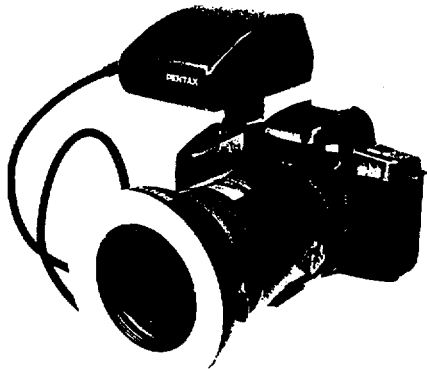


PENTAX®

AF140C

ELECTRONIC MACRO FLASH SET

OPERATING MANUAL



Congratulations on your purchase of Pentax AF140C Macro Flash. The AF140C Macro Flash is a sophisticated electronic flash unit which is specifically designed to make close-up work and macro-photography easier to attain. Its circular design provides a direct shadowless lighting source to maximize subject detail, and selecting a piece of flashtube to be fired provides a shadow lighting source. Be sure to read these instructions carefully to learn the benefits of Macro Flash.

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Precautions on AF140C flash photography

- It is recommended that the lens be stopped down, as too wide an aperture may sometimes cause a flare in the picture.
- Firing a flash toward a shiny subject such as a mirror or glass may cause a glare reflection to appear in the picture in the shape of the flash-tube.
- Wide-angle lenses mounted in the reverse position are recommended for use in close-up photography.

Red-Eye Phenomenon in Flash Shooting

When shooting portraits with the AF140C and color film, the subject's eyes may appear red (white in the black and white films). This phenomenon is caused by the reflection of the electronic flash in the retina. It can be minimized by brightening the surroundings or by having the subject look at a brighter spot before shooting, which causes the irises of the eye to close down (contract).

HOW TO USE THE MEMO HOLDER

Example

Lens	Macro 50mm f/2.8		
Magnification	0.1	0.2	0.5
Aperture range	f/4-f/22	f/5.6-f/32	f/8-f/32

