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# **USING PENTAX DEDICATED AUTO FLASH UNITS**



The combination of this camera and any Pentax dedicated auto flash unit allows a variety of convenient functions as outlined in the following page.

If your flash unit requires the use of a synch cord, connect the cord to the X-synch socket found on your Pentax camera.

Operations/functions of each electronic flash unit are fully explained in their respective operating manuals.

Note: When you use this camera with AF400T, connect the flash unit with 4P Sync Cord B to the camera hotshoe.

\*TTL Auto Flash units.

Flash functions of this camera with:	*AF400T	*AF280T	*AF200T	*AF080C	AF200S	AF160
Flash recycling displayed in Viewfinder by \$ mark.	0	0	0	0	0	0
When camera is set at AUTO, shutter speed automatically switches to X-synch speed (1/100 sec) for flash photography.	0	0	0	0	0	0
Correct auto flash exposure is confirmed by lighting or flickering of \$\frac{1}{2}\$ mark immediately after the flash emission.	0	0	0	0		
In manual mode, flash photo- graphy is possible with shutter speeds slower than 1/100 sec.	0	0	0	0	0	0
Proper aperture is automatically set in Programmed AE mode.	0	0	0	0		

**Note:** When any of the above flash units other than the AF-160 is used with this camera with the flash mode set at AUTO, the flash may not fire if the subject is too bright for flash photography.

# SELECTING THE PROGRAMMED AUTO FLASH MODE

When you set the camera to the Programmed AE mode:

- Choose an Auto position on the flash mode selector (red, green, yellow) of the dedicated Auto Flash unit.
- As the Auto Flash unit recycles, the shutter speed will be automatically changed to the synchronization speed of 1/100 sec. and the lens aperture is also automatically set to the predetermined value shown in the table below according to the Auto position (red, green, yellow) you choose.

(With ISO 100 film)

	AF200T	AF280T	AF400T
"Red" mode	f/2.8	f/4	f/4
"Green" mode	f/5.6	f/8	f/8
"Yellow" mode	_	_	f/11

For instance, if you set the flash mode selector to the red position of the AF200T, at ISO 100, the LCD indication shall be as follows.

When you use other films than ISO 100, the aperture will change according to the film speed registered on the camera.

When you set the camera to the Aperture-priority AE or the Metered Manual mode;

- Select an Auto position on the flash mode selector (red, green, yellow) of the dedicated auto flash unit.
- Set the lens aperture to the designated value on the flash unit's calculater board.
- As the dedicated auto flash unit recycles the shutter speed is automatically changed to the synchronization speed of 1/100 sec.

#### Notes:

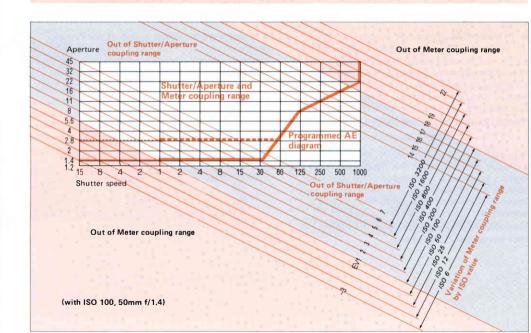
• In Metered Manual mode, speeds between 1/1000 and 1/125 sec. automatically change to synch, speed, while slower than 1/100 sec. speeds stay as are when the dedicated flash recycles. Choosing any slow speed, you can enjoy existing light photography with flash fill-in. For example, 1/15 sec. you have chosen may be shown in the viewfinder as follows:

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• In each automatic flash mode, the correct exposure is confirmed in the viewfinder. When the correct exposure is obtained with the dedicated flash in Auto flash mode, this confirmation mark \$ appears. If the auto flash confirmation mark \$ appears or flickers on the viewfinder LCD immediately after light emission, the subject has received proper flash lighting.

• If you leave the power switch of the Pentax dedicated auto flash on in any mode, the camera's exposure control circuitry will also be automatica switched on. And it will remain on, consuming th camera's battery power. So remember to turn off the flash power switch.

