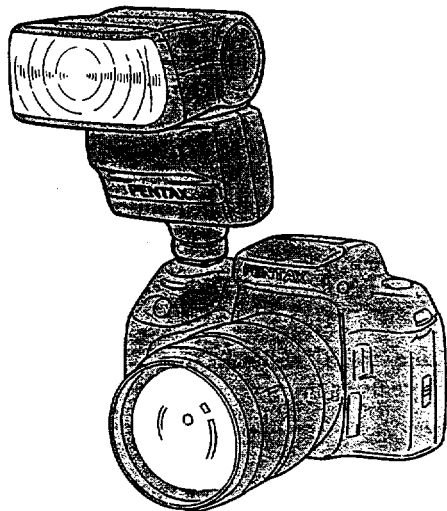
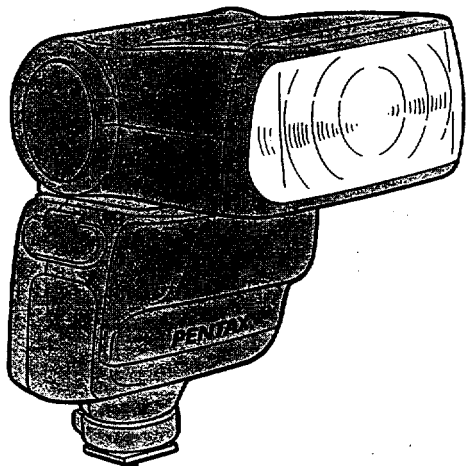


PENTAXTM

AF500FTZ

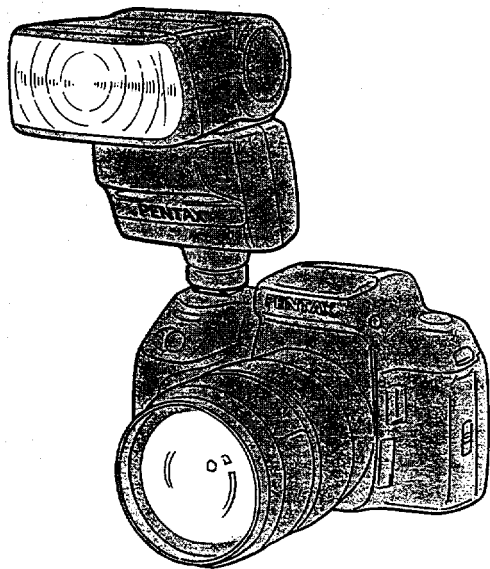
AUTO ZOOM ELECTRONIC FLASH UNIT
OPERATING MANUAL



Congratulations on your purchase of the AF500FTZ Auto Zoom Flash Unit. Specifically designed for the KAF₂- and KAF-mount cameras, this unit has a large guide number of 50 (ISO 100 at 85mm setting), tilts vertically 90° and rotates horizontally 180°. It features a built-in spotbeam projector, six levels of manual output control, an LCD guide panel, and an auto zoom function which adjusts the angle of discharge between 24mm and 85mm according to the focal length of the lens in use. Also included are such advanced capabilities as slave flash function, trailing-shutter-curtain-sync flash, bounce flash, and when combined with the RTF, contrast-control flash for natural lighting of the subject.

- Please read this manual carefully before using the flash.

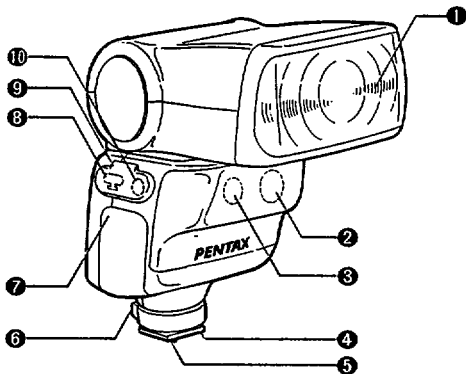
* For practical purposes of this Operating Manual, cameras are referred to as KAF₂- or KAF-mount cameras.



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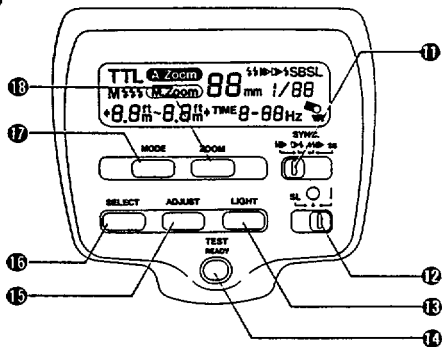
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DESCRIPTION OF PARTS



Mechanical Parts Name





- ① Flash Head
- ② AF Spotbeam Projector
- ③ Slave Signal Receiver
- ④ Hot-shoe Mount
- ⑤ Flash Signal Contact
- ⑥ Fastening Knob
- ⑦ Battery Compartment Cover
- ⑧ External Power Source Socket
- ⑨ Socket Cover
- ⑩ SP Sync Socket