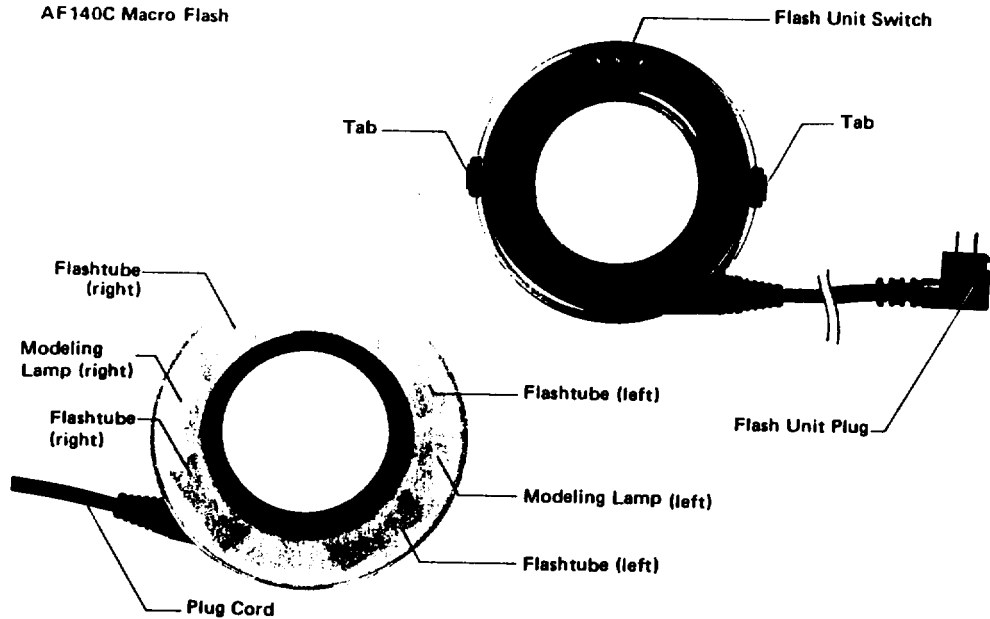
For Memo Holder

Lens			
Magnification			
Aperture range			

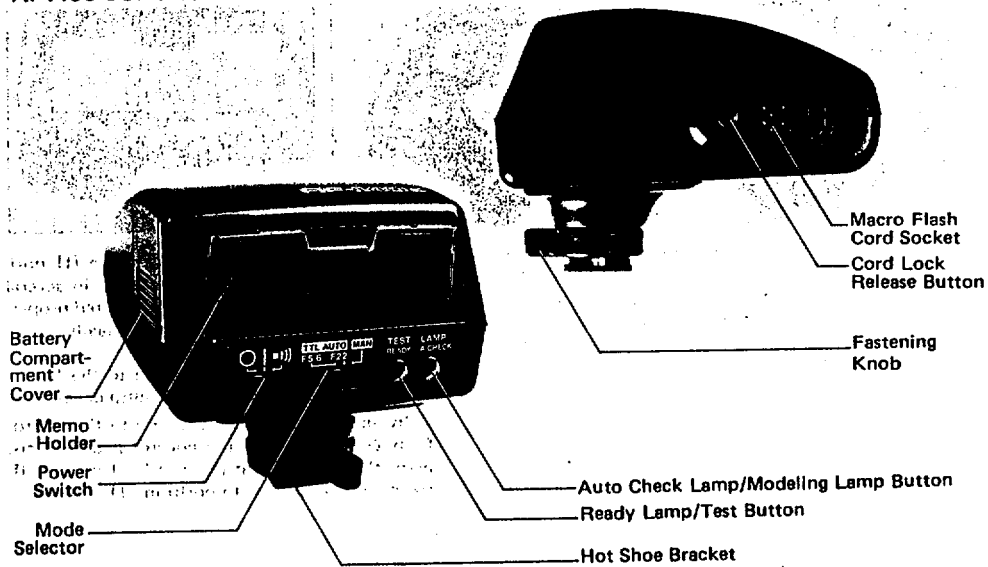
- Memo holder located on the back of the flash unit can be used for a data reminder. Prepare a piece of paper to fit the size of the memo holder or copy the above and enter your data in the table.
- See page 15 for information on the data in this table.

DESCRIPTION OF PARTS

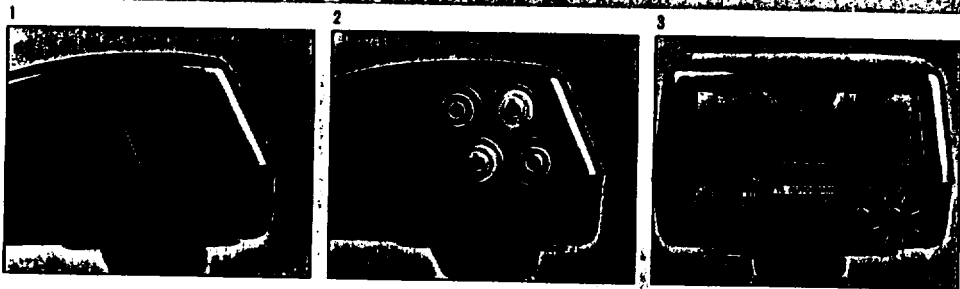
AF140C Macro Flash



AF140C CONTROL PACK



INSERTING THE BATTERIES



1. Pull the battery compartment cover in the direction of the arrow to open it.
2. Insert four AA-size batteries, making sure the plus/minus sides match the diagrams inside the battery compartment. Then, reinstall the battery compartment cover.
3. When the power switch is set to the [I] position, the Reedy Lamp will light up in several seconds. If the batteries are not inserted properly or the batteries are low, the Reedy Lamp will not light up.
 - When you set the power switch to the [IIII] position, a beeping tone signals auto check.
 - Fully insert the flash unit plug into the Macro flash cord socket on the control pack: otherwise, the Reedy lamp will not light up even if the main switch is set to position [I].

BATTERIES

Macro Flash Unit operates on four 1.5V AA-size alkaline batteries housed inside the controller unit. This unit can also be powered by rechargeable Nickel-cadmium batteries together with a NI-Cd battery charger for AA-size batteries.