# PROGRAMMED AE DIAGRAM, SHUTTER/APERTURE COUPLING RANGE, METER COUPLING RANGE.



The shutter-speed and aperture combination in the Programmed AE mode is shown in the chart. The red line represents the variation of shutterspeed and aperture combination with an f/1.4 lens. Note that only the shutter-speed slows down after the lens aperture reaches its limit of f/1.4 in combination with a speed of approx, 1/30 sec, When you use a lens with a different maximum aperture, the exposure program varies the aperture and the shutter-speed in combination until reaching the maximum aperture of your lens. For example, with an f/2,8 lens the program varies the combination as shown by the red dotted line. Note that only the shutter-speed changes after the maximum aperture is reached. The fine red line in the Programmed AE diagram indicates the Automatic Exposure control range for a lens with minimum aperture smaller than f/22, or for a film with ISO speed other than 100. The fine red-dotted line indicates the range for a lens with maximum aperture smaller than f/1.4, or for a film with ISO speed other than 100.

# Meter coupling range and Shutter/Aperture coupling range

The meter coupling range means the range of subject luminance within which the built-in exposure-meter works to control exposure. The shutter/aperture coupling range is that part of the meter coupling range within which shutter-speed and aperture value can be combined for proper exposure control. When you use a 50mm f/1.4 normal lens and an ISO 100 film, the meter coupling range is from EV 1 (f/1.4-1 sec. or f/2-2 sec.) to EV 18 (f/16-1/1000 sec. or f/22-1/500 sec.). The range varies according to film speed (ISO). The variation of the meter coupling range is shown by slanting lines which shift with ISO ratings. The frame in the center shows the meter and shutter/aperture control coupling range.

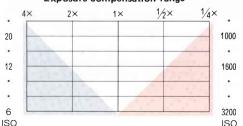
## EV (Exposure Value)

EV represents a combination of the shutter-speed and the lens aperture which is determined by the film speed (ISO) and the brightness of the subject.

## **EXPOSURE COMPENSATION**



# Exposure compensation range



The automatic exposure system of this camera tends to underexpose backlit subjects and overexposed spotlighted subjects on a stage, etc. In such cases, you can compensate by setting the exposure compensation dial. When shooting a subject against a bright background (backlit subjects), increase the exposure by setting the dial either to 2X or 4X. When your subject is spotlighted against a dark background, decrease the exposure by setting the dial to 1/2X or 1/4X. To set the dial, turn the knurled ring. Use of the exposure compensation dial changes the shutter speed in Aperture-priority AE mode, the programmed value in Programmed AE mode. and the ± values to which you adjust the exposure. in Manual mode

Exposure compensation dial and Film speed scale At both extremes of the film speed scale, the use of the exposure compensation dial is limited as shown in the chart. Always return the exposure compensation dial to 1X when compensation is

no longer required.

1X 2X



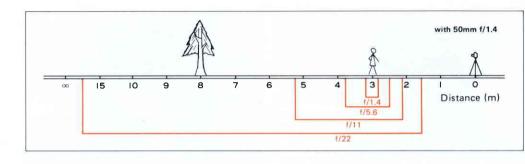


1X 1/2X





## **DEPTH-OF-FIELD**





Depth-of-field is the range between the nearest and farthest distances which are in focus at a given lens aperture.

The minimum aperture (for example f/22) gives you the greatest depth-of-field, or area in focus. The maximum aperture (for example f/1.4) gives you the smallest depth-of-field. When you vary aperture value, the range "in focus" changes accordingly, so that you can create different photographic effects in your pictures. As illustrated in the pictures on the right (examples of f/1.4 and f/22), the distance range in focus can be confirmed by the depth-of-field scale on the lens.



f/1.4 (2.85 ~ 3.16)





f/22 (1.67 ~ 16.88)





# Depth-of-field preview

Your camera is equipped to help you preview just what will and what will not be sharp in your pictures. By depressing the preview lever near the lens mount, you can close the lens down to whatever aperture you have set. You can then preview how much sharpness you will get in your picture by examining the picture area on the ground glass. After previewing your picture, if you release the preview lever, the lens will return to full aperture for focusing. You cannot, however, preview the depth of field with your camera set in the Programmed AE mode.

Note: Taking pictures with the preview lever depressed will result in incorrectly exposed pictures.

