subject. Before photographing, confirm the following. 1. Whether your camera supports the desired sync mode. Cameras that Support Each Sync Mode (page 62) 2. Whether you can use the desired sync mode with the combination of your camera and the flash mode you have set. Functions Related to Each Flash Mode (page 64 - 71) 3. Restrictions for the use of each sync mode.

Sync Mode Restrictions (page 72 - 76) Trailing Curtain Sync Mode In this sync mode, the flash is discharged at the instant the second curtain begins its travel. This mode will freeze the subject with a blur appearing after the subject under a slow shutter speed condition. Refer to page 33 for instructions on how to use this sync mode. High-Speed Sync Mode This sync mode will enable flash synchronization with shutter speeds faster than the X-sync speed. Since there is no sync speed limitation, high-speed sync is effective for fill-flash in daylight.

Refer to page 34 for instructions on how to use this sync mode. Contrast Control Sync Mode This sync mode enables you to photograph with multiple flash units, utilizing the difference of the light intensity of each flash unit. The ratio of flash light intensity between the flash unit set to this sync mode and the other flash unit is 1:2. Refer to page 36 for instructions on how to use this sync mode. Leading Curtain Sync Mode This is the most commonly used sync mode.

In this mode, the flash discharges at the instant the first shutter curtain completes its travel. You can use this mode with the shutter speed set to the X-sync speed or slower. Refer to page 33 for instructions on how to use this sync mode. 32 Leading Curtain Sync Mode Refer to page 32 for the features and conditions of use of this sync mode. Trailing Curtain Sync Mode Refer to page 32 for the features and conditions of use of this sync mode. Procedure 1 2 3 Set the power switch to the (ON) position. Set the sync mode switch to leading curtain sync ( ). Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. Procedure Confirm that the subject is within the effective flash range and the ready lamp is lit.

Then take a picture. The flash unit will switch to the trailing curtain sync mode when the shutter release button is pressed halfway down.



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1 2 3 Set the power switch to the (ON) position. Set the sync mode switch to trailing curtain sync ( ). 33 High-Speed Sync Mode Refer to page 32 for the features and conditions of use of this sync mode. As can be seen in the table on page 84, as the shutter speed becomes faster, the guide number becomes smaller. Accordingly, it should be noted that the distance for taking pictures would become shorter. Procedure Set the sync mode switch to high-speed sync ( ). The flash will be set to high-speed sync mode and ( ) will be shown on the LCD panel only when the shutter speed exceeds X-sync speed. 1 2 3 4 5 Turn on the camera.

Set the exposure mode to a mode other than the Programmed AE. Attach the flash unit to the camera's hot shoe and turn it on. To set exposure compensation, press the select button (S) so that (0.0) blinks. Then turn the adjustment dial to set the exposure compensation amount.

Press the select button (S) again to stop the blinking. The exposure compensation amount can be set from +1.0 to -3.0 steps in 0.5-step increments. (Refer to page 18.) Set the zoom position. (The setting method differs according to your camera and lens. Refer to page 21.) 34 Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. Please read the camera operating manual for camera operation. High-speed sync is possible with the camera separated (wireless) from the AF540FGZ. (Refer to page 46.) 6 7 Check the flash range by looking at the bar graph on the LCD panel.

35 Contrast Control Sync Flash Refer to page 32 for the features and conditions of use of this sync mode. Refer to "Connecting the AF540FGZ with the Extension Cord" on page 59 on using the AF540FGZ detached from the camera. Procedure Set the zoom position. (The setting method differs according to your camera and lens. Refer to page 21.) If the AF540FGZ is much closer to the subject than the flash unit to be used in combination, use (M.Zoom) to set the zoom position to a shorter lens focal length. 1 2 3 4 5 Turn on the power switch. Set the sync mode switch to contrast-control ( ). Turn on the flash units to be used in combination.

If the camera's built-in flash unit is part of the combination, pop up the built-in flash. Confirm that the subject is within the effective flash range and the ready lamp is lit. Then take a picture. 36 With a single flash With contrast control sync flash If you are using a single flash unit, you can only perform leading curtain sync photography when the sync mode switch is set to contrast-control ( ). 37 Advanced Functions Wireless Mode With the AF540FGZ, you can take photographs with the flash unit separated from the camera wirelessly in P-TTL mode.