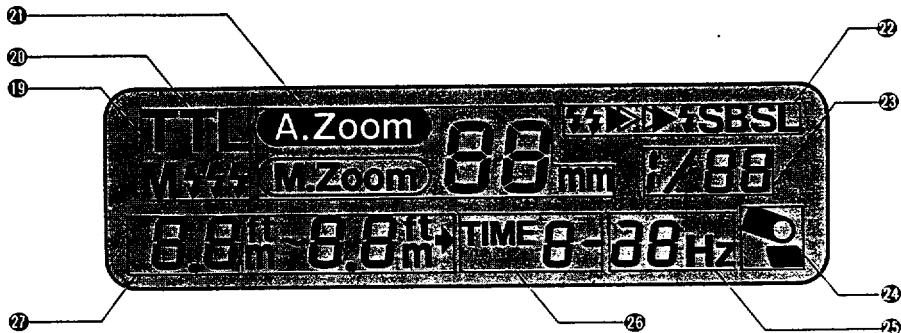


Operating Section Parts Name

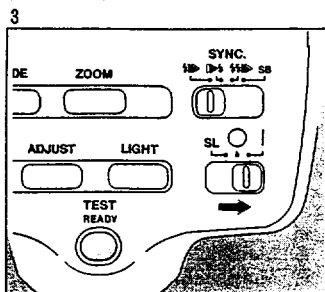
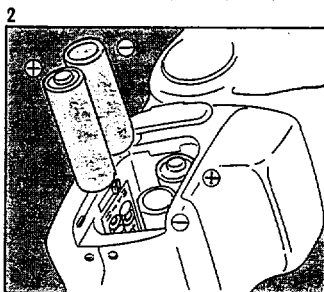
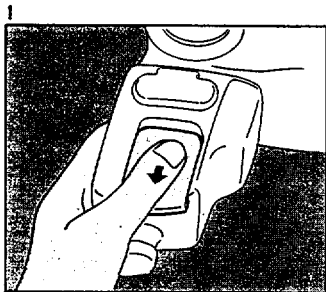
- ① Sync Mode Switch: [Leading-shutter-curtain-sync switch: $\frac{1}{2}$] - [Trailing-shutter-curtain-sync switch: $\frac{1}{2}$] - [Contrast-control-sync flash: $\frac{1}{2}$] - [SB=Spotbeam]
- ② Main Switch: [SL=Slave] - [O] - [I]
- ③ LCD Panel Illumination Switch: [LIGHT]
- ④ Test Button/Flash Ready Lamp: [TEST/READY]
- ⑤ Adjust Button: Manual Flash=Switching the flash output intensity [Switching the manual flash output intensity=1/1, 1/2, 1/4, 1/8, 1/16, 1/32] : Multiple Burst=Switching the setting [Flash output intensity=1/8, 1/16, 1/32] [Number of flash discharge=2 ~ 9 (1-step), [--] [consecutive]] [Recycling times=1 ~ 20 times/sec. (1-step)]
- ⑥ Select Button: Switching the mode for multiple burst [Amount of flash discharge] - [Amount of flash discharge] - [Recycling times]
- ⑦ Flash Mode Switch: [TTL] - [M] - [M14]
- ⑧ Zoom Adjustment Switch: [A.Zoom xx] - [M.Zoom xx] - xx = 24, 28, 35, 50, 70, 85mm

LCD panel

- ⑰ Flash Mode Display: [TTL]—[M]—[M***]
- ⑱ TTL Auto Check Indication: Blinking [TTL] indication
- ⑲ Zoom Display: [A.Zoom]—[M.Zoom xx mm]—xx=24, 28, 35, 50, 70, 85
- ⑳ Sync Mode Display: [Leading-shutter-curtain-sync: ]—
[Trailing-shutter-curtain-sync: ]—
[Contrast-control-sync: ]—[SL=Slave flash]—[SB=Spotbeam]
- ㉑ Manual Flash Discharge [M 1/xx]~ xx=1, 2, 4, 8, 16, 32
- ㉒ Bounce Flash Indication: []
- ㉓ Multiple Burst Recycling Times Display: [xx Hz]~ xx=1~20
- ㉔ Multiple Burst Number of Times Display [TIME x]~ x=1~9
- ㉕ Coupling Distance Display: [Minimum] ~ [Maximum] [TTL Auto],
[Proper distance] [Manual], Switching the display between m/f is possible.



INSERTING THE BATTERIES



1. Slide the battery compartment cover as shown in the figure to remove it.
2. Insert four AA-size batteries, making sure the plus/minus marking (+, -) match the diagrams inside the battery compartment. Then, reinstall the battery compartment cover.
3. Set the main switch to [I] and wait for the flash Ready lamp to light up indicating the flash has been charged. Depress the Test Button to discharge the test-flash. In this instance, TTL auto check is not possible to confirm proper exposure.

- The flash Ready Lamp will not light up if the batteries are not inserted properly.

Using the Optional External Power Source (TR Power Pack-2)

The AF500FTZ also operates on the optional TR Power Pack-2 (PW-222) which allows for a substantially large amount of flash discharge and faster recycling times. The TR Power Pack-2 connects to the external power source socket of the flash unit. See the external power source operating manual for details. See "WHEN USING THE OPTIONAL EXTERNAL POWER SOURCE" on page 29 for information on how to use it.

BATTERIES

This flash unit operates on four AA-size alkaline or rechargeable Ni-Cd batteries as shown below. To charge rechargeable Ni-Cd batteries, Ni-Cd battery charger for AA-size batteries is required. This unit can also be powered by the TR Power Pack-2 (PW-222).

Recommended batteries for the flash unit

Alkaline battery: LR6

Ni-Cd battery: KR-AA

Recommended batteries for external power source (PW-222)

TR Power Pack-2 (PW-222) = C-size alkaline battery (LR14)

* Ni-Cd batteries cannot be used in the TR Power Pack-2.

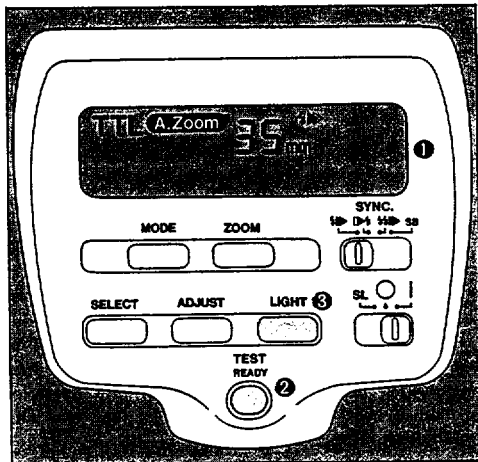
The flash unit charges in approximately 9 seconds with brand new alkaline batteries, approx. 6 seconds with Ni-Cd batteries, and approx. 4 sec. with the TR Power Pack-2. If charging time takes more than 20 seconds, then the batteries are weak and should be replaced with new ones.

If the flash unit is discharged when the battery is exhausted, the initial setting may return, the zooming motor continue to rotate or the LCD panel indication blink after the flash unit is discharged. However, this is not defective.

Battery Precautions

- Manganese batteries are not recommended for use as they provide a lower number of flashes per set of batteries.
- Batteries must be properly loaded with the plus/minus (+, -) sides matching the indications in the battery compartment; otherwise, the batteries may heat up, leak, and/or explode.
- If the flash Ready lamp does not light up when the power is turned on, check the batteries for correct position, or new batteries may be required.
- Replace all batteries at the same time. Do not mix battery brands and types, or old batteries with new ones as it may cause overheating or fire.
- If you do not expect to use the unit for an extended period of time, remove the batteries from it. Old batteries are apt to leak and can damage the unit.
- Battery performance may temporarily be hindered in low temperatures. Batteries should be kept warm in temperatures below freezing for proper performance.

OPERATING PANEL AND DISPLAY



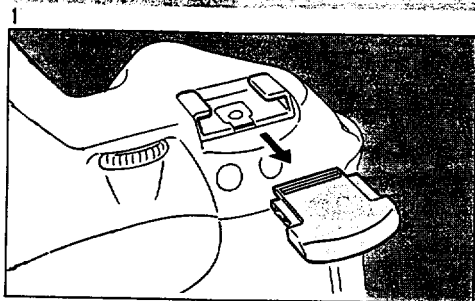
The AF500FTZ mates with the camera via special contacts. When the AF500FTZ is mounted onto the camera and the shutter button is depressed halfway down, the contacts of the camera and flash unit exchange information, allowing the dedicated functions to operate.

- 1 LCD Panel
- 2 Flash Ready Lamp [READY]/Test Button [TEST]
- 3 LCD Panel Illumination switch (depressed to illuminate the LCD panel for about 10 seconds so that it may be seen in the dark. If depressed again, the illuminator will turn off.)

