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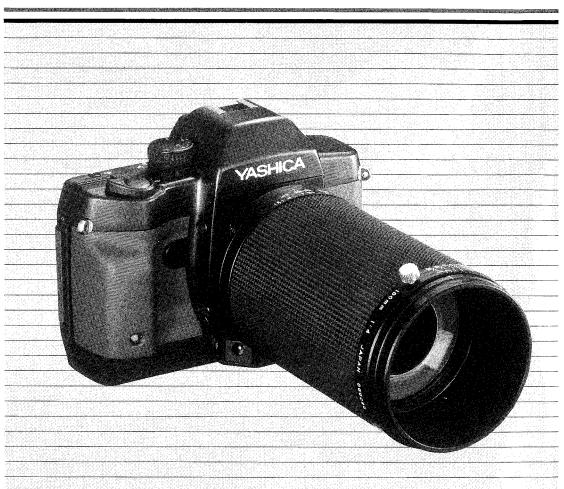
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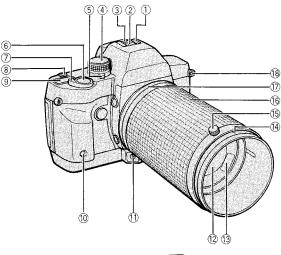
# YASHICA DENTAL-EYE III

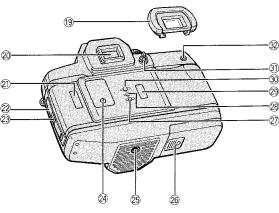


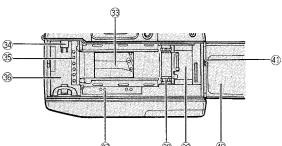
**Instruction Manual** 

Thank you for purchasing the Dental-Eye III. The Dental-Eye III is a one-piece 35mm single-lens reflex camera with 100mm/F4 macro lens and built-in flash. Please read these instructions thoroughly before attempting to use the camera. After reading the instructions, store them safely for future use.









- ① Accessory Shoe
- ② Direct X-contact
- 3 Dedicated-flash Contact
- ④ Exposure Compensation Dial
- ⑤ Flash Mode Selector Lever⑥ Shutter Release
- Main Switch
- (8) Self-timer Button
- Display Panel
- (10) Self-timer LED
- External Power Jack (connects to Dental-Eye II AC adapter)
- 12 Lens
- 13 Flash
- Image Magnification Scale
- Magnification Ring Set Screw
- 16 Magnification Ring
- ① Distance Scale/F-value
- ® Strap Lugs
- ① Eye-cup
- 20 Viewfinder Eyepiece
- 2 Film Check Window
- Camera Back Opening Lever
- 3 Camera Back Lock Release Button
- ② Dating-unit Battery Compartment Cover
- 25 Tripod Socket
- Battery Compartment Cover
- 2 Date Set Button
- 28 Date Select Button
- ② Data Display Window
- 30 Date Mode Button
- ③ Rewind Lever/ Rewind Lock Release Button
- 32 Release Socket
- 3 Shutter Curtain
- 3 Film Mounting Spindle
- 35 DX Contacts
- 36 Film Chamber
- ③ Data-back Contacts
- 38 Sprocket
- 39 Spool
- (4) Camera Back
- (41) Camera Back Release Pin

Na Vie	mes of Parts wfinder LED Indicator and Display Panel	2
	sic Photography	
1.	Load Battery	4
	<battery replacement=""></battery>	4
2.	Load Film	5
	<main switch=""></main>	6
3.	Set Flash Mode Selector Lever to "#"	7
4.	Adjust the Focus	
	<correct camera="" posture=""></correct>	8
	<relationship image="" magnification<="" of="" td=""><td></td></relationship>	
	Ratio to Subject Area, Shooting	
	Distance, and Depth of Field>	8
	Press Shutter Release to Take Picture	
6.	Rewind Film	
	<to a="" film="" partway="" rewind="" roll="" through=""></to>	(
Δ٥	Iditional Techniques	