Combine the flash unit with the built-in flash unit of the camera or another AF540FGZ attached to the camera. The AF360FGZ can be used interchangeably with AF540FGZ flash units for wireless mode photography. Before photographing, confirm the following. 1. Whether your camera supports this function. Cameras that Support Wireless Mode (page 63) 2. @@ Functions Related to Each Flash Mode (page 64 - 71) 3. Whether the slave mode is set to SL1. Slave Mode Setting (page 52) Notes on Wireless Flash Control (P-TTL photography) When using the AF540FGZ in wireless mode, the following information is transferred between the flash units attached to the camera and separated from the camera, before the flash units are discharged. Shutter release button is fully pressed. The flash attached to the camera emits a small control flash (relays the flash mode of the camera). The external AF540FGZ emits a pre-flash (verifies the state of the subject). The flash attached to the camera emits a small control flash (relays the flash output amount to the external AF540FGZ). The flash attached to the camera will emit a preflash once more after this to relay the flash duration time when HS (high-speed sync) is set. The external AF540FGZ discharges the main flash (where both flash units discharge main flashes, refer to page 44).

38 Control Flash and Main Flash The purpose of the control flash of the wireless mode is to send information to the other flash unit before taking a picture. The main flash discharges at the actual time a picture is taken in the same manner as traditionally done. When setting up a flash unit separately from the camera, use the off-camera shoe adapter F when using a tripod, or the off-camera shoe clip CL-10 when setting up in another location such as tabletop, chair, etc. Keep the distance from the built-in flash unit and AF540FGZ to the subject within 4 meters. 39 Using the AF540FGZ in Combination with a Built-in Flash Unit Setting switch The AF540FGZ can be used in combination with a built-in flash unit only when used with the following cameras. \*ist D, \*ist, MZ-S, MZ-L/ZX-L/MZ-6, K10D (NOTE), K20D, K200D, K-x, K-7, K-m/K2000 (NOTE) However, this requires the firmware to be updated to Version 1.10 or later. Download the firmware for the K10D from the following URL, and install it on your camera. [http://www.pentax.jp/english/support/download\\_digital.html](http://www.pentax.jp/english/support/download_digital.html) You may also contact your nearest PENTAX service center for firmware updates. (This will involve a fee.) 40

Firstly, set the wireless mode and channel of the AF540FGZ, and register them on the camera. @@Set the power switch of the flash unit to (WIRELESS). @@ You cannot set the flash unit to SLAVE while the exposure metering timer is on (while information relating to aperture etc. is displayed in the viewfinder). @@Press the channel button (CH) and select a channel from 1CH to 4CH. Slide the setting switch back up to the (white dot). When you turn the camera on and press the shutter release button halfway down, the channel is registered on the camera.

1 Next, remove the flash unit from the camera and place it in the desired position. Press the flash mode button (MODE) to display (P-TTL) if the flash mode was set to the modes other than P-TTL auto. 2 3 4 Enable the built-in flash unit of the camera and set the camera flash mode to (WIRELESS). @@A lamp on the AF540FGZ will blink. In the P-TTL mode, flash output setting (1/1, 2/3, 1/2, and 1/3) and flash output compensation (-3.0 to +1.0) are possible. (Refer to page 18.) The flash mode on the camera must be set to (WIRELESS), otherwise the AF540FGZ will not discharge. By changing the camera's function settings, you can set the built-in flash unit so that it is not the main flash.

Refer to the operating manual for the camera to find out how. For test flash, refer to page 58. 41 When Attaching the AF540FGZ to the Camera for Control Flash Main flash Control flash only: not used for main flash (Preparation of Flash Unit Attached to Camera) 1 Firstly, set the wireless mode and channel of the flash unit attached to the camera, and register them on the camera. @@Press the wireless mode button (M/C/S) the number of times required to display CONTROL on the LCD panel.



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@@ Press the channel button (CH) and select a channel from 1CH to 4CH. Slide the setting switch back up to the (white dot). 42 @@ Place the other AF540FGZ in the desired position. Set the power switch of the flash unit to (WIRELESS). @@@@ Slide the setting switch back up to the (white dot). @@@@ Place the other AF540FGZ in the desired position.

Set the power switch of the flash unit to (WIRELESS). @@@@ Slide the setting switch back up to the (white dot). @@@@ Set the power switch of the flash unit to (WIRELESS). @@ is displayed in the viewfinder. @@ Press the channel button (CH) and select a channel from 1CH to 4CH.

@@@@ A lamp on the wireless flash unit will blink. The built-in flash unit is used for control flash only. It will not be used for main flash.

@@@@ MASTER: For using both flash units as main flashes. @@@@ Place the other AF540FGZ in the desired position.

Set the power switch of the flash unit to (WIRELESS). @@@@ Slide the setting switch back up to the (white dot). @@@@ Before photographing, confirm the following. 1. @@ Functions Related to Each Flash Mode (page 64 - 71) 2. @@@@ Press the flash mode button (MODE) to set the flash mode. 50 Set the zoom position to suit the subject and place the flash unit at the desired location. When setting up a flash unit separately from the camera, use the off-camera shoe adapter F when using a tripod, or the off-camera shoe clip CL-10 when setting up in another location such as tabletop, chair, etc. 5 6 7 Do not use red-eye reduction with the camera's flash. This will result in the AF540FGZ firing by the pre-flash.