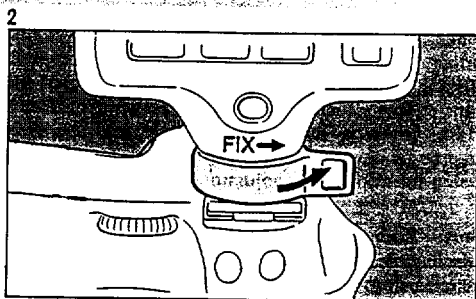
POWER AUTO OFF/QUICK ON FUNCTION

When the flash unit is on and left unused for approx. 3 minutes, the power automatically switches off to save battery power. Turn on the power to restart charging of the flash unit. However, when using the slave flash, this battery saving function will not operate. If the flash unit has been mounted on the camera, depress the shutter release button lightly to turn on the power.

MOUNTING ONTO CAMERA



1. Remove the hot shoe cover from the camera.
2. Slide the hot shoe mount into the camera's hot shoe, then turn the fastening knob in the direction of [FIX→] to secure it in place. To remove it, loosen the fastening knob and slide it off the camera.



- Turn the fastening knob in the direction opposite [FIX→] before sliding the hot shoe mount into the camera's hot shoe.
- When mounting or removing the flash unit, hold the portion near the shoe mount to prevent damage to the hot shoe.

ADJUSTING THE ZOOM HEAD (ANGLE OF DISCHARGE)

The AF500FTZ features a mechanism which adjusts the angle of discharge between 24mm and 85mm in accordance with the focal length of the lens in use. It also enables manual control of the flash coverage angle. This allows for a greater degree of control over the lighting for each shot by using the zoom head adjustment.

Auto Zoom (automatic adjustment of angle of discharge): [A.ZOOM]

When using the FA- or F-lens, flash coverage angle can be automatically controlled by the lens's focal length information which is transmitted by the camera.

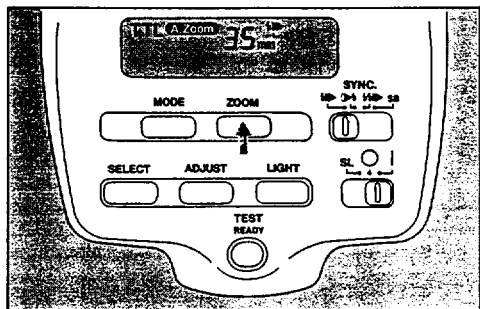
Manual Zoom (setting the angle of discharge manually): [M.ZOOM]

When using the Pentax non-AF-lenses, the flash coverage angle must be manually adjusted.

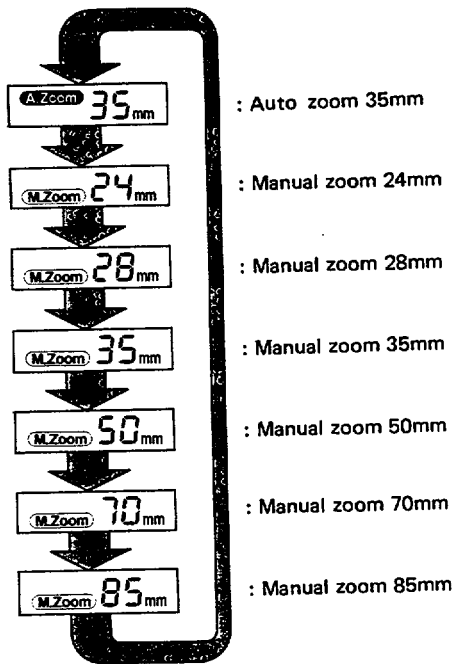
OPERATION

Set the main switch to [I]. Each press of the zoom adjustment switch registers a change in the LCD panel indications.

- To set the auto-zoom mode, depress the zoom adjustment switch until the [A.ZOOM] appears on the LCD panel.
- To use the manual-zoom mode, set the lens to the focal length in use or shorter. For example, when using a lens with the focal length of 80mm, depress the adjustment switch until [M.Zoom 70] appears on the LCD panel.



Order of LCD Indication



- At [A.ZOOM], the flash head will automatically zoom according to the focal length of the lens in use when the shutter release button is depressed halfway down to turn on the exposure meter.
- When the main switch is set to [I], [A.Zoom 35mm] is automatically engaged.
- At [A.ZOOM], the flash head is adjusted to the longest focal length of the lens that can be covered by the angle of discharge.
- At [M.ZOOM], if FA or F lenses are used and the position manually set does not cover the lens focal length in use, the LCD indication will blink warning that the lens in use is beyond flash coverage angle.
- At [A.ZOOM], if no focal length information is transmitted to the flash unit as when using the non-F-or FA-lens, the zoom head is adjusted to the 35mm setting.

DEDICATED FUNCTIONS WITH THE PENTAX CAMERAS

With the AF500FTZ mounted on a Pentax camera, the "dedicated" functions work as shown in the table below. When mounted on non-KAF₂- or KAF-mount cameras, the AF500FTZ works only in the manual mode, and dedicated/TTL operation is not possible.

CAUTION

Do not mount the AF500FTZ onto cameras made by other manufacturers. It may cause damage in the circuitry of the camera or cause the camera and flash unit to malfunction because of incompatible flash contacts.

TTL Auto Flash System

The TTL Auto Flash system measures existing light entering the lens and falling onto the film plane right up to the instant of exposure, and automatically controls the light output of the flash unit. Since it measures only the light reflected from the subject, correct flash exposure is always ensured.

Table of the Dedicated Functions

	TTL Auto Flash	Manual
Programmed TTL Flash*	○	×
Trailing-Curtain-Sync Flash	○	×
Slow-Speed-Sync Flash	○	○
Auto Switch to X shutter Speed	○	○
Flash Confirmation Signal through the Viewfinder	○	○
Auto Check Confirmation Signal in the Viewfinder	○	×
Multiple Burst	×	○
Slave Flash Discharge	×	○
AF Spotbeam	○	○

* The aperture and shutter speed vary automatically according to the subject brightness.

COMBINATION OF CAMERA'S EXPOSURE MODES AND AF500FTZ

The values in parentheses () apply to SFX/SF1 and SF7/SF10 only

Camera's exposure mode	Flash mode	Leading-Curtain Sync		Trailing-Curtain Sync		Contrast-control Sync		Slow-speed Sync		Multiple burst & slave flash discharge	
		Z-1/PZ-1	Z-10/PZ-10	Z-1/PZ-1	Z-10/PZ-10 SF Series	Z-1/PZ-1	Z-10/PZ-10 SF Series	Z-1/PZ-1	Z-10/PZ-10 SF Series		
Programmed AE [Hyper Program *1]	TTL *2	1/250-1/30 *3	1/100	1/125-1/60 (1/100-1/60)	1/125-1/30 *3	1/60	1/60-1/30 *3	1/60	×	×	×
Shutter-Priority AE in Hyper Program *1	TTL *2	1/250-30" *4	-	-	1/125-30" *4	-	1/60-30" *4	-	○ *2	-	×
Aperture-Priority AE in Hyper Program *1	TTL *2	1/250-1/30 *3	-	-	1/125-1/30 *3	-	1/60-1/30 *3	-	×	-	×
Shutter Priority AE	TTL *2	1/250 or Slower	-	1/125-1/60 (1/100-1/60)	1/125 or slower	1/60	1/60 or Slower	1/60	○ *2	×	×
Aperture Priority AE	TTL *2	1/250-1/30 *3	-	1/125 (1/100)	1/125-1/30 *3	1/60	1/60-1/30 *3	1/60	×	×	×
Metered Manual [Hyper Manual *1]	TTL, MANUAL	1/250 or Slower (1/250-1/30 if Ratio depression)	1/100 or Slower	1/125 (1/100 or Slower)	1/125 or Slower	1/60 or Slower	1/60 or Slower	1/60 or Slower *5	○	○	○
Bulb Exposure	TTL, MANUAL	B	B	B	B	B	B	B	○	○	○
X-Sync	TTL, MANUAL	-	-	1/125 (1/100)	-	1/60	-	1/60	-	×	○