1. Exposure Compensation ...... 10

2. Flash Photography	
3. Self-timer Photography	11
4. Printing Data (Date/Time) on	
Photographs	11
<setting date="" the="" time=""></setting>	
<changing battery="" data-back="" the=""></changing>	
5. Other	
<release socket=""></release>	
<external jack="" power=""></external>	
<a href="#"><attaching eye-cup="" the=""></attaching></a>	
<installing backlight="" prevention<="" td="" the=""><td>12</td></installing>	12
ŭ ŭ	40
Adapter and Neck Strap>	
Handling Precautions	13
Optional Accessories	
Dental-Eye II AC Adapter	
2. Dental-Eye II 2x Closeup Lens	14
3. Dental-Eye Mirror Set	15
4. "FL" Type Diopter Lenses	
Specifications	15

# Viewfinder LED Indicator and Display Panel

The viewfinder LED indicators and display panel are designed to conserve power; they automatically turn on whenever one of the following actions is taken, and turn off automatically sixteen seconds later:

- (1) When main switch is turned ON
- ② When main switch is ON, and shutter release is depressed half-way. Also, the indicators and display panel will remain on for an additional sixteen seconds when the following actions are taken:
- Shutter release is depressed half-way
- Self-timer is set to ON

### <Viewfinder LED Indicator> When flash is turned ON:

Lighted: Flash recharged

Blinking (3 times/second): Currently recharging

#### When flash is turned OFF:

Blinking (6 times/second): Low-light warning

### <Display Panel>

Power indicator: "P"

Appears when the main switch is turned ON.

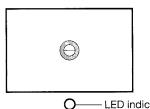
### Exposure counter: "00"

Displays the elapsed number of exposures. Also, indicates the following information:

- When self-timer is in use, displays the remaining time until shutter release (10 to 00 seconds).
- Exposed film rewind completion indicator

### Battery warning indicator: " - "

When this indicator appears, it is time to replace the battery.



LED indicator



Display Panel

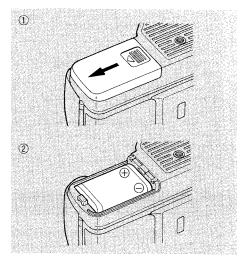


# Basic Photography

# 1. Load Battery

All functions on this camera, from film advance to film rewind and shutter release, are performed electronically. As a result, the camera will not function without battery or when the battery is exhausted.

- ① The battery compartment is located on the camera's bottom surface; slide the compartment cover in the direction of the arrow to open.
- ② Load the battery correctly in accordance with the positive/negative polarities indicated in the compartment.
- The camera requires a 6V lithium (2CR5) battery. No other battery types can be used.
- ③ Return the battery compartment cover to its original position to close.



### <Battery Check>

After loading a new battery, try operating the camera once. When this is done, if the display panel's battery warning indicator (" " ") disappears, the battery has adequate voltage.



### <Battery Replacement>

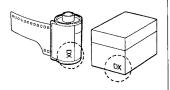
If the battery warning indicator ( ) appears in the display, it is time to replace the battery. Set the main switch to OFF, open the battery compartment cover, and replace the battery with a new one.

- Photography will still be possible even after the battery warning indicator ( ) first appears, but the
  battery should nonetheless be changed as soon as possible. If the battery voltage falls below a limit
  value, the battery warning indicator will begin to flash or disappear entirely, making it impossible to
  use the camera.
- When some brands of battery are first loaded, an initial drop in voltage may cause the battery warning indicator (☐ ) to light. If the battery warning indicator (☐ ) appears immediately after loading a new battery, temporarily set the main switch to OFF, then turn it ON again. If the warning indicator disappears in this way, the battery may be used.

#### <Film to Use>

This camera uses 35mm film loaded in standard cartridges displaying the DX mark. Film speeds can be in the range shown below.

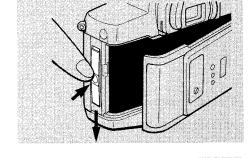
	Film Speed (auto synchro range)
With internal flash turned ON (\$, \$2 indicator)	ISO 50-400
With internal flash turned OFF (⑤ indicator)	ISO 25-5000



- The DX mark and film speeds are noted on the film package and cartridge.
- Film without the DX mark will be fixed at ISO 100.
- When the internal flash is turned ON, films with speeds of ISO 50 or less will be exposed at ISO 50, and films with speeds of ISO 800 or more will be exposed at ISO 800.