Recycling Times and Number of Flashes (Manual Flash)

Power Source	Recycling Times	Number of Flashes
Alk. (LR6)	Approx. 0.2~8 sec.	Approx. 140~1000
NI-Cd (KR-AA)	Approx. 0.2~6 sec.	Approx. 50~450

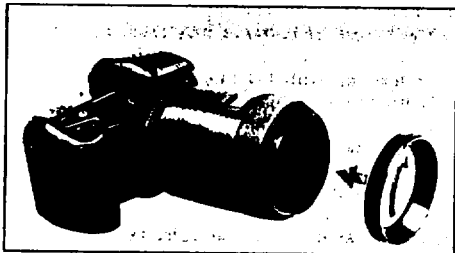
(According to Pentax testing conditions)

BATTERY PRECAUTIONS

- The misuse of batteries may cause hazards such as leakage, heating, explosions. Batteries should be inserted with the plus/minus (+, -) marking facing correctly.
- Replace all batteries at the same time. Do not mix battery brands and types, or old batteries with new ones. Otherwise, overheating or fire might result.
- If you do not expect to use the Macro Flash Unit for an extended period of time, remove the batteries from it. Old batteries are apt to leak and can cause damage to the unit.
- Never attempt to disassemble, break up or recharge the batteries. Also, do not dispose of the batteries in fire, as the batteries may explode.
- Battery performance may temporarily deteriorate in low temperatures. Batteries should be kept warm in extremely low temperature to prevent deterioration in performance by carrying them under your coat or jacket.

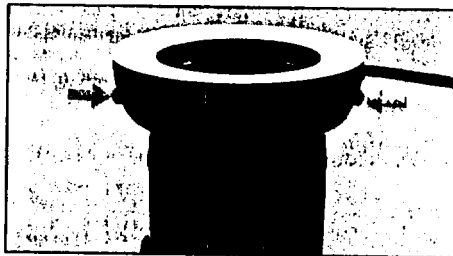
INSTALLING THE MACRO FLASH

1



1. Screw the adapter ring which matches the front thread ($\phi 49\text{mm}$, $\phi 52\text{mm}$ or $\phi 58\text{mm}$) onto the front of the lens.

2

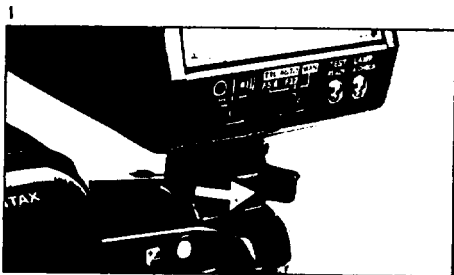


2. Press the tabs on the Macro Flash and install the Macro Flash on the adapter ring, then release both tabs.

CLOSE-UP ACCESSORIES

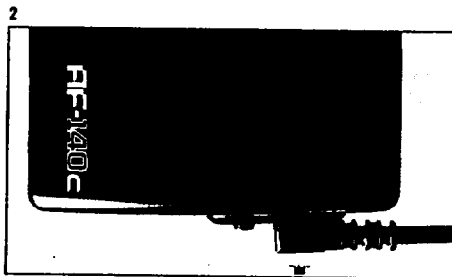
- Attach the Macro Flash to the front of the lens when combining it with the Auto Extension Tubes, or Auto Bellows M or A.
- Macro Flash can be attached to the Auto Bellows A or M with a lens reversed. Attach the Macro Flash onto the 49mm thread at the reverse of the Auto Bellows front panel with an adapter ring. When using other close-up accessories with the lens reversed, use the optional reverse ring light holder K.
- When using the Macro Flash with filters or a close-up lens, first screw the close-up accessories onto the lens, then the Macro Flash.
- When using the Dental Close-Up Lens Set with the Macro Flash, attach the Macro Flash to the front of the lens first. Then, screw the magnet holder and attach the close-up lens.

MOUNTING THE CONTROL PACK



Remove the hot shoe cover, if it is attached to the camera's hot shoe, before attaching the hot shoe bracket on the Control Pack to the camera.