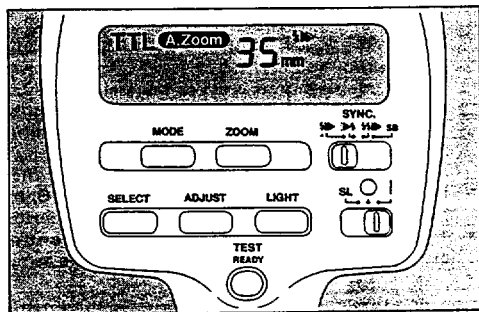
- *1 Applies only to Z-1/PZ-1.
- *2 Even if the flash unit is set to Manual, TTL Auto Flash mode will be set automatically on the flash unit.
- *3 The slowest shutter speed varies depending on the focal length of the lens in use.
- *4 The slowest shutter speed depends on the ambient brightness.
- *5 The shutter speed will be set to 1/60 with any of Pentax cameras except the Pentax Z/PZ-series cameras regardless of the shutter speed indicated on the LCD panel.
- In the Trailing-Shutter-Curtain Sync or Contrast-Control mode, even when the flash unit is set to Manual, TTL Auto Flash mode will be set automatically on the flash unit.
- The Trailing-Shutter-Curtain Sync and Contrast-Control setting modes do not work unless the shutter button is lightly depressed to turn ON the camera's exposure meter.

TTL AUTO FLASH

With the AF500FTZ, TTL Auto Flash is possible with film speeds ranging from ISO 25 to 1600.

Procedure

1. Set the camera's main switch to [I].
2. Set the flash unit's main switch to [I].
3. Depress the flash mode switch until the indication [TTL] displays on the LCD panel.
 - When the main switch is turned on, [TTL] is automatically set.
4. Set the sync mode switch to leading-shutter-curtain sync [▶▶], trailing-shutter-curtain [▶◀], or contrast-control-sync [◀▶] depending on your requirements.
5. When using an FA or F lens, set the flash unit to [A.ZOOM]. When using a non-FA- or F-lens, set it to [M.ZOOM] depending on the focal length of the lens in use.
6. Make sure that the flash Ready lamp is lit before taking pictures.
7. When a proper exposure has been made, the auto check confirmation signal appears. (the [◀] symbol blinks several times in the camera's viewfinder and [TTL] in the LCD panel blinks
8. If the auto check confirmation signal does not appear, it means that there is not sufficient amount of light on the subject. Get in closer on the subject and then try again.
 - If the flash-to-subject distance is too close, proper exposure will not be obtained even if the auto check confirmation signal blinks. Check the LCD panel to see if you are within the flash effective range before shooting.



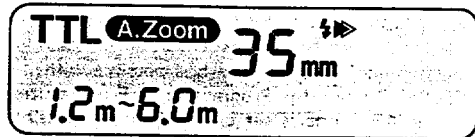
When the AF500FTZ is used in the TTL Auto mode, the minimum and maximum flash-to-subject distance parameters will be displayed on the LCD panel. Before taking pictures, ensure that you are within the flash effective range.

Display of Flash Effective Range

- The flash effective range appears on the LCD panel only when used with the Z-series Pentax cameras and Pentax lenses which have lens information contacts.

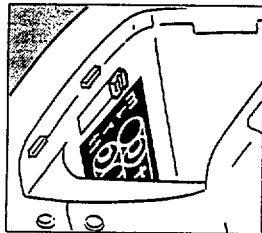
If the maximum distance displayed for the flash effective range on the LCD panel is shorter than the shooting distance listed in the "Table of Minimum Shooting Distance According to the Focal Length" on page 15, the minimum distance will blink; when it is more than 30m, [30⇒] will be displayed.

- The flash effective range varies depending on the ISO film speed, lens aperture in use, and/or the zooming position (flash coverage angle). When using a zoom lens, keep in mind a zoom lens can be varied in maximum open aperture when zoomed.



SWITCHING THE DISPLAY BETWEEN [m] (meter) AND [ft] (feet)

You can change the display from [m] to [ft] or vice versa with a switch in the battery compartment. The factory installs the switch for a [m] display. Move the switch to the [ft] position for a [ft] display using tweezers.



WHEN USING THE "A" (AUTO) LENS APERTURE

Programmed TTL Auto Flash is possible with the AF500FTZ when the Programmed AE or Shutter-Priority AE mode is set on the camera (possible when the Aperture-Priority AE mode is set on the Z-1/PZ-1). The flash sync shutter speed and/or aperture value automatically vary depending on the subject brightness, making it suitable for daylight fill-in flash.

WHEN SETTING THE LENS TO A MANUAL F/STOP

When the Aperture-Priority AE or Metered Manual mode is set on the camera, TTL Auto Flash is possible with the desired aperture selected to control the depth-of-field. (The flash sync shutter speed will vary depending on the subject brightness when the Aperture-priority AE is set on the Z-1/PZ-1.) In Metered Manual exposure, slow-speed-sync flash is possible.

CALCULATING THE FLASH EFFECTIVE RANGE

When setting the lens to a manual f/stop, calculate the guide number at FULL output intensity using the zooming position and film speed. 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. 15. (See "Table of Guide Numbers" on page 16.) However, if the minimum shooting distance is shorter than the shooting distance listed in the "Table of Minimum Shooting Distance According to the Focal Length" on next page, the distance on this table will be the minimum distance.

Example: With ISO 100 film and a 50mm lens at 4 (f-number)

- 1 If the zoom position = 50mm, and film speed at ISO 100, the guide number is 42.
- 2 Divide the guide number 42 by the aperture f/4. The result is 10.5m (max. distance)
- 3 Divide the max. distance 10.5m by 15, and the result is 0.7m (min. distance).

However, the minimum shooting distance for the focal length 50mm is 1.0m. Thus, flash effective range is approx. 1.0 to 10.5m (3.3 ft. to 34.4 ft.)