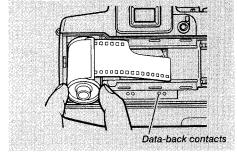
### 2. Load Film

- While holding down the camera back lock release button, slide the camera back opening lever downward to open the camera back.
- When inserting film for the first time, be sure to first remove the protector sheet which has been inserted in the camera at the factory.
- ② Insert the film cartridge at an angle, as shown in the illustration.



### **Shutter Curtain**

The shutter curtain is a precision mechanism and should never be touched with the fingers or the film tip. Never release the shutter when the film tip is in contact with the shutter curtain.



- Do not unnecessarily touch the DX contacts or data-back contacts, or allow them to become soiled.
- Avoid direct sunlight when loading or removing film.

③ Pull out the film tip until it reaches the orange "I" mark, and rest the film tip on the spool.

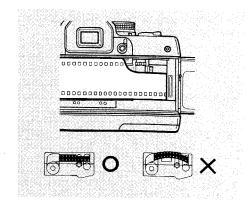
Be sure the film does not curl up.

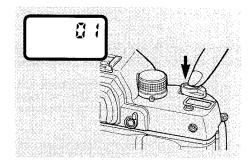
- If too much film tip is pulled out, adjust its length slightly.
- 4 Close the camera back, set the main switch to ON, and press the shutter release.

The film will automatically advance to the first exposure position, and the exposure counter will display "01."

 If the display's exposure counter continues to display a flashing "00", it means the film has not been loaded and has not advanced properly.

Open the camera back and load the film cartridge once again properly.





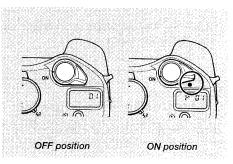
### <Main Switch>

#### OFF: Red mark not visible

When the switch is in this position, the camera's power is turned off. Leave the switch in this position when not using the camera, to prevent accidentally releasing the shutter.

#### "ON": Red mark visible

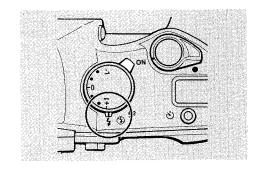
When the switch is in this position, the camera's power is turned on. The display panel will show the power indicator "P" lighted.



- To prevent misoperation, be sure to set the main switch at the click setting during use.
- If the main switch is left ON when no camera controls are used, the power will automatically turn OFF about thirty seconds later to conserve battery power. To turn the power on again, depress the shutter release halfway.
- When not intending to immediately use the camera, be sure to turn the main switch off to conserve the battery's life.

# 3. Set Flash Mode Selector Lever to "4"

After setting the selector, confirm that the LED charge indicator lights steadily inside the viewfinder.



### 4. Adjust the Focus

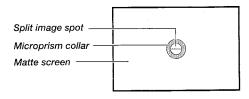
Look through the viewfinder eyepiece and rotate the magnification ring until the image is in focus (align the focus using either the central horizontal split image spot, the microprism collar, or the surrounding matte field).

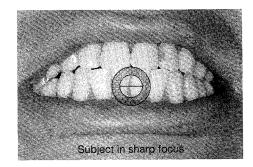
### <Focusing Using the Horizontal Splitimage Spot>

Rotate the magnification ring until the top and bottom edges of the image align properly in the central split prism. When the image is out of focus, the split portions of the image will not be in alignment.

# <Focusing Using the Microprism Collar or Matte Screen>

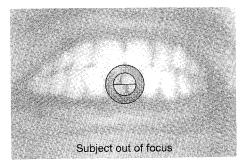
Rotate the magnification ring until the image appears clearly in focus in the microprism collar or the surrounding matte screen. When the image is out of focus, the microprism portion will appear jagged, and the matte field will be blurred.