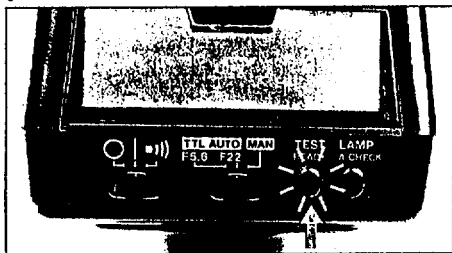
1. Slide the Control Pack into the camera's hot shoe with the fastening knob loose, then turn the fastening knob in the direction indicated by 'FIX→' to secure it in place.
- To remove it, loosen the fastening knob and slide it over.



2. With the power switch of the Control Pack set to the [O] position, plug the cord from the Flash Unit into the socket on the Control Pack to lock it in place.
- To unplug the cord, press in the cord lock button and pull out the plug. Do not pull it out by the cord: doing so could loosen the wire connections.

FLASH MODE SWITCH

3.



3. Turn the power switch to the [II] position. When the Ready Lamp lights up in several seconds, press the test button for test flash.
 - * After the test flash, turn the power switch to the [0] position.
 - * To prevent the cord from obstructing the path of the light coming from the flash unit, be sure to keep the cord away from the Macro Flash when in use.
 - * If the test button is pressed and the unit fails to flash, check for a loose connection of the Flash Unit plug.

Set the switch on the flash unit as shown below depending on the type of camera and your needs. Dedicated flash operation as shown in the table below is possible when used with the cameras listed on the next page. See the operating manuals of your Pentax camera for more information.

Name of Cameras	Switch on the Flash unit		
	TTL Auto		Manual
	TTL AUTO F22	TTL AUTO F5.6	MANUAL
Z-10/PZ-10 SFx/SF1/SFxN/SF1N SF7/SF10 LX Super A/Super Program 645	◎	◎	○
P50/P5 P30/P3 A3/A3000 Program A/Program Plus Older Cameras	×	×	○

◎: Recommended use ○: Can be used ×: Not usable

CAMERA'S EXPOSURE MODES AND DEDICATED FUNCTIONS

Cameras	Shooting Mode on the Camera						Dedicated functions					
	Program	Aperture Priority	Shutter Priority	Manual	X Sync *1	Bulb *2	①	②	③	④	⑤	⑥
Z-1/PZ-1	○	○	○	○	○	○	○	○	×	×	○	○
Z-10/PZ-10	○	○	○	○	○	○	○	○	×	×	○	○
SFX/SF1-SFX/SF1	○	○	○	○	○	○	○	○	○	×	○	○
SF7/SF10	○	○	○	○	○	○	○	○	○	×	○	○
645	○	○	○	○	○	○	○	○	○	×	○	○
LX	○	○	○	○	○	○	○	○	○	○	×	×
P50/P5	×	○	○	○	○	○	○	○	○	×	×	○
P30/P1-P30/P1-P30	×	○*4	○	○	○	○	○	○	○	×	×	○
A3/A3000	×	○	○	○	○	○	○	○	○	×	×	×
Super A/Super Program	○	○	○	○	○	○	○	○	○	○	×	○
Program A/Program Plus	×	○	○	○	○	○	○	○	○	×	×	○
ME Super	○	○	○	○	○	○	○	○	○	×	×	×
MG/MV1	○	○	○	○	○	○	○	○	○	×	×	×
ME *5	○	×	○	○	○	○	○	○	○	○	○	○
Others *5	○	○	○	○	○	○	○	○	○	○	○	○

(○): Dedicated function is possible. (×): Dedicated function is not possible.

- *1: X sync indicates flash sync speed.
- *2: When the bulb mode is set, the shutter speed will not change automatically to the X sync flash speed.
- *3: When the Metered Manual mode is set and the shutter speed used is lower than X sync, the shutter speed will automatically switch to the X sync speed.
- *4: The aperture priority automatic exposure mode is only set on P30/P30/P30/P30.
- *5: Dedicated function is not possible.