Distance scale		f/1.4		f/2		t/2.8		1/4		f/5.6	1/8	f/11	f/16	f/22
100000	0.448		0.446		0.445		0.443		0.440	0.436	0.431	0.423	0.414	
0.45m	~	0.453	~	0,454	~	0,455	~	0,457	~	0.460	~ 0.465	~ 0.471	~ 0,481	~ 0.49
	0.497		0.495		0.494		0.491		0.487	0.482	0.476	0.466	0.45	
0.5m	~	0.503	~	0.505	~	0.507	~	0.509	~	0,513	~ 0.519	~ 0.527	~ 0.540	~ 0.55
0.0	(Service)	0,595		0.593		0.590		0.586		0,581	0,573	0,564	0.549	0.53
0.6m	~	0.605	~	0.607	~	0.610	~	0.615	~	0.621	~ 0,630	~ 0.642	~ 0.663	~ 0.69
(2004)//1	0,791		0.787		0.781		0.774		0.764	0,749	0,732	0.705	0.67	
0.8m	~	0.810	~	0.814	~	0.820	~	0.828	~	0.840	~ 0.859	~ 0.883	~ 0.927	~ 0.98
0	0.985		0.978		0.970		0.958		0.942	0.919	0.892	0.851	0.80	
1.0m	~	1.016	Per Per	1.023	~	1,032	~	1.046	~	1.066	~ 1.098	~ 1.140	~ 1.218	~ 1.32
1.	1.464		1.449		1.430		1.402		1.366	1.316	1.259	1.174	1.08	
1.5m	~	1.538	~	1,555	~	1.578	~	1,613	~	1.664	~ 1.746	~ 1.861	~ 2.093	~ 2.46
1.935	1.935		1.908		1.874		1.825		1,764	1.679	1.584	1.449	1.31	
2.0m	~	2.070	~	2,101	~	2.144	~	2.213	~	2.312	~ 2.478	~ 2.724	~ 3.265	~ 4.29
3.0m 2.853 ~ 3.164	2.853		2.794		2.719		2.615		2.487	2.318	2.137	1.892	1.66	
	~	3.164	~	3,239	~	3.346	~	3.521	~	3.785	~ 4.265	~ 5.073	~ 7.426	~16.88
10.0m 8.488		7.973		7.375		6.631		5.846	4.966	4,181	3.313	2.65		
ro.om	~	12.171	~	13,421	~	15.552	~	20.422	~	35.101	~ 00	~ ∞	~	~ •
on .		55.370		38.772		27.707		19.408		13.876	9.726	7.086	4.885	3.569
	~		~	00	120	00	~	00	~		~ ∞	~ **	~ ∞	~ *



# TRIPOD, B(BULB) AND TIME EXPOSURES







## Tripod

In order to prevent large diameter lenses from interfering with proper mounting of the camera on a tripod, insert the accessory spacer ring. To prevent movement of the camera during long exposures, use a tripod and cable release.

# Bulb (B)

Bulb is used to make long exposures of more than 15 seconds. Set the shutter dial index (red line) to the "B" position, and the shutter will remain open as long as the shutter release button is depressed. The shutter speed LCD inside the viewfinder indicates "B". Bulb cannot be used when the aperture ring of an A lens is set at A (Auto). Should the "B" be set on the shutter dial, the "E" (error) indication flickers as a warning on the shutter speed LCD.

## Time Exposures

For time exposures use Pentax Cable Release Type 30 or 50 with the shutter dial set at "B."

#### SELF-TIMER

The self-timer is used when you want to include yourself in the picture with your family, friends, etc. Draw the self-timer lever in the direction of the arrow, and depress the shutter release button. The timer delays shutter release for about 12 seconds. Self-timer operation is indicated by red light.

2 seconds before a shutter release, the frequency of flickering increases. The self-timer can be cancelled even after pressing the shutter, by returning the lever to its original position.

The self-timer cannot be used when "E" flickers on LCDs inside the viewfinder to warn you of an erroneous setting. When using the self-timer, cover the viewfinder eyepiece with the accessory finder cap; otherwise, light entering from the rear of the camera may make the shutter speed faster, adversely affecting the exposure.