For the same reason, set the camera to manual focus when firing the flash continuously so that the AF spotbeam does not operate with cameras that have AF spotbeam functions. Turn the flash unit on the camera on. If the camera's built-in flash unit is part of the combination, pop up the built-in flash unit. Check that the ready lamp is lit, then take the picture. When charging is complete, ( ) is lit in the viewfinder of the camera. Position the slave unit(s) so that the slave sensor can receive the flash discharged by the camera's built-in flash unit or attached flash unit. The AF540FGZ will discharge at the same time that the camera's flash discharges. Keep the distance from the built-in flash unit and AF540FGZ to the subject within 4 meters. The slave unit will turn off automatically after about 1 hour of non-operation when the auto power off function is set. 51 Slave Mode Setting To properly control the slave flash, it is necessary to set the slave mode settings.

Procedure 1 2 3 Slide the setting switch up. Press the LCD panel illumination button (LIGHT) for 2 seconds or more. SL1 will be displayed. Press the select button (S) to select SL 1 or SL 2. SL 1: When photographing in wireless mode SL 2: When photographing with slave flash 2 seconds or more The flash will not discharge properly if the slave mode was set to the wrong mode.

It may not discharge at all or may discharge simultaneously with the control flash. Press the LCD panel illumination button (LIGHT) to finish setting. In SL 2, fluorescent lamps flicker may contribute to flash unit's erroneous firing on rare occasions. 4 52 Slow-Speed Sync Photography When using a normal flash to photograph a subject in a night or evening setting, the background will appear very dark because a normal flash light cannot sufficiently light it. However, it is possible to balance both subject and background by using the flash to properly expose the foreground subject and a slow shutter speed to expose the low light background.

Before photographing, confirm the following. 1. Whether your camera support this function Cameras that Support Slow-Speed Sync Mode (page 64) 2.

@@ Functions Related to Each Flash Mode (page 64 - 71) Refer to the camera operation manual for details. 53 Bounce Flash With the AF540FGZ, you can tilt and swivel the flash head to aim at the ceiling or wall to bounce the flash before it reaches the subject. Doing so creates softer light and shadows to make the picture look more natural. Bouncing the flash will decrease the flash intensity by the time it reaches the subject. Therefore, this function is effective when photographing in P-TTL or TTL mode at short distances. The bounce angle can be set to the following angles. Rightward: 0°, 30°, 60°, 90°, 120°, 150°, 180° Leftward: 0°, 30°, 60°, 90°, 135° Upward: 0°, 30°, 45°, 60°, 75°, 90° Downward: 0°, -10° 54 A click stop is provided for each bounce angle.

Hold the bounce lock release button and tilt the flash head downward when you set the bounce angle at -10°. When using bounce flash, ( ) will be displayed on the LCD panel. The effective flash range will blink only when the bounce angle is set at -10°. It is recommended to set the bounce angle at -10° to prevent uneven exposure when the distance to the subject is within 1m. Manual Flash Photography The amount of light during bounce flash photography is greatly affected by the condition of the reflective surface, therefore test pictures should be taken beforehand or changing the exposure and taking several pictures may be recommended. @@@@ This function is activated only when the camera is set to autofocus. @@ 2. Press the flash mode button (MODE) to select (SB). 3. Set the camera to the autofocus mode.

@@ The AF spotbeam does not work in bright light conditions. @@@@ The AF spotbeam on the flash unit works accurately only when mounted onto the camera's hot shoe. The flash does not discharge when using the AF540FGZ spotbeam exclusively as a focusing aid. 56 Wide-Angle Panel and Catchlight Panel The AF540FGZ has a built-in wide-angle panel and catchlight panel at the top of the flash head. Execute the following if necessary.

2. Catchlight panel A catchlight is a reflection of light source in the eyes. It usually appears as a white dot and makes the human subject look more lively. Set the bounce flash angle to 90° and get close to the subject before taking the picture. Store the panel you are not using.

. When storing the wide-angle panel, push it inward while holding the catchlight panel so that it does not catch on the catchlight panel. When storing the catchlight panel, do so by pushing it inward. 1 2 Pull out both the wide-angle panel and catchlight panel. Catchlight panel Wide-angle panel 1. Wide-angle panel The wide-angle panel expands flash coverage angle for the following lenses. The flash zoom position will be fixed at the same position as the focal length of the lens. 13 mm for digital camera (K series, \*ist D series), 25mm for digital camera (645D), 20 mm for 35 mm camera, 35mm for 645 camera, 55mm for 67 camera. 57 Modeling Flash/Test Flash Before taking the picture, firing a modeling flash helps you to see how shadows are cast on the subject.