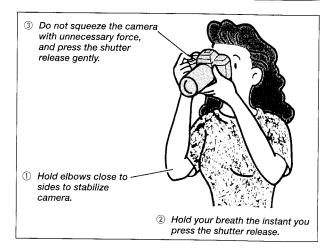
### Near-sighted or Far-sighted Users:

FL-type diopter lenses are optionally available (see p. 15).



# <Correct Camera Posture>

A correct camera posture and secure grip is important for taking sharp pictures without camera shake. Practice holding the camera correctly, concentrating on the following points:



# <Relationship of Image Magnification Ratio to Subject Area, Shooting Distance, and Depth of Field>

Image Magnifi- cation Ratio	1/15	1/10	1/8	1/5	1/3	1/2	2/3	1/1
Subject Area (mm)	360 × 540	240 × 360	192×288	120 × 180	72 × 108	48 × 72	36 × 54	24×36
Shooting Distance (cm)	155	105	85	55	35.5	25.5	20.5	15.5
Depth of Field (mm)	204~109	139~73	110~62	70~41	43.5~27.5	30.5~20.5	23.5~17.5	17.5~13.5

### Image Magnification Ratio

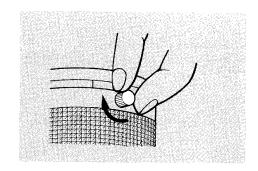
The image magnification ratio is the ratio of the size of the subject to the size of the image actually recorded on the film. The image magnification ratio scale on the front edge of the magnification rig is helpful in confirming the image magnification ratio when the image is in focus. Also, the image magnification ratio can be selected deliberately by first aligning the ring to the desired ratio on the scale, and then moving the camera forward or back until the image is in focus.

### **Shooting Distance**

The shooting distance indicated is the distance from the surface of the flash to the subject's front surface.

### Locking the Magnification Ring

By rotating the magnification ring set screw in the direction of the arrow as shown, the ring can be locked to prevent movement. This set screw is convenient to prevent lens movement when shooting at a fixed image magnification ratio.



### 5. Press Shutter Release to Take Picture

When the shutter release is pressed, the built-in electronic flash fires and the shutter is released to expose the film. Exposure is set automatically. This allows trouble-free automatic photography at all times.

When flash is turned ON: Shutter-priority flashmatic mode; exposure and aperture are controlled automatically in accordance with shooting distance.

When flash is turned OFF: Aperture-priority auto mode; shutter speed is controlled automatically in accordance with subject brightness (aperture is fixed at F4).

- When internal flash is turned ON, if the LED indicator inside the viewfinder flashes slowly (3 times/second), it means the flash is still charging. Wait until the indicator stops blinking and lights steadily before taking the next picture.
- When the internal flash is turned on, the camera will not operate if the shutter release is pressed before flash charging is complete.
- When the internal flash is turned off, if the LED indicator inside the viewfinder blinks quickly (6 times/second), it indicates a warning of low subject lighting. To prevent camera shake, either turn on the internal flash, or mount the camera on a tripod.



Normal prints obtained at your photo dealer will have the edges cropped slightly narrower than the
actual 35mm film frame size. To prevent edges of an important photograph from being cropped in
this way, allow for some extra area around the periphery of the subject when composing in the
viewfinder.

## 6. Rewind Film

When the last frame of a roll is exposed, film rewinding will begin automatically.

During rewinding, the numbers in the exposure counter will decrease until the motor stops and the counter shows a blinking "00".

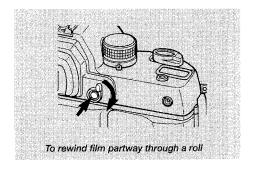
When the motor stops, confirm that the exposure counter shows "00," then open the camera back and remove the film cartridge.

- Avoid direct sunlight when removing the film from the camera.
- Be sure to remove the film following rewinding. After rewinding, the camera will not operate until the camera back is opened once.

# <To Rewind Film Partway through a Roll>

① While depressing the rewind lock release button, ② rotate the rewind lever in the direction of the arrow as shown. Film rewinding will begin.

As soon as rewinding begins, be sure to remove your finger from the rewind lever. The rewind lever will automatically return to its previous position.