DEDICATED FUNCTION

- ① Automatically switches to X shutter speed (refer to note 3 for LX camera).
 - ② The flash ready indicator lights up in the camera's viewfinder.
 - ③ The auto check confirmation signal appears in the camera's viewfinder.
 - ④ When the shutter speed is higher than X sync, the exposure will be made by the ambient lighting and the flash will not fire.
 - ⑤ When the shutter speed is lower than X sync, the flash speed will be synchronized with the camera's shutter speed when the Metered Manual mode is set on the camera.
 - ⑥ When the TTL auto mode is set on the flash and the lens's aperture is set to A (auto), the proper aperture value will be set automatically.
- * Dedicated function is possible even when the switch on the Control Pack is set to M (manual). The dedicated functions ③ and ④ are only possible when the TTL auto mode is set.

READY LAMP/AUTO CHECK LAMP

Ready Lamp

When the power switch is set to the [I] position and the flash is charged, the flash Ready Lamp will light up. If you wait several seconds after the flash has charged, the light intensity will stabilize. In the TTL Auto flash mode, the flash may fire at low intensity level and the Ready Lamp remains on, allowing successive flashes.

Auto Check Lamp

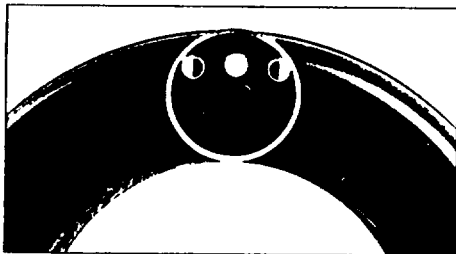
If the flash light has properly reached the subject in the TTL flash mode, the auto check lamp at the rear of the Control Pack lights up. If it does not, it means that the flash-to-subject distance is too far or the flash illumination is not sufficient. In this case, get in closer on the subject and/or open up the lens aperture. (For example, if the lens's aperture is set to the position A, change the switch from TTL AUTO F22 to TTL AUTO F5.6.) The flash will not discharge even if the shutter is released while the auto check lamp is being lit.

Viewfinder Auto Check

The camera viewfinder having the auto check function provides an auto flash confirmation signal (see page 10). However, the flash will not fire while the auto check indication blinks, even if the shutter is released. The shutter speed will not automatically change, either.

- In TTL auto operation, when the subject brightness is more than sufficient for the flash effective range at the selected aperture setting, a correct exposure will not be obtained even if the auto check indication is displayed. See the "TTL Auto Flash Range Chart" on page 15.
- When the flash fires shortly after the Ready Lamp lights up, your subject may be underexposed even if the subject is in the flash effective range because of insufficient flash illumination. Wait several seconds after the Ready Lamp lights up before shooting, for best results.

SELECTING THE DESIRED FLASHTUBE TO BE DISCHARGED



Macro flash has four separate flashtubes. Set the flash unit switch as desired to discharge either one or two pairs of flashtube. If you wish to discharge two pairs of flashtubes (left- and right-side 4-tube discharge mode), set the flash unit switch to the middle position. If you move the switch to the right or left position (left- or right-side 2-tube discharge mode), a pair of right or left flashtubes discharges respectively. Selecting the two pairs of flashtube provide a shadowless illumination source, while selecting a pair of right or left flashtubes provides shadow illumination source, making the subject appear three-dimensional. Set the flash unit switch depending on your needs.

ILLUMINATION WHEN FOCUSING



Pressing the modeling lamp button (used also for the auto check lamp) illuminates the subject when focusing. Either right, left or two pairs of modeling lamp light up depending on the position of the flash unit switch. If the modeling lamp button is pressed once, the light lights up. If depressed again, the light turns off. The light automatically turns off when the unit is left unused for about 20 seconds or when the flash is discharged.

TTL AUTO FLASH

- Slide the flash unit switch to the desired position.
- Set the mode selector to "TTL AUTO F22" or "TTL AUTO F5.6".
 - Turn the mode selector to either position depending on the film-to-subject distance and/or the magnification. See the "TTL Flash Range Chart" on page 15.
- Set the lens's aperture to the A position.
 - TTL Auto Flash range differs depending on the aperture set, magnification and/or the flash-to-subject distance, though you can shoot at any selected aperture other than A. When shooting at any selected aperture other than A, the flash unit operates the same way regardless of the "TTL AUTO F22" or "TTL AUTO F5.6" setting.
- Set the power switch to the [I] position and make sure the Ready Lamp lights up before shooting.
 - After the flash is charged, f/22* or f/5.6 will automatically be set on the lens depending on the position of the flash mode switch (F22 or F5.6).
 - Note: The aperture f/16 will automatically be selected for Pentax cameras produced earlier than the Z-10/PZ-10 if the aperture A is selected and ISO 100 film is used.
- When the shooting session is over, set the power switch to the [O] position.
 - If you set the power switch to the [■]] position, a beeping tone signals auto check.
 - When the flash unit is left unused for over 10 minutes, its power automatically switches off to save on power. In this case, switch off the power once, and then on to restart charging of the flash unit. If you are using the Pentax Z-series camera, press the shutter button half-way down to restart charging of the flash unit.

Automatic Aperture Setting

The aperture $f/22$ or $f/5.6$ marked on the control pack will be set automatically on the lens only if the ISO100 film is used. The aperture value automatically set will vary depending on the ISO film speed in use. When setting to the TTL AUTO F22 position, the aperture value set is one stop brighter with Pentax cameras produced earlier than the Z-10/PZ-10, but correct exposure will be obtained thanks to TTL Auto control.

Ex. ISO400: TTL AUTO $f/22=f/45$ ($f/32$ with the cameras produced earlier than Z-10/PZ-10)

TTL AUTO $f/5.6=f/11$

ISO50: TTL AUTO $f/22=f/16$ ($f/11$ with the cameras produced earlier than Z-10/PZ-10)

TTL AUTO $f/5.6=f/4$

Shooting Technique

In close-up photography, the depth of field becomes very shallow. It is recommended that the lens be stopped down within the TTL Auto Flash range for natural-looking effect (set the mode selector to "TTL AUTO F22" when using the A (auto) lens aperture setting).

TTL AUTO FLASH RANGE (ISO100)

Lens	Dist. †	Magn.	Aperture Range	Lens	Dist. †	Magn.	Aperture Range
F-FA Macro 50mm f/2.8	50cm	Approx. 0.1x	f/ 4 ~22	A Macro 100mm f/2.8	100cm	Approx. 0.1x	f/2.8~11
	20cm	0.2	f/5.6~32		50cm	0.2	f/2.8~16
	7cm	0.5	f/ 8 ~32		20cm	0.5	f/ 4 ~22
50cm	Approx. 0.1x	f/ 4 ~22	9cm		1.0	f/5.6~22	
A Macro 50mm f/2.8	23cm	0.2	f/5.6~22	A Macro 100mm f/4	100cm	Approx. 0.1x	f/ 4 ~11
	9cm	0.5	f/ 8 ~22		55cm	0.2	f/ 4 ~16
	50cm	Approx. 0.1x	f/2.8~16		25cm	0.5	f/ 4 ~32
9cm	0.5	f/5.6~22	15cm		1.0	f/ 4 ~32	
FA50mm f/1.4 (Standard lens)	50cm	Approx. 0.1x	f/2.8~16	A Macro 200mm f/4	100cm	Approx. 0.2x	f/ 4 ~11
	25cm	0.2	f/ 4 ~22		50cm	0.5	f/ 4 ~22
	9cm	0.5	f/5.6~22		25cm	1.0	f/ 4 ~32
100cm	Approx. 0.1x	f/2.8~11	A645 75mm f/2.8		80cm	Approx. 0.1x	f/2.8~16
50cm	0.2	f/2.8~16		45cm	0.2	f/2.8~22	
18cm	0.5	f/ 4 ~32		15cm	0.5	f/ 4 ~22	
8cm	1.0	f/5.6~32		9cm	1.0	f/5.6~22	

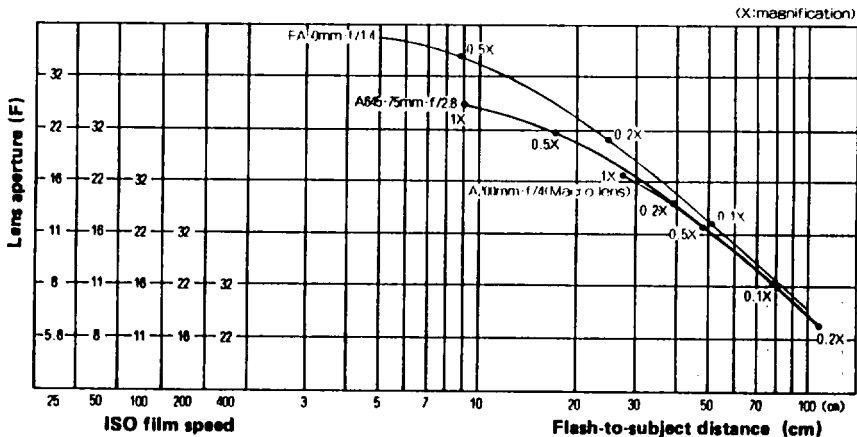
† Flash-to-subject distance

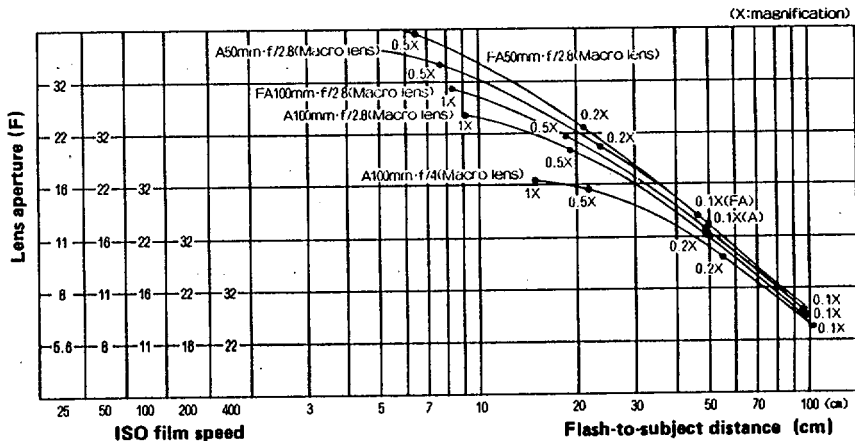
- When using the A lens aperture, f/5.6 or f/22 will automatically be set.
- The aperture f/16 will automatically be selected for Pentax cameras produced earlier than the Z-10/PZ-10 if the aperture A is selected and ISO100 film is used.
- If film with an ISO rating of 200 is used, the aperture set is one stop darker; if film with an ISO rating of 50 is used, the aperture set is one stop brighter.
- Memo holder located on the back of the flash unit can be used for a data reminder. Prepare a piece of paper to fit the size of the memo holder and enter your data. It is a very useful aid to remember TTL Auto Range. See page 1 for information on data entry.

MANUAL EXPOSURE QUICK CALCULATION CHART

With manual flash photography, the flash light intensity remains constant, so the aperture value should be determined based on flash-to-subject distance, film speed, and the lens used. Refer to

the lines corresponding to the lens in use to determine the aperture, considering the film speed used.





- Exposure with higher magnification in this chart were obtained using close-up accessories (Auto Bellows or Auto Extension Tube).

- For example, when using the FA Macro 100mm f/2.8 lens and ISO25 film at a distance of 18cm, the aperture is f/22 (magnification is approx. 0.5X).
- Black line is SMCP-A645 75mm f/2.8 lens.

MANUAL FLASH

When a flash unit is used in the manual flash mode, the lens's aperture is determined by the flash-to-subject distance, and/or the magnification. Light intensity level remains constant when set to MANUAL (full flash output = guide number 14 with ISO100 film).

- * In manual flash photography, the flash is discharged manually, but the dedicated function is possible with the cameras listed on page 10.
- * If the lens's aperture is set to the A position, the dedicated function is not possible.

Operating the Manual Flash

1. Set the mode selector to MANUAL.
2. Determine the aperture value from the Manual Exposure Quick Calculation chart on pages 16-17 and set it on the lens.
3. Set the power switch to the [I] position and confirm that the Ready Lamp lights up before shooting.
4. Set the power switch to the [O] position after the shot.
 - When the flash unit is left unused for over 10 minutes, its power automatically switches off to save on power. In this case, switch off the power once, and then on to restart charging of the flash unit. If you are using the Pentax Z-series camera, press the shutter button half-way down to restart charging of the flash unit.

SPECIFICATIONS

Type	Clip-on type, serial-controlled, TTL Auto Flash
Guide numbers	Full light output: 14 (in meters at ISO100)
Flash duration	Approx. 1/3000 sec. at full light output; Approx. 1/50000 sec. at shortest TTL Auto discharge
Flash illumination angle	60° at vertical and horizontal
Compatible lens	Macro 50mm, 100mm, 200mm lens designed for close-up photography (Wide-angle lens can be used only when reversed)
Color temperature	Daylight color (ideally suited to daylight type color film)
TTL Auto Flash effective range	Refer to the TTL Flash effective range chart on page 15.
Film speed range	ISO 25-800 (ISO 6-800 for LX camera)
Power source	Four AA-size 1.5V alkaline batteries (LR6) or 1.2V Ni-Cd batteries (KR-AA can be used)
Size and weight	Macro Flash unit: 100(φ)×26(D) ("3.9"x"1.0") 105g (3.7 oz.) Control pack: 101(W)×71(H)×74(D) ("4.0"x"2.8"x"2.9"), 180g (6.3 oz.)
Accessories	Adapter ring (φ49mm, φ52mm, φ58mm), Case
Testing conditions	Temperature = 20° C, Recycling times = 30 sec., Battery = Alkaline battery within 3 months from date of production (number of flashes varies depending on the type and brand of batteries)

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

OPERATING CARE

- The electronic circuitry inside the flash unit contains high voltage working parts. Never attempt to disassemble it.
- When mounting the Control Pack 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/dismount it by force.
- 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 discharge the flash with the test flash button. Test flash is also important to maintain optimum performance.
- Shield the flash unit from salty air and water at the beach, splashing liquid of any kind, and rain. When the flash unit is subjected to rain or moisture, wipe it off with a clean cloth.
- Never use solvents such as paint thinner, alcohol or benzine to clean the flash unit and supplied accessories. If they become dirty, wipe them with a clean soft cloth moistened with a mild detergent solution.
- Avoid storing the flash unit in places where temperature and humidity are high such as in a car or near appliances which produce heat or mechanical vibration.
- When discharging a flash in close proximity to the subject, try not to discharge the flash directly into the subject's eyes.
- Do not fit the filter to the F/FA Macro 50mm f/2.8 lens. Otherwise, vignetting in the picture corners may result.



Asahi Optical Co., Ltd. C.P.O. 895, Tokyo 100-91, JAPAN
Pentax Europe n.v. Welvelaan 3-5, 1930 Zaventem, BELGIUM
Pentax Handelsgesellschaft mbH. Julius-Vosseler-Strasse, 104, 2000 Hamburg 54, GERMANY
Pentax U.K. Limited. Pentax House, South Hill Avenue, South Harrow, Middlesex HA2 0LT, U.K.
Pentax France Z.I. Argenteuil, 12, rue Ambroise Croizat, 95100 Argenteuil, FRANCE
Pentax Nederland Spineveld 25, 4815 HR Breda, NETHERLANDS
Pentax (Schweiz) AG Industriestrasse 2, 8305 Dietlikon, SWITZERLAND
Pentax Scandinavia AB Falhgsgsleden 67, 75127 Uppsala, SWEDEN
Pentax Corporation 35 Inverness Drive East, Englewood, Colorado 80112, U.S.A.
Pentax Canada Inc. 3131 Universal Drive, Mississauga, Ontario L4X 2E5, CANADA
Asahi Optical Brasileira Ind. e Com. Ltda. Rua Estados Unidos, 1063, São Paulo, BRASIL