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Cameras Capable of Modeling Flash or Test Flash Photography Using the Camera Button With the following cameras, a button on the camera can be used instead of the modeling button (MODELING) or the test button (TEST).

This operation can be carried out with either an attached flash unit or a wireless flash unit. For information on how to arrange this, refer to the operating manual for the camera. \*ist D: You can use the OK button. (Refer to "Custom Function Chart" in the camera's operating manual.) \*ist: You can use the flash pop-up button. (Refer to "Setting the Custom Function" in the camera's operating manual.) MZ-S: You can use the LCD illuminator button. (Refer to "PENTAX Functions" in the camera's operating manual.) Modeling Flash After firing the modeling flash, slide the setting switch up (white dot). To prevent the flash tube from overheating or deteriorating, do not discharge the modeling flash more than 10 consecutive times.

After the tenth time, let the flash unit rest for at least 10 minutes. 1 2 3 Slide the setting switch down (yellow dot). Check that the flash is ready, then press the modeling button (MODELING). The flash will discharge continuously for one second. Test Flash Check that the flash is ready, then press the test button (TEST).

The test flash will discharge. 58 Connecting the AF540FGZ with the Extension Cord When using the AF540FGZ separately from the camera connected by an extension cord, use the optional extension cord F5P/F5P L. Attach the extension cord F5P/F5P L to the camera using the optional hot shoe adapter FG or the optional hot shoe adapter F (refer to the diagram on the right). When using the AF540FGZ in combination with the built-in flash unit of the following cameras, use the hot shoe adapter FG. If you use the hot shoe adapter F, the built-in flash unit will not pop up.

K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist D, \*ist, MZ-L/ZX-L/MZ-6, MZ-S, MZ-60/ ZX-60, MZ-5N/ZX-5N, MZ-30/ZX-30, MZ-7/ZX-7, MZ3, MZ-5/ZX-5, MZ-10/ZX-10, MZ-50/ZX-50 You can use the hot shoe adapter F with any cameras other than those above. The 672 does not come with a hot shoe. The optional hot shoe grip 672 should be used. Refer to the hot shoe grip 672 operating manual for instructions. When setting up the flash unit separately from the camera, use the off-camera shoe adapter F when using a tripod, or the optional off-camera shoe clip CL-10 when setting up in another location such as tabletop, chair, etc. The off-camera shoe adapter F cannot be attached to the bundled stand. Extension cord F5P/F5P L Hot shoe adapter FG 59 Supported Functions for PENTAX Cameras Cameras that Support Each Flash Mode Cameras that support each of the flash modes are listed below. Please note that functions related to each flash mode differ. Refer to "Functions Related to Each Flash Mode" (page 64 - 71). Flash Mode P-TTL Auto Flash (P-TTL) Camera Notes 645D, K-x, K-7, - When the exposure mode is Programmed AE, Shutter Priority AE, or K-m/K2000, K20D, Aperture Priority AE, even if you set the flash mode to manual (M), it K200D, K100D Super, will automatically switch to (P-TTL) while the camera's exposure meter K10D, K110D, K100D, is operating (while information is being displayed in the viewfinder).

You \*ist DL2, \*ist DS2, can actually use Manual flash mode (M) when the camera exposure \*ist DL, \*ist DS, \*ist D, mode is set to Manual (M). \*ist, MZ-L/ZX-L/MZ-6, (With the 645D, K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, MZ-S K10D, K110D, K100D, \*ist DS2, \*ist DS, and \*ist D, if the aperture of the lens is in a position other than A, the flash mode will switch to TTL.) - In trailing curtain sync or contrast control sync mode, the flash mode will automatically be switched to (P-TTL) when you press the shutter release button halfway down, even if you have set it to manual (M). - If the camera exposure metering timer is on, you cannot select (A) or (M) by pressing the flash mode button (MODE). - Although (P-TTL) is displayed in the following cameras, the actual photograph is taken with (TTL). LX, Super A/Super Program, 645 60 Flash Mode TTL Auto Flash (TTL) 672 Camera Notes - In trailing curtain sync or contrast control sync mode, the flash mode will automatically be switched to (TTL) when you press the shutter release button halfway down, even if you have set it to manual (M). - When the exposure mode is Programmed AE, Shutter Priority AE, or Aperture Priority AE, the flash mode will automatically be switched to (TTL), even if you have set it to manual (M). - In trailing curtain sync or contrast control sync mode, the flash mode will automatically be switched to (TTL) when you press the shutter release button halfway down, even if you have set it to manual (M). - If the camera exposure metering timer is on (information is displayed in the viewfinder), you cannot select (A) or (M) by pressing the flash mode button (MODE). - You cannot use (TTL) with the SF7/SF10.