## USE OF NON-DEDICATED FLASH UNITS





- In using an ordinary flash unit, adjust the shutter dial index (red line) to 100 \$. The shutter speed will be indicated as 100 but there will be no LCD indication of f/stop.
- Set the lens aperture according to the camera-to-subject distance (Refer to the instructions accompanying the flash unit).
- When using a synch-cord, connect it to X-synch socket on your camera.

Note: Flash units available from other makers with dedicated flash coupling capability, special purpose flash units, etc., will tend to cause malfunctions or damage to the electronic systems of your camera.

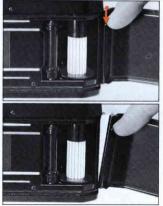
## DIOPTER ADJUSTMENT, CHANGING BACK COVER

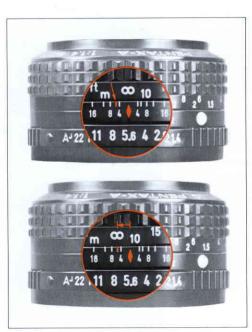
Correction lenses M are available for the viewfinder. There are 8 auxiliary M lenses: -5, -4, -3, -2, -1, +1, +2 and +3D. Choose the one that suits your eye, and put it in the eyepiece accessory slots as illustrated. Before buying one, try it for yourself with the lens actually attached to your camera.

# Changing the back cover

The back cover must be removed from your camera to use such accessories as the Dial Data ME or Digital Data M data-imprinting devices. Open the back cover, and pull slightly while pushing down the back cover release pin to disengage the locking mechanism. Then the cover can be easily removed. When reattaching it, first put the lower back-cover-release lug into position, then match the upper lug with the release pin pushed downward. Release the pin to attach the back to camera body.







## INFRARED INDEX MARK

If you intend to take infrared photographs using infrared film and R2 or 02 filters, it is necessary to compensate for the difference between visible light focus and infrared focus. As shown on the left, note the subject-to-camera distance on the led distance scale as you focus through the viewfinder and turn the focusing ring until that distance settil aligns with the red infrared index mark. The figure shows an example in which the subject-to-camera distance is set at infinity ( $\infty$ ).

As for exposure control required in infrared photography, refer to the instructions contained in the film package.

# USING SCREW-MOUNT TAKUMAR LENSES

Conventional screw-mount lenses can be easily attached to the lens mount of your camera by using the optional Mount Adaptor K. But there are some limitations.

- Put the Mount Adaptor K in the body mount by matching both marks.
- To lock it, rotate the adaptor clockwise (65°) with a pointed object such as a ball-point pen.
   Now your camera can accept any conventional Pentax screw-mount lenses
- To remove the adaptor, press the spring pin on the adaptor with some pointed aid and rotate it counterclockwise until it stops

# Limitations in using screw-mount lenses on this camera

- The distance scale of the lens is usable as it is, up to infinity ( $\infty$ ).
- Automatic diaphragm coupling doesn't function due to the difference in coupling system.
- The exposure is metered with aperture stopped down,
- Programmed AE mode cannot be used with screw-mount lenses.
- There is not automatic aperture setting even with dedicated flash units.







## HOW TO USE VARIOUS ACCESSORIES WITH YOUR CAMERA

- When you attach the following accessories to this camera, use the stop-down (or working aperture) metering mode or Metered Manual mode: Bellows Unit III
   Microscope Adaptor K
   Helicoid Extension Tube K
   Extension Tube K Set
   Reverse Adaptor K 49mm/52mm
   6 x 7 Lens Mount Adaptor K
   Telescope Adaptor K
- When you attach the following accessories to this camera, use the Aperture-priority AE mode or Metered Manual exposure mode: Auto Bellows A Set and M Set new Auto Extension Tube K Set Auto Extension Tube K 100mm/50mm
   Rear Convertor K T6-2X

**Note:** The scale and double cable release of the Auto Bellows M Set cannot be used with this camera.

- Use the Refconverter A because with the Refconverter M the viewfinder LCD of this camera is not visible.
- When using the Winder ME II with this camera, be sure to set the AUTO/125X indicator of the winder at AUTO. If not set at 125X, it may cause malfunction.
- Do not use the Winder ME with this camera, as they are not designed to fit it properly.
- The Programmed AE mode does not function with a Pentax dedicated flash set at "M" (manual) or "MS" (manual synchronization).
- As you set up for multi-flash photography with dedicated flash units, use this camera in the Aperture-priority AE or the Metered Manual mode.