TTL Auto Flash Effective Range

[ISO 100]

[ISO 400]

ISO	ZOOMING POSITION						ZOOMING POSITION					
	24mm	28mm	35mm	50mm	70mm	85mm	24mm	28mm	35mm	50mm	70mm	85mm
1.2	1.7~25.0	1.8~26.7	2.0~30.0	2.3~35.0	2.3~39.2	2.6~41.7	3.3~50.0	3.6~53.3	4.0~60.0	4.7~70.0	5.2~78.3	5.6~83.3
1.4	1.4~21.4	1.5~22.9	1.7~25.7	2.0~30.0	2.0~33.6	2.4~35.7	2.9~42.9	3.0~45.7	3.4~51.4	4.0~60.0	4.5~67.1	4.8~71.4
2	1.0~15.0	1.1~16.0	1.2~18.0	1.4~21.0	1.4~23.5	1.7~25.0	2.0~30.0	2.1~32.0	2.4~36.0	2.8~42.0	3.1~47.0	3.3~50.0
2.8	0.7~10.7	0.8~11.4	0.86~12.8	1.0~15.0	1.0~16.8	1.2~17.9	1.4~21.4	1.5~22.9	1.7~25.7	2.0~30.0	2.2~33.6	2.4~35.7
4	0.7~7.5	0.7~8.0	0.7~9.0	0.7~10.5	0.7~11.8	0.8~12.5	1.0~15.0	1.1~16.0	1.2~18.0	1.4~21.0	1.6~23.5	1.7~25.0
5.6	0.7~5.4	0.7~5.7	0.7~6.4	0.7~7.5	0.7~8.4	0.7~8.9	0.7~10.7	0.8~11.4	0.9~12.9	1.0~15.0	1.1~16.8	1.2~17.9
8	0.7~3.8	0.7~4.0	0.7~4.5	0.7~5.3	0.7~5.9	0.7~6.25	0.7~7.5	0.7~8.0	0.7~9.0	0.7~10.5	0.8~11.8	0.8~12.5
11	0.7~2.7	0.7~2.9	0.7~3.2	0.7~3.8	0.7~4.3	0.7~4.5	0.7~5.5	0.7~5.8	0.7~6.5	0.7~7.6	0.7~8.5	0.7~9.1
16	0.7~1.9	0.7~2.0	0.7~2.2	0.7~2.6	0.7~2.9	0.7~3.1	0.7~3.8	0.7~4.0	0.7~4.5	0.7~5.3	0.7~5.9	0.7~6.3
22	0.7~1.4	0.7~1.5	0.7~1.6	0.7~1.9	0.7~2.1	0.7~2.3	0.7~2.7	0.7~2.9	0.7~3.3	0.7~3.8	0.7~4.3	0.7~4.5
32	0.7~0.9	0.7~1.0	0.7~1.1	0.7~1.3	0.7~1.5	0.7~1.6	0.7~1.9	0.7~2.0	0.7~2.3	0.7~2.6	0.7~2.9	0.7~3.1

[unit: m]

* When the flash unit is mounted on the camera and discharged at the distance closer than the values indicated below, the picture corners may be vignettted. If you wish to discharge it within this range, use the off-camera flash.

Table of Minimum Shooting Distance According to the Focal Length

FOCAL LENGTH	MINIMUM DISTANCE	FOCAL LENGTH	MINIMUM DISTANCE
24mm	1.5m	50mm	1.0m
28mm	1.4m	70mm	0.9m
35mm	1.2m	85mm	0.8m

MANUAL FLASH

When the Metered Manual mode is set on the camera, you can control manual flash by selecting the distance/aperture combination (if used on non-KAF₂ or KAF-mount camera, the AF500FTZ flash unit only works in the Manual mode.) The flash output intensity can be varied in 6 steps of 1/1, 1/2, 1/4, 1/8, 1/16 and 1/32.

Shooting Procedure

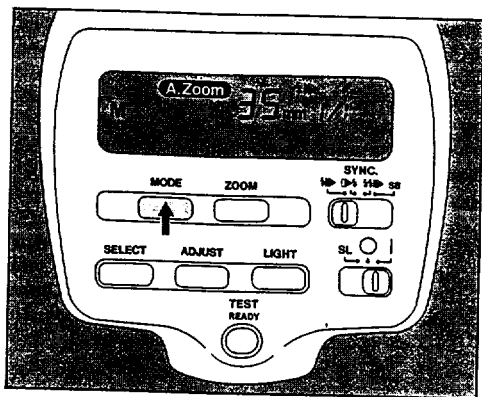
- Set the main switch to [1].
- Depress the flash mode switch until the indication on the LCD panel displays the [M 1/xx].
 - The flash output intensity can be varied in the range 1/1 to 1/32 by depressing the adjust button. Adjust the flash output intensity depending on your requirements. Holding down the adjust button changes the display continuously.
- Adjust the zoom position according to the lens in use.
 - With an FA or F lens, if you set the flash unit to [A.ZOOM], the zooming position is automatically adjusted.
- Find the right guide number listed in the "Table of Guide Numbers". Then, calculate the aperture based on the flash-to-subject distance.

Example: With the zooming position at 28mm, flash-to-subject distance 2m and the film speed ISO100

 - If the flash output intensity is 1/1, find the guide number 32 from the "Table of Guide Numbers".
 - Divide the guide number 32 by 2 (flash-to-subject distance). The lens aperture is f/16.
- Set the lens to the calculated f-stop.
- Make sure that the flash Ready Lamp is lit before discharging the flash unit.

TABLE OF GUIDE NUMBERS

Flash discharge mode	ISO100						ISO400					
	Zooming position						Zooming position					
	28mm	70mm	90mm	135mm	200mm	24mm	65mm	70mm	90mm	135mm	23mm	24mm
M 1/1	50	47	42	36	32	30	100	94	84	72	64	60
M 1/2	36	33	30	25	22	21	72	66	60	50	44	42
M 1/4	25	23	21	18	16	15	50	46	42	36	32	30
M 1/8	18	16.5	15	12.5	11	10.5	36	33	30	25	22	21
M 1/16	12.5	11.5	10.5	9	8	7.5	25	23	21	18	16	15
M 1/32	9	8	7.5	6	5.5	5	18	16	15	12	11	10



- The proper flash effective distance (approximate value) for the selected aperture will be displayed on the LCD panel when using the lens with lens information contacts and the Z/PZ-series cameras.

Guide Number (GN)

Guide numbers indicate flash 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.

$$\text{Aperture [f-number]} = \frac{\text{GN/flash-to-subject distance [m]}}{\text{distance [m]}}$$

$$\text{Example: GN33/3m} = f/11$$

DAYLIGHT SYNC FLASH

When the background of your photo is brighter than your subject, a backlit situation occurs. Under these conditions, your subject will be underexposed and appear darker if you take pictures according to the value the exposure meter indicates. If you allow the camera to compensate the exposure automatically, overexposure may occur. To compensate for this condition, your subject needs additional illumination to be balanced against the background. Using the Daylight Sync Flash in the Programmed TTL Auto Flash mode supplies the needed light for a beautifully balanced subject.

- If the background is too bright to require a flash, the flash unit may not discharge. If a flash is still desired, use the manual flash mode.

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.

- With the Z-1/PZ-1, slow-speed-sync TTL Auto flash is possible in the Hyper Program AE, Shutter-Priority AE and Hyper Manual exposure mode; with the Z-10/PZ-10, SF7/SF10 and SFX-series in the Manual exposure mode.