- Under the following conditions, autofocus cameras can also use (A). - The camera exposure mode is set to manual exposure. - The camera exposure metering timer is off. - With the following combinations of cameras and exposure modes, you cannot photograph correctly if the aperture is set to a value brighter than F2. Camera: Z-5P, Z-5, Z-1P/PZ-1P, Z-1/PZ-1, SFXN/SF1N, SF7/SF10, SFX/SF1 Exposure mode: Programmed AE and Shutter Priority AE modes - 645N2, 645N, Z/PZ series, MZ/ZX series (except MZ-M/ ZX-M), SFXN/SF1N, SFX/SF1 645, Super A/ Super Program, LX Auto Flash (A) Aperture setting capable PENTAX single lens reflex cameras Manual Flash (M) Aperture setting capable PENTAX single lens reflex cameras 61 Cameras that Support Each Sync Mode Cameras that support each of the sync modes are listed below.

Please note that the conditions under which they can be used differ depending on camera type and settings. For details, refer to the restrictions reference pages. Sync Mode Leading curtain sync ( Trailing curtain sync ( ) Camera ) All PENTAX single lens reflex cameras provided with a hot shoe Digital single lens reflex cameras 645D, K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist D 672, 645N2, 645N \*ist, Z/PZ series, MZ/ZX series (except MZ-M/ ZX-M), SFXN/ SF1N, SFX/SF1, SF7/SF10 645D, K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist D 672, 645N2, 645N \*ist, Z/PZ series, MZ/ZX series (except MZ-M/ ZX-M), SFXN/ SF1N, SFX/SF1, SF7/SF10 Restrictions Reference Page page 72 page 72 Film cameras (medium format) Film cameras (35mm autofocus single lens reflex cameras) Contrast control sync ( ) Digital single lens reflex cameras page 74 Film cameras (medium format) Film cameras (35mm autofocus single lens reflex cameras) 62 Sync Mode High-speed sync ( ) Digital single lens reflex cameras Camera 645D, K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist D \*ist, MZ-S, MZ-L/ZX-L/MZ-6 Restrictions Reference Page page 76 Film cameras (35mm autofocus single lens reflex cameras) Cameras that Support Wireless Mode Function Wireless Mode ( ) Camera Digital single lens reflex cameras 645D, K-x, K-7, K-m/K2000, K20D, K200D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist D, K10D (NOTE) \*ist, MZ-S, MZ-L/ ZX-L/MZ-6 Notes - When photographing in wireless mode, set the slave mode to SL1 (refer to page 52).



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\*2: Except ME. 70 Type E: 35mm single reflex cameras other than those in Type A to D, 67 camera Flash Mode Camera type Leading curtain sync Trailing curtain sync Slow-speed sync High-speed sync Automatic switching to X-sync speed when flash is charged Flash ready display in viewfinder Auto check display Slave flash Wireless control Red-eye reduction AF spotbeam (P-TTL) P-TTL auto (TTL) TTL auto (A) auto flash (M) manual flash flash photography flash photography photography photography (E) (E) (E) (E) N N X (SB) AF spotbeam (E) - 71 Sync Mode Restrictions Leading Curtain Sync Photography ( ) This sync mode can be used with all PENTAX single lens reflex cameras provided with a hot shoe. However, there are restrictions depending on camera type and settings. Camera Model Z-1/PZ-1, Z-5, Z-1P/PZ-1P, Z-5P Camera Settings Exposure mode: Programmed AE (Hyper Program), Hyper Program Aperture Priority AE, Aperture Priority AE, Hyper Manual by pressing IF button Exposure mode: Hyper Program Shutter Priority AE Exposure mode: Programmed AE, Shutter Priority AE Exposure mode: Aperture Priority AE Restrictions The minimum shutter speed varies depending on the focal length of the lens you are using. The minimum shutter speed changes depending on the ambient brightness. The shutter speed changes to within 1/60 to 1/125 sec. The shutter speed is fixed at 1/125 sec.