Electronic flash AF200T



Electronic flash AF080C Ring light



Electronic flash AF200S



Electronic







## Motor Drive A

For high-speed action sequences, equip your camera with this 3.5 frame-per-second motor drive. With this motor drive, you can use your camera in any mode for either single-frame or continuous shooting with adjustable speeds.



Capable of shooting about 2 frames per second, in addition to single-frame shooting. Four AA batteries used as power source.





## Digital Data M

The Pentax Digital Data M utilizes an LCD digital chronometer. Unlike other mechanical dial units, the Digital Data M enables you to record the year/month/date, and time of day on your photographs without having to use troublesome dials or knobs. The Digital Data M is easily interchangeable with the standard back, and can be used with your camera.



#### **CAMERA MAINTENANCE**

#### **CLEANING:**

- Always keep the viewfinder eyepiece, lens and filters as clean as possible. To remove loose dust and dirt, first use the blower and then the brush. Do not try to wipe off granular dirt or dust it's an excellent way of scratching the glass.
- Smudges, such as fingerprints, should be carefully wiped away with either lens tissue or a clean, soft cloth. Clean, plain cotton handkerchiefs that have already been washed a few times are particularly good for this. Breathing on the lens before wiping is effective; but be sure to wipe away all moisture completely. Commercial lens cleaners are also effective.
- Never touch the mirror or the shutter leaves. Minor dirt or spots on the mirror will not affect the clarity of your pictures.
- Take care not to drop the camera or knock it against anything solid. Accidents or rough handling can easily damage the internal mechanism, even though externally nothing seems to have been damaged.

## KEEP YOUR CAMERA DRY:

- Your camera is not waterproof. There are several places where water can get inside and do a great deal of damage. Take care to protect both body and lens from rain or splashing water. If your camera should get wet, dry it off immediately with a clean, soft cloth.
- If your camera becomes completely soaked, it may malfunction. In this instance, bring it as soon as possible to an authorized Pentax service center.

## STORAGE:

• Where to keep your camera while you are not using it is an important point. The best storage place is cool, dry, clean and well-ventilated. Because of the possible build up of humidity, it is risky to store your camera in a cabinet or closet. It's also a good idea to keep your camera in its bag or case while you are not using it.

# RESISTANCE TO TEMPERATURE EXTREMES AND CHANGES

The temperature range at which your camera will continue to function properly stretches from 50°C to -20°C. However, resistance to cold could be hampered by dirty oil. Therefore, if the camera is to operate at full efficiency in very cold conditions, it must be overhauled and all oil must be replaced. Sudden changes in temperature will often cause moisture to condense inside or outside your camera. This is a possible source of rust, which may be extremely harmful to the mechanism. Furthermore, if the camera is taken from a warm temperature to a sub-freezing one, further damage may result from the formation of icelets.

Thus, sudden temperature changes should be avoided as much as possible. As a guide, a temperature change of 10° C should be allowed to take place gradually over a period of at least 30 minutes. If this is not possible, keeping the camera in its case or bag will help somewhat in minimizing the effects of a rapid temperature change.

Extremely low temperature reduces the efficiency of the battery. Therefore, the camera should be protected against low temperature. Put the batteries into the camera right before shooting. For extremely low temperature, use new batteries.

A few notes on the LCD (Liquid Crystal Display): In high temperature, approximately 60°C or 140°F or above, the LCD may turn black. In low temperature, the response-time of the display may slow down considerably.

These phenomena do not indicate either camera break-down or break-down of the LCDs themselves. They are characteristics of LCDs, and the LCDs will return to normal when the temperature becomes normal.