TRAILING-SHUTTER-CURTAIN SYNC FLASH

In normal electronic flash photography, the flash discharges at the instant the first shutter curtain completes its travel. This is referred to as the leading-shutter-curtain sync flash. In the trailing-shutter-curtain sync flash mode, the flash is discharged at the instant the second curtain begins its travel. This mode will freeze the subject with a blur appearing before the subject under a slow shutter speed condition. Using a leading-shutter-curtain sync flash will freeze the subject with a blur appearing after the subject.

Procedure

1. Set the main switch to [I].
2. Set the sync mode switch to the TRAILING SHUTTER CURTAIN [D4] position.
3. Set the zooming position according to the lens in use.
 - With an FA or F lens, the [A.ZOOM] setting automatically adjusts the zoom position.
4. Confirm the flash Ready lamp is lit and then discharge the flash.
 - With the trailing-shutter-curtain-sync flash, the [TTL] mode is automatically set even if the TTL mode has not been set on the flash unit.
 - The built-in flash on the Pentax SLR cameras other than the Z-1/PZ-1 does not feature the trailing-shutter-curtain capability: it does not discharge when combined with the AF500FTZ.
 - When the camera's exposure meter is switched ON, the trailing-shutter-curtain-sync mode will be automatically set on the flash unit.

CONTRAST-CONTROL-SYNC FLASH

When the AF500FTZ is used in combination with the camera's built-in flash, twin flash photography is possible, providing a flash output ratio of 1 (built-in flash): 2 (AF500FTZ).

Procedure

1. Set the main switch to [I].
2. Set the sync mode switch to the Contrast-Control position [☞▶].
3. Adjust the zoom position according to the lens in use.
 - With an FA- or F-lens, the [A.ZOOM] setting automatically adjusts the zooming position.
4. Make sure that the flash Ready lamp on the AF500FTZ is lit and the camera's built-in flash is charged before releasing the shutter.
 - When the Contrast-control mode is set on the flash unit, the leading-shutter-curtain sync flash mode will be automatically set unless the camera's built-in flash is used.
 - Even if the TTL mode has not been set on the AF500FTZ flash unit, setting the Contrast-Control sync flash mode automatically switches the flash to the TTL Auto Flash mode.



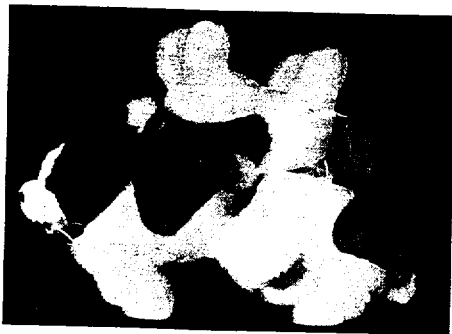
Contrast-control-sync flash



With a single flash

- When using the flash unit off-camera, use the optional Extension Cord F 5P and Hot Shoe Adapter F.

MULTIPLE BURST



With the AF500FTZ, multiple burst is possible. With the multiple burst, you can consecutively discharge the flash unit during a single frame shot. The flash discharges consecutively while the shutter is open, letting you produce startling results.

- TTL Auto flash is not possible while multiple burst is in use.
- The multiple burst is basically multiple exposure, so a darker background is recommended for best results.

How to use the multiple burst

1. Set the main switch to [I].
2. Depress the flash mode switch until [M~~---~~] appears on the LCD panel.
 - The flash output intensity, number of discharge and recycling times are set with the SELECT and ADJUST buttons. (see page 22 for information on how to set these values.)
3. Set the zooming position according to the lens in use.
 - With an FA or A lens, the [A.ZOOM] setting automatically adjusts the zooming position.
4. Find the right guide number listed in the "Table of Guide Numbers" on page 16. Then, calculate the aperture based on the flash-to-subject distance.

Example: With the zoom position at 35mm, a flash-to-subject distance of 1.5m and a film speed of ISO100

 - ① Find the guide number 6 from the "Table of Guide Numbers".
 - ② $6 \text{ (Guide number)} \div 1.5 \text{ (flash-to-subject distance)} = 4 \text{ (aperture)}$.

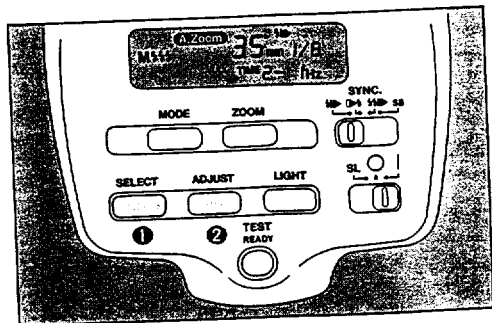
- * With the multiple burst, a frame is exposed as many times as the number of discharges, so multiple burst tends to overexpose frames depending on the subject and the composition. Pay careful attention to avoid overexposure.
5. Set the lens to the calculated f-stop.
 - It is recommended that the subject be slightly underexposed when you discharge the flash unit more than several times for a single frame.
 6. Make sure that the flash Ready lamp is lit before discharging the flash unit.

Setting the shutter speed during the multiple burst
Calculate the shutter speed from the number of flashes and recycling times.

Example: With the number of flashes = 5, and recycling times = 15Hz [1/15 sec.]

Shutter speed = 5 (number of flashes) X 1/15 (recycling times) = 5/15 = 1/3 sec.

Therefore, use a shutter speed slower than 1/3 sec. (1/2 sec. in this instance)



Setting the Conditions for Multiple Burst

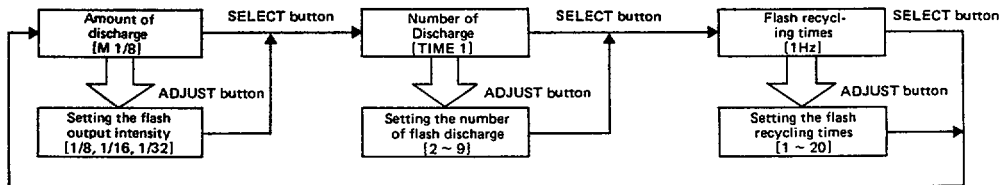
(The conditions for multiple burst includes the flash light intensity, number of discharge and recycling times.)

1. Depress the SELECT button ① to make the desired digits blink on the LCD panel.
2. Use the ADJUST button ② to change the digits you set with the SELECT button ①. Digits increase by one each time you depress the ADJUST button ②. Holding down the button will bring on continuous digit advance.
3. Depress the SELECT button ① to enter the selected value. The digit stops blinking.

- 1 Flash output intensity: switching between 1/8, 1/16 and 1/32
 - Adjust the flash output intensity (guide number) based on the flash-to-subject distance and/or the aperture in use.
- 2 Number of flashes: 2 ~ 9
 - The number of flashes can be set up to 2 to 4 times when the flash output intensity is set to 1/8; up to 2 to 8 when set to 1/16; up to 2 to 9 when set to 1/32.