SFXN/SF1N Trailing Curtain Sync Photography ( Camera Category Camera Model ) Shutter Speed 1/90 sec. or slower 1/60 sec. or slower 1/15 sec. fixed (in Aperture Priority AE) 1/15 sec. or slower (in manual exposure) Cameras that support this sync mode are as follows. The shutter speeds that can be used differ according to the type of camera. Digital single lens K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, reflex cameras K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS 645D, \*ist D Film cameras 672 (medium format) 72 Camera Category Film cameras 645N2, 645N (medium format) Camera Model Shutter Speed 1/45 sec. fixed (in Programmed AE and Aperture Priority AE) 1/45 sec. or slower (in Shutter Priority AE and manual exposure) 1/90 sec. or slower 1/125 sec.

or slower (in Programmed AE and Aperture Priority AE in Hyper Program)\*1 1/125 sec. or slower (in Shutter Priority AE in Hyper Program)\*2 1/60 sec. fixed (in Programmed AE) 1/60 sec. or slower (in manual exposure) 1/60 sec. fixed (in Programmed AE, Shutter Priority AE and Aperture Priority AE) 1/60 sec. or slower (in manual exposure) 1/60 sec. or slower Film cameras MZ-S (35mm autofocus Z-1/PZ-1, Z-5, Z-1P/PZ-1P, Z-5P single lens reflex) Z-10/PZ-10 SFXN/SF1N, SFX/SF1, SF7/SF10 35mm autofocus single lens reflex cameras other than those above \*1: The minimum shutter speed varies depending on the focal length of the lens you are using. \*2: The minimum shutter speed varies depending on ambient light. Under the following condition, the flash mode automatically switches to P-TTL auto flash: the flash mode is set to manual flash (M), and the sync mode is set to trailing curtain sync ( ). ( ) is displayed on the LCD panel only in the following case: The shutter release button of the camera is pressed halfway, and the camera exposure metering timer is on (information is displayed in the viewfinder).

The built-in flash units of the following cameras do not have the trailing curtain sync function. When used in combination with the AF540FGZ, the built-in flash unit does not discharge - only the external flash unit discharges. SFX/SF1, SFXN/SF1N, SF7/SF10, Z-10/PZ-10 73 Contrast Control Sync Photography ( ) Flash units that support this sync mode are as follows. However, the flash modes, cameras, and camera shutter speeds that can be used differ depending on the flash unit. Set the shutter speed to the speed shown in the shutter speed column below.

Flash Unit AF540FGZ, AF360FGZ, AF200FGZ, built-in flash units AF330FTZ, AF500FTZ, AF400FTZ, AF240FT Flash Mode P-TTL auto flash (Even if you set the flash to another flash mode, the photograph is automatically taken in P-TTL auto flash mode.) TTL auto flash (Even if you set the flash to another flash mode, the photograph is automatically taken in TTL auto flash mode.) Camera Model 645D, K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist D, \*ist, MZ-S, MZ-L/ZX-L/MZ-6 672, 645N2, 645N, or any 35mm autofocus single lens reflex camera Camera Category Digital single lens reflex cameras Camera Model K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS \*ist D 645D Shutter Speed 1/180 sec. or slower 1/150 sec. or slower 1/125 sec.

or slower 1/15 sec. fixed (in Aperture Priority AE) 1/15 sec. or slower (in manual exposure) Film cameras (medium format) 672 74 Camera Category Film cameras (medium format) Camera Model 645N2, 645N Shutter Speed 1/45 sec. fixed (in Programmed AE and Aperture Priority AE) 1/45 sec. or slower (in Shutter Priority AE and manual exposure) Film cameras (35mm Z-1/PZ-1, Z-1P/PZ-1P, Z-5, Z-5P autofocus single lens reflex cameras) Z-10/PZ-10 SFXN/SF1N, SFX/SF1, and SF7/SF10 All 35mm autofocus single lens reflex cameras other than above 1/60 sec. fixed (in Programmed AE and Aperture Priority AE in Hyper Program)\*1 1/60 sec. or slower (in Shutter Priority AE in Hyper Program)\*2 1/60 sec. fixed (in Programmed AE) 1/60 sec. or slower (in manual exposure) 1/60 sec. fixed (in Programmed AE) 1/60 sec.

or slower (in manual exposure) 1/60 sec. or slower \*1: The minimum shutter speed varies depending on the focal length of the lens you are using. \*2: The minimum shutter speed varies depending on ambient light. The flash mode automatically switches to P-TTL auto under the following condition: When the flash mode is set to manual flash (M), and the sync mode is set to contrast control sync ( ). ( ) is displayed on the LCD panel only in the following case: The shutter release button of the camera is pressed halfway, and the camera exposure metering timer is on (information is displayed in the viewfinder). 75 High-Speed Sync Mode Photography ( ) Cameras that support this sync mode are as follows. Be sure to set your camera according to the following settings: - Shutter speed: faster than flash unit's X-sync speed - Exposure mode: Tv (Shutter Priority), Av (Aperture Priority), M (manual) Exposure modes other than the above are not compatible with this sync mode. Refer to the Exposure Modes Not Supported by High-Speed Sync Mode column. Camera Model K-x, K-m/K2000, K200D, K100D Super, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist, MZ-L/ZX-L/MZ-6 645D, K-7, K20D, K10D, \*ist D Exposure Modes Not Supported by High-Speed Sync Mode AUTO PICT, , , , , P (except \*ist and MZ-L/ZX-L/MZ-6), SCN (K-x, K-m/K2000, K200D, K100D Super, K110D, K100D, \*ist DL2), Sv (K-x, K-m/K2000, K200D, K100D Super, K100D), B (Bulb Exposure) modes Green (except 645D), Hyper Program (when programmed AE is activated), Sv (except \*ist D) and B (Bulb Exposure) modes Notes You can photograph in high-speed sync mode using the following method when the camera is in Hyper Program mode.