# **SPECIFICATIONS**

Type:

Exposure Co	ntrol Modes: Programmed AE, Aperture-priority AE, Metered Manual, and Programmed Auto Flash mode.
Exposure Co	ntrol Mode Setting: By using combinations of settings on shutter dial and aperture ring of "A" series lenses.
Film:	35mm film.
Format:	24 x 36mm.
Lens Mount:	Pentax KA Bayonet (A Pentax K bayonet mount with electrical contact).
Shutter:	Seiko MFC-E5 vertical-run metal focal-plane shutter, automatic exposure and manual settings electronically-controlled speeds from 15 to 1/1000 sec., 1/100 sec., and B. Electro-magnetic shutter release with release button lock.
Exposure Inc	dication in Viewfinder: Liquid Crystal Display (LCD) for Automatic and manual shutter speeds, automatically set lens apertures, flash-ready sign with dedicated flashes, shutter-speed setting error warning, battery life warning, and Programmed AE indication (P).
Flash Synchr	ronization: Hotshoe (X-synch contact, dedicated flash contacts), X-synch at 1/100 sec.
Dedicated A	utomatic Flash Coupling: Automatic setting of 1/100 sec. synch speed with dedicated automatic flash units. Slower than 1/100 sec. synch flash photography is possible at Manual mode setting.
Self-Timer:	Electronically controlled, delay time indication by flashing lamp approx. 12 sec. delay time, possible to cancel at any time; initiate process by pressing shutter release button.
Viewfinder:	Silver-coated pentaprism finder with split-image/microprism focusing screen; shows 92% of the picture area, 0.82X magnification with 50mm lens at infinity; -1.1 Diopter eyepiece.
Mirror:	Back-swing type instant-return mirror.
Film Loadin	g: Magic-needle loading.

35mm SLR camera with multi-mode automatic exposure controls, electronically-controlled focal plane shutter, and open-aperture center-weighted Through-The-Lens metering.

Film Transport: Single-stroke, rapid wind lever with 135° throw and 30° standoff angle; Accepts Winder ME II, Motor Drive A.

Exposure Counter: Additive type, automatic resetting. Automatically sets shutter-speed at 1/1000 sec. up to '0' frame on the counter when shutter dial is set at AUTO or M.

Film Rewind: Crank type.

Exposure Metering: Open aperture, Through-The-Lens, center weighted, average area metering system with GPD cell.

Metering Range: EV 1 (f/1.4 1 sec.) — EV 18 (f/16, 1/1000 sec. or f/22, 1/500 sec.) with 50mm f/1.4 lens and ISO 100 film.

ISO Range: 6 - 3200.

Exposure Compensation Exposure: Compensation dial indexed at 4X, 2X, 1X, 1/2X and 1/4X.

Depth-of-Field Preview: Via depth-of-field preview lever when aperture set manually.

Power Source: Two 1.5V alkaline or silver-oxide batteries, or one 3V lithium battery.

Metering Circuit Main Switch: Switched on by shutter release button and remains on for about 30 sec., shut-off by built-in timer.

Battery Warning: When batteries grow weak, LCD alternately flashes exposure designations and 'ooo' sign. When batteries exhausted, LCDs go blank and shutter locks.

Back Cover: Standard camera back with spring catch, built-in memo holder/grip, fully interchangeable with Dial Data ME and Digital Data M.

Size & Weight: 131mm x 87mm x 47.5mm, 490g (body only, without batteries)
131mm x 87mm x 84.5mm, 725g (with f/1.4 lens, without batteries)

free of charge according to this procedure and warranty policy. In any case, however, shipping charges and customs clearance fees are to be borne by the sender. To prove the date of your purchase when required, please keep the receipts or bills covering the purchase of your equipment for at least a year. Before sending your equipment for servicing, please make sure that you are sending it to the manufacturer's authorized representatives or their accredited repair shops, unless you are sending it directly to the manufacturer. Always obtain a quotation of the service charge, and only after you accept the quoted service charge, instruct the service station to proceed with the servicing.

This warranty policy does not apply to Pentax products purchased in the U.S.A., U.K., or Canada. The local warranty policies available from Pentax distributors in those countries supersede this warranty policy.

 Film rewind shaft Tilm guide rails Eveniece accessory slots **O** Viewfinder eyepiece Viewfinder frame Sprocket Film take-up spool Back cover release pin Back cover @ Film pressure plate (9) Connector C) Film chamber 4 Battery compartment cover **(b)** Tripod socket **©** Cordless contact terminal Shutter blades (Film rewind button

Film transport coupler