- When you set the number of discharge to [--], the flash unit will continue to discharge based on the number of recycling times you set. The flash unit may stop discharging depending on the flash output intensity and recycling times you set. If this occurs, use the external power source to increase the number of discharge.
- 3 Flash Recycling Times: 1 ~ 20Hz
[Hz indicates unit of frequency indicating number of cycles per second]

Setting the Condition for Multiple Burst: LCD indication



BOUNCE FLASH

A bounce flash helps avoid harsh shadows and softens the overall picture effect. The flash light intensity is reduced in bounce photography, so bounce photography is most effective in the TTL Auto Flash mode at close distances.

The bounce angle is click-adjustable for 45°, 60°, 75°, 90° upwards, 30°, 60°, 90° to left and 30°, 60°, 90°, 120°, 150° 180° to right. With bounce photography, the [] indication will appear in the LCD panel. However, the flash-to-subject distance will not be displayed.

TTL Auto Flash Photography

The amount of reflected light depends on the flash angle and flash-to-subject distance. However, in TTL Auto Flash mode, bounce flash photography is quite easy. When using TTL Auto mode, always check the TTL confirmation signal in the camera's viewfinder and flash's indicator.

Manual Flash Photography

The amount of reflected light depends on many conditions. Test-shoot before taking flash photography or bracket exposures for safety.

- If you are bouncing light off a colored surface, the photograph shows the same color: use a white reflector unless some special effect is required.

AF SPOTBEAM

The AF500FTZ features a built-in infrared spotbeam projector to assist the autofocus system in dim light and low-contrast conditions. The AF spotbeam projector operates with camera set to the autofocus mode (AF SINGLE mode with Z-1/PZ-1, SFX/SF1, SFXN/SF1N). With the sync mode switch set to [S.B.], the AF500FTZ can be used exclusively as a focusing aid in dim light.

- When used in the dark condition, the spotbeam will be projected automatically depending on the ambient brightness and if the flash Ready lamp is lit.

USING THE AF500FTZ SPOTBEAM EXCLUSIVELY AS A FOCUSING AID

1. Set the main switch to [I].
2. Set the sync mode switch to [S.B.].
3. Set the camera to the autofocus mode (AF SINGLE mode on the Z-1/PZ-1, SFX/SF1, SFXN/SF1N).
4. Depress the shutter release button halfway down. The AF spotbeam will automatically be projected and the In-Focus Indicator lights up in the viewfinder indicating that you are ready to shoot.

- The AF spotbeam does not work in bright light conditions.
- If the FI [O] does not light up, it means the subject is hard to autofocus. In this case, use the manual focus mode to focus on the subject.
- To change the composition, raise your finger off the shutter release button and depress it halfway down again to recompose the picture.

- When using the AF500FTZ's built-in AF spotbeam, the camera's AF spotbeam built into the Z-1/PZ-1, SFX/SF1, SFXN/SF1N or SF7/SF10 will not operate.
- The AF spotbeam on the flash unit works accurately only when the flash unit is mounted onto the camera's hot shoe.
- The flash does not discharge when using the AF500FTZ spotbeam exclusively as a focusing aid.

SLAVE FLASH FUNCTION

The AF500FTZ comes equipped with a slave function which allows for wireless discharge of the flash in sync with either the camera's built-in flash or an external flash attached to the camera. Use this function when you wish to change the angle of discharge including when the main flash light is discharged over the subject.

- When used as a slave unit, the flash unit only works in the manual flash mode.

Procedure

1. Set the flash's main switch to [SL].
[M1/xx] and [SL] are displayed on the LCD panel.
 - By depressing the ADJUST button, the flash output intensity can be set between 1/1 to 1/32. Adjust the flash output intensity depending on your requirements.
2. Adjust the zooming position according to your requirements and place the flash unit, considering the angle of discharge to the subject.

- When the flash is used off-camera, ensure the flash signal contacts are not short-circuited, due to contact with a metallic object: otherwise, the flash unit will not function properly.
3. Find the guide number listed in the "Table of Guide Number" on page 16. Then, calculate the aperture based on the flash-to-subject distance.

Example: With the zoom position at 28mm, flash-to-subject distance 4m and the film speed ISO100

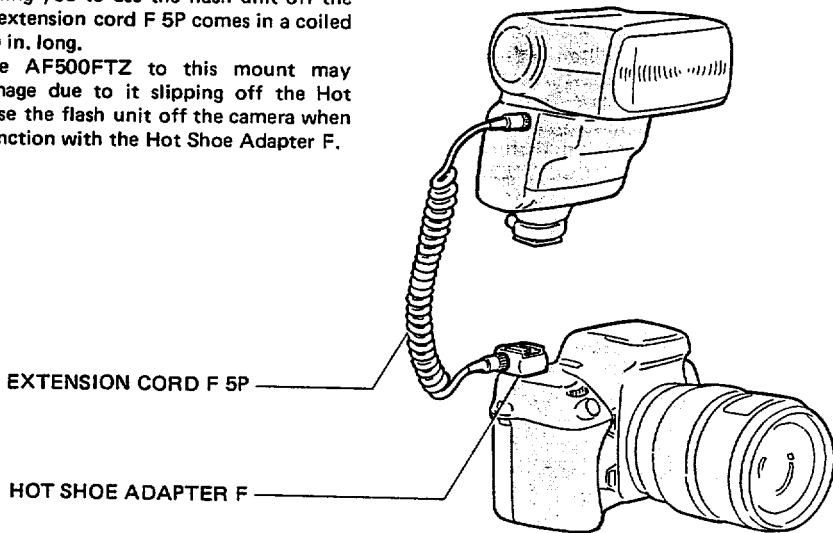
- ① Find the guide number 32 from the "Table of Guide Numbers", when the flash output intensity is 1/1.
 - ② 32 (guide number) divided by 4 (flash-to-subject distance) gives 8 (aperture).
4. Set the lens to the calculated f-stop.
 5. Set the shutter speed to the flash-sync-speed or slower.
 6. Make sure that the flash Ready lamp on the AF500FTZ is lit and the flash unit mounted on the camera/the built-in flash is charged before discharging the flash unit.

- Position the slave flash unit so that the slave signal receiver on the AF500FTZ receives the light coming from the flash unit mounted on the camera and the camera's built-in flash.
- The operating distance of slave flash is up to approx. 10m when the slave signal receiver on the AF500FTZ faces the flash unit mounted on the camera and camera's built-in flash.
- The slave function can be used in combination with the multiple burst.
- Keep in mind that auto-power off will not function when using a slave flash.

HOT SHOE ADAPTER F/EXTENSION CORD F 5P

These accessories connect the AF500FTZ to your camera, enabling you to use the flash unit off the camera. The extension cord F 5P comes in a coiled cord 0.5m/20 in. long.

Mounting the AF500FTZ to this mount may result in damage due to it slipping off the Hot Shoe. Only use the flash unit off the camera when used in conjunction with the Hot Shoe Adapter F.