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- Set the camera using the Av dial or Tv dial so that the shutter speed is faster than flash unit's X-sync speed.

MZ-S P (Programmed AE) mode, B (Bulb Exposure) mode 76 Slow-Speed Sync Photography Restrictions Be sure to set the camera as follows. - Shutter speed: slower than flash unit's X-sync speed - Exposure mode: manual exposure, Shutter Priority AE, (except 645, SFXN/SF1N, SFX/SF1 and SF 7/SF10), B (Bulb Exposure) Exposure modes other than the above are not compatible with this photographic method. Refer to the Exposure Modes Not Supported by Slow-Speed Sync Photography column. You cannot perform slow-speed sync photography with settings other than B (Bulb Exposure) with the following cameras: - Cameras that are not capable of setting the shutter speed slower than the flash X-sync speed - Cameras in which the shutter speed is automatically switched to the X-sync speed when the flash unit has been charged. Camera Model K-x, K-m/K2000, K200D, K100D Super, K110D, K100D, \*ist DL2, \*ist DS2, \*ist DL, \*ist DS, \*ist, MZ-L/ZX-L/MZ-6, MZ-7/ZX-7 Exposure Modes Not Supported by Slow-Speed Sync Photography AUTO PICT, , , , P (except \*ist and MZ-L/ZX-L/MZ-6), SCN (K-x, K-m/K2000, K200D, K100D Super, K110D, K100D, \*ist DL2), Sv (K-x, K-m/K2000, K200D, K100D Super, K100D), Av (Aperture Priority) modes Notes 77 Camera Model 645D, K-7, K20D, K10D, \*ist D Exposure Modes Not Supported by Slow-Speed Sync Photography Green (except 645D), Hyper Program (when programmed AE is activated), Av (Aperture Priority) modes and Sv (except \*ist D) Notes You can perform slow-speed sync photography using the following method when the camera is in Hyper Program mode.

- Set the camera using the Av dial or Tv dial so that the shutter speed is slower than flash unit's X-sync speed. MZ-S, MZ-5N/ZX-5N, MZ-3, MZ-5/ZX-5, MZ-M/ZX-M, Z-50P, Program A/Program Plus MZ-50/ZX-50 MZ-30/ZX-30 MZ-10/ZX-10 Z-1P/PZ-1P, Z-5P, Z-5, Z-1/PZ-1 P (Programmed AE) and Av (Aperture Priority) modes PICT and Av (Aperture Priority) modes modes , , , , Av (Aperture Priority) Auto picture, PICT, and Av (Aperture Priority) modes HyP (Hyper Program), Programmed AE mode, Av (Aperture Priority), and HyM (Hyper Manual) modes by pressing IF button You can perform slow-speed sync photography using the following method when the camera is in HyP (Hyper Program) mode. - Set the camera using the Av dial or Tv dial so that the shutter speed is slower than flash unit's X-sync speed. 78 Camera Model Z-20P, Z-70P, Z-20/PZ-20 Z-10/PZ-10 645, SFXN/SF1N, SFX/SF1, SF7/SF10, Super A/ Super Program LX Exposure Modes Not Supported by Slow-Speed Sync Photography Green, Picture, and Av (Aperture Priority) modes P (Programmed AE) mode Programmed AE, Aperture Priority AE and Shutter Priority AE modes Aperture Priority AE mode Notes Precautions When Photographing with a Slave Flash Be sure to set the camera as follows: - Exposure mode: M (manual) or B (Bulb Exposure) \* Exposure modes other than those above are not compatible with this photographic method. Set the slave mode of the flash unit to SL 2 (refer to page 52).

79 Flash Effective Range Calculating the Flash Effective Range When setting the lens to manual f/stop, calculate the guide number at full flash with the use of flash's zoom position and ISO. Divide the resulting guide number by the aperture in use. Thus, the maximum distance is obtained. The minimum distance is obtained in dividing this max. distance by approx. 10. However, if the minimum distance obtained is 0.7m or less, the minimum distance will be 0.7m. Refer to page 82 for the guide number table.