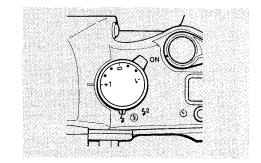


# Additional Techniques

# 1. Exposure Compensation

Proper automatic exposure may not be achieved when photographing a subject with greatly different light contrast compared to its background. In this case, or when deliberate under or overexposure is desired, rotate the exposure compensation dial to provide the desired compensation. Exposure compensation can be set in 1/3 EV steps within the range of -1 to +1 EV (exposure value).

 Following use of the exposure compensation dial, be sure to reset it to its normal "0" position

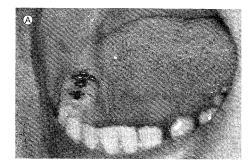


# 2. Flash Photography

- ① Using the internal electronic flash
  Set the flash mode lever to the desired flash
  mode.
- Mode set to "\$": light is delivered evenly from all three flash elements to all sides of the subject, producing evenly lighted subjects. 

   \( \text{\text{P}} \)
- Mode set to "\( \frac{4}{2} \)": light is delivered from the two lower flash elements, creating shadow areas and producing a three-dimensional appearance (upper flash element does not light).
   (B)
- Mode set to "

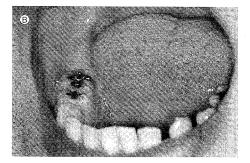
  ": flash does not fire.



# ② Using a separate electronic flash

The accessory shoe's X synchro contact can be used to mount an external-metering type automatic electronic flash unit. Using a separate flash in this way will help prevent the common "red eye" phenomenon produced when shooting portraits of human subjects.

Red-eye phenomenon: When shooting a human portrait in a dim area with an electronic flash, the subject's irises open wider, with the result that the flash may reflect off the subject's retinas and make the subject's eyes appear red in the photograph.



- Always set the flash mode to "" when using an external flash. Proper exposure will not be obtained if an external flash unit is used in combination with the internal flash.
- The lens aperture will be fixed at F4. Set your external flash unit for "external metering auto mode" and aperture F4. For details, consult the operating instructions of your flash unit.

## 3. Self-timer Photography

Adjust the focus and press the self-timer button. The self-timer will operate and ten seconds later the shutter will release automatically. During operation of the self-timer, the display's exposure counter will show the remaining time (in seconds) until operation of the shutter, and the camera's front-panel self-timer LED will blink.

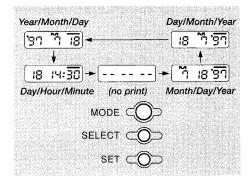
- Use a tripod when performing self-timer photography.
- Even during operation of the self-timer, pressing the shutter release will cause the shutter to operate.
- To cancel operation of the self-timer after it has begun, either press the self-timer button once again, or turn the main switch to OFF.

# 4. Printing Data (Date/Time) on Photographs

The automatic data function (data-back) built into the camera back can be used to automatically print the date and time vertically on the lower left corner of photographs.

- ① Each time the date mode selector button is pressed, the selected data changes in the following order:
  - Year/Month/Day → Day/Hour/Minute → -- -- -- (no print) → Month/Day/Year → Day/Month/Year
  - Press the button until the desired data format appears in the display.
- Do not use a needle or other sharply pointed object to press the button.
- When the shutter release is pressed to take a picture, the " — " indicator will flash to the right above the display characters, indicating that the displayed data has been printed on the photograph.
- Date and time data is printed vertically on the lower left edge of the photograph.
- The "M" mark appearing in the display indicates "Month," but this "M" is not printed on photographs.

According to the length of film, it may happen that printing data is not printed at the final frame.





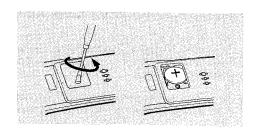
### <Setting the Date/Time>

- 1) Press the date mode selector button until the desired data display appears.
- 2 Press the date select button until the desired numeral flashes.
- ③ Press the date set button to change the numeral as desired. (During setting of the time display, when the ":" flashes, it indicates setting of the seconds position; pressing the set button in conjunction with a public time service signal will allow you to set the time most accurately.
- (4) When all settings are completed, press the select button until all numerals stop blinking.

### <Changing the Data-back Battery>

The battery used to maintain data in the data-back is a long-life lithium cell (type CR2025). As a result, it should not require changing for 4-5 years. As the battery becomes depleted, the printing of data on photographs will become thinner in appearance, and the data display window will not appear correctly. When such symptoms occur, replace the battery.

 After changing the data-back battery, be sure to reset the date/time data.



Care should be taken in handling and storing the data-back battery (CR2025) to prevent small children from gaining access to it. If a battery is inadvertently swallowed, obtain medical care immediately.

### 5. Other

### <Release Socket>

This socket is used to connect an optional cable switch L; in this way, the electric signal from the cable switch L can be used to activate the shutter.

Do not attempt to attach a standard mechanical type of cable release to this socket, since it will not
operate, and damage may result.

### <External Power Jack>

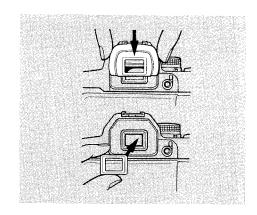
Use to attach the optional external power adapter (Dental-Eye II AC Adapter). Attach the plug from the Dental-Eye II AC Adapter to this jack.

Do no use AC adapters other than the Dental-Eye II AC Adapter, since malfunction could result.

### <a href="#">Attaching the Eye-Cup></a>

The Dental-Eye III is provided with the eye-cup type F-3. Attach the eye-cup as shown.

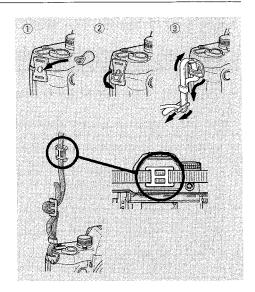
 When an optional FL-type diopter lens is used, it should be attached as shown in the illustration. The eye-cup can be attached to the diopter lens if desired.



# <Installing the Backlight Prevention Adapter and Neck Strap>

The accessory backlight prevention adapter is first attached to the strap, then the strap is connected to the camera lugs as shown.

• When using self-timer or cable switch L to perform available-light photography with electronic flash turned OFF, or otherwise when the user is separated from the viewfinder eyepiece, light entering the camera through the viewfinder eyepiece may affect the camera's exposure metering mechanism. To prevent this phenomenon, the backlight prevention cap should be attached to the viewfinder eyepiece when taking such photographs.



# **Handling Precautions**

### <Camera Handling Precautions>

- Avoid storing the camera in cabinets exposed to high humidity, dust, or insecticides, or in laboratories or other rooms where chemicals are normally used. The camera should be stored in a location with good ventilation.
- Do not leave the camera inside a car exposed to direct sunlight or other hot location for extended periods, since the film and battery performance may be hampered, and the camera itself may be damaged.
- When the camera is moved from a cold outdoors location to a warm room, allow the camera to warm
  up gradually. This will prevent sudden temperature changes from causing the formation of condensation and corrosion on the camera's internal parts.
- Do not attempt to wipe away fingerprints from the main lens and viewfinder eyepiece by rubbing harshly. Use commercially available lens paper to wipe the lenses gently. Remove dust from the lens by blowing it away gently with compressed air or a blower brush.
- Remove dirt from the camera body by wiping with a soft cloth.
- The camera's internal parts include dangerous high-voltage circuitry. In event of malfunction, do not attempt to disassemble and service the camera yourself.
- The camera is a precision instrument, and should not be dropped or exposed to impact.

#### <Pre><Pre>cautions When Handling Battery>

- In general, battery performance will temporarily drop when exposed to low-temperature conditions. When using the camera in cold climates, either keep the battery warm before use, or carry a spare battery in a warm pocket and replace as necessary. When a battery's performance has dropped due to low temperature, the performance should return to normal when the battery is returned to ordinary room temperature.
- Perspiration or oil on a battery's terminals may interfere with proper electrical contact. Wipe the battery's terminals with a soft dry cloth before loading.
- Do not attempt to disassemble or short-circuit battery