WHEN USING THE OPTIONAL EXTERNAL POWER SOURCE (TR POWER PACK-2)

1. Prepare the external power source TR Power Pack-2 in accordance with the instructions in the Operating Manual.
 2. Set the flash unit's main switch to [o] and make sure that the main switch on the TR Power Pack-2 is turned to OFF. Then, plug the power cord into the socket on the TR Power Pack-2.
 3. Turn the switch on the TR Power Pack-2 and the main switch on the flash unit to ON. The flash unit will start charging. When the flash Ready lamp on the flash unit lights up, it indicates that the TR Power Pack-2 and the flash unit have been properly connected and are ready for use.
- The TR Power Pack-2 is equipped with a pilot lamp which, after the power is turned on, lights up to indicate that the power is activated. Note that a lit lamp does not indicate that the flash unit is ready for use, but means that the power has been turned on. Make sure the flash Ready lamp on the flash unit is lit before discharging the flash unit.
 - Refer to the TR Power Pack-2 specification for the number of flash discharge and recycling times (see page 30.).
 - When using the external power source, do not remove the batteries from the AF50FTZ: otherwise, the flash unit will not function.

SPECIFICATIONS

- Type** ————— Clip-on type, series-control, TTL auto zoom electronic flash
- Guide Numbers** ————— Switchable ranging M 1/1 to 1/32 (6-step)

	Zooming position	85mm	70mm	50mm	35mm	28mm	24mm
[M1/1] [=FULL]		50	47	42	36	32	30
[M1/2]		36	33	30	25	22	21
[M1/4]		25	23	21	18	16	15
[M1/8]		18	16.5	15	12.5	11	10.5
[M1/16]		12.5	11.5	10.5	9	8	7.5
[M1/32]		9	8	7.5	6	5.5	5

With ISO100 film

- Flash Duration (1/2 peak)** — Approx. 1/2000 sec. in [M 1/1]
Approx. 1/30000 sec. at minimum-distance discharge in [TTL]

Flash Frequency & Recycling Time

	Power	Recycling time	Frequency
Alkaline battery	[LR6]	About 9 sec.	About 100
Ni-Cd battery	[KR-AA]	About 6 sec.	About 40
TR Power pack-2	[LR14]	About 4 sec.	About 550

(at full output intensity in [M1:1])

- Consecutive Discharge** — Approx. 20 flashes in [M 1/16] mode at about 2 frames per second with fully-charged Ni-Cd batteries

Flash Coverage Angle (6-Step Zoom)

Zooming position	85mm	70mm	50mm	35mm	28mm	24mm
Vertical	23°	26°	34°	45°	53°	60°
Horizontal	31°	36°	46°	60°	70°	78°

- Color temperature** ————— Daylight color (ideally suited for daylight type color film)
- Auto Coupling Range** ————— Approx. 0.7~7.5m (GN42, ISO100, f/5.6)

AF Spotbeam	Red light will be projected onto the subject in low-contrast and in dim light. Measurable distance range: Approx. 1~8m (under the Pentax testing conditions)
Film Speed	ISO25 ~ 1600
Flash discharge mode	TTL Auto, Manual, Multiple burst
Dedicated functions with the camera	Flash ready lamp, Viewfinder auto check, Auto shutter speed change, Slow-speed-sync, Trailing-shutter-curtain sync, Contrast-control sync, AF spotbeam
Multiple burst	Number of flash discharge: 2~9 times (1-step) [--] (consecutive), Recycling times: 1~20Hz (1-step), Flash light intensity: 1/8, 1/16, 1/32 (3-step)
Slave flash	Flash sync mode: Manual & Multiple burst flash mode Operating distance of slave flash: approx. 10m (under the Pentax testing conditions)
Bounce flash angle	Up: 0°, 45°, 60°, 75°, 90° To right: 0°, 30°, 60°, 90°, 120°, 150°, 180° To left: 0°, 30°, 60°, 90°
Auto Power Off	Automatic power-off after 3 min. of non-operation (except when using slave flash)
Auto Power Quick On	Automatic power-on by depressing the shutter release button halfway after auto power-off
LCD Panel	Illuminated for about 10 sec. by depressing the illumination lamp switch. Goes off if depressed again.
Power Source	Four "AA" size alkaline (LR6) or Ni-Cd battery (KR-AA) Optional external power source: TR Power Pack-2 (PW-222)
Size/Weight	77(W) x 124(H) x 122(D) (3.0") x (4.9") x (4.8") (without batteries) Approx. 385 g (13.6 oz.)
Accessories	Soft case

SPECIFICATIONS ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTIFICATION OR ANY OBLIGATION ON THE PART OF THE MANUFACTURER.

OPERATING CARE

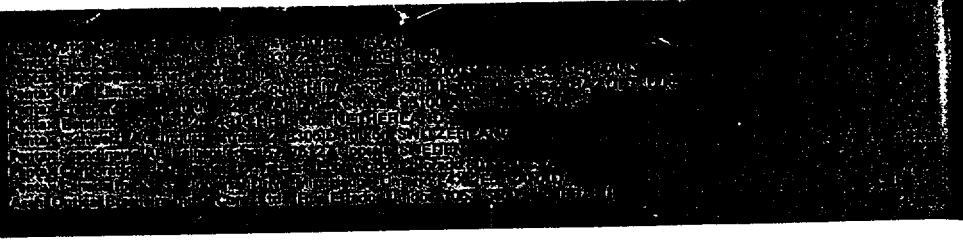
- When using the AF500FTZ off the camera, do not attach any metallic objects to the electric contacts or mount incompatible accessories, as it may cause damage to, or render the TTL auto mechanism inoperable.
- The circuitry inside the flash unit contains high voltage electronic parts. Never attempt to disassemble it.
- When mounting the flash unit to the camera's hot shoe, hold the portion near the hot shoe bracket to avoid damage to the hot shoe, and do not mount/remove it by force.
- Never use solvents such as alcohol, paint thinner or benzine to clean the flash unit and its accessories. If there is dirt, wipe it off with a soft dry cloth.
- Avoid storing the flash unit in places where temperature and humidity are high, such as in a car or near appliances which produce heat and/or mechanical vibration.
- When discharging a flash in proximity to the subject, do not discharge the flash directly into the subject's eyes.
- 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. Test flash is also important to maintain optimum performance.
- Shield the flash unit from salty air and water at the beach, liquid of any kind, and rain. When the flash unit is subjected to rain or moisture, wipe it off with a clean cloth.

RED-EYE PHENOMENON IN FLASH SHOOTING

When shooting portraits with the AF500FTZ and color film, subject's eyes may appear red (white in the black and white films). This phenomenon often occurs in low light surroundings and is caused by the reflection of electronic flash in the retina, and is partly dependent on the flash-to-subject distance, and/or color of the subjects' eyes and age.

Use the following methods to minimize the red-eye phenomenon.

1. Brighten the surroundings required for.
2. Have your subject look at a brighter spot before shooting. This causes the irises of the eye to contract.
3. Use a wide-angle lens to decrease the flash-to-subject distance.
4. Use the Hot Shoe Adapter F and Extension Cord F to increase the distance between the camera and flash unit.



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