Example: With a 85 mm lens at f/4 and sensitivity at ISO100 For the zoom position 85mm and sensitivity at ISO100, the guide number is 54.  $54 (\text{guide number}) / 4 (\text{aperture}) = 13.5\text{m}$  (max. distance)  $13.5\text{m} (\text{max. distance}) / 10 = 1.35\text{m}$  (min. distance) Thus, flash effective range is approx. 1.35m - 13.5m.

80 Display of Flash Effective Range The shooting distance parameters will be displayed on the LCD panel. Make sure that you are within the flash effective range before taking pictures. The effective flash range is displayed for the following camera and lens combinations. Effective flash range indicator Camera 645D, K-x, K-7, K-m/K2000, K20D, K200D, K100D Super, K10D, K110D, K100D, \*ist D series 35mm autofocus single lens reflex cameras (except for SF series) 645N2, 645N Lens Types DA, D FA, FA J, FA, F, A D FA, FA J, FA, F, A FA645 If the maximum distance exceeds 22 meters, ( ) will blink. If the minimum distance is 0.7m or less, ( ) will blink. The flash effective range varies depending on ISO, lens aperture in use, and/or the zoom position (flash coverage angle). Keep this in mind especially when you are using a variable aperture zoom lens. 81 Guide Number (GN) Guide numbers indicate flash light intensity.

The larger the number, the farther you can reach with your flash. From the guide number, you can easily obtain the proper aperture setting required for an optimum exposure.  $\text{Aperture (f/stop)} = \text{GN} / \text{flash-to-subject distance (m)}$  Guide Number Table Depending on the camera and lens you are using, the effective flash range may be displayed. (Refer to page 81.) \*With the wide-angle panel attached Camera format ISO Flash light intensity 35mm 645 67 DIGITAL 645D 1/1 1/2 1/4 1/8 1/16 1/32 1/64 Zoom position 85mm 70mm 50mm 150mm 135mm 100mm 190mm 180mm 120mm 58mm 48mm 34mm 106mm 87mm 62mm 54 38 27 19 13.5 9.5 6.7 50 35 24.5 17 12 8.5 6 45 32 22.

5 16 11 8 5.6 35mm 70mm 90mm 24mm 43mm 39 27.5 19.5 13.5 9.5 6.5 4.6 28mm 55mm 70mm 19mm 35mm 35 24.5 17 12 8.5 6 4. 2 24mm 45mm 60mm 16mm 30mm 32 22.5 16 11 7.5 5 3.5 \*20mm \*35mm \*55mm \*13mm \*25mm 21 14.5 10 7 5 3.

5 2.4 ISO100 82 \*With the wide-angle panel attached Camera format ISO Flash light intensity 35mm 645 67 DIGITAL 645D 1/1 1/2 1/4 1/8 1/16 1/32 1/64 1/1 1/2 1/4 1/8 1/16 1/32 1/64 Zoom position 85mm 70mm 50mm 150mm 135mm 100mm 190mm 180mm 120mm 58mm 48mm 34mm 106mm 87mm 62mm 76 54 38 27 19 13.5 9.5 108 76 54 38 27 19 13.5 71 50 35 24.

5 17 12 8.5 100 71 50 35 24.5 17 12 64 45 32 22.5 16 11 8 90 64 45 32 22.5 16 11 35mm 70mm 90mm 24mm 43mm 55 39 27.5 19.5 13.5 9.5 6.5 78 55 39 27. 5 19.5 13.5 9.5 28mm 55mm 70mm 19mm 35mm 49 35 24.5 17 12 8.5 6 70 49 35 24.5 17 12 8.5 24mm 45mm 60mm 16mm 30mm 45 32 22.5 16 11 7.5 5 64 45 32 22.

5 16 11 7.5 \*20mm \*35mm \*55mm \*13mm \*25mm 30 21 14.5 10 7 5 3.5 42 30 21 14.5 10 7 5 ISO200 ISO400 83 High-Speed Sync Guide Number \*With the wide-angle panel attached Camera format ISO Shutter speed 35mm DIGITAL 645D 250 500 1000 2000 4000 6000 250 500 1000 2000 4000 6000 250 500 1000 2000 4000 6000 Zoom position 85mm 58mm 106mm 24. 2 18.8 14 10.2 7.3 6.2 34.

2 26.5 19.8 14.4 10.4 8.8 48.4 37.6 28 20.4 14.6 12.

4 70mm 48mm 87mm 22.4 17.4 13 9.5 6.8 5.7 31.6 24.6 18.4 13.4 9.

6 8.1 44.8 34.8 26 19 13.6 11.

5 50mm 34mm 62mm 20.1 15.6 11.7 8.5 6.

1 5.2 28.5 22.1 16.5 12.0 8.6 7.3 40.2 31.2 23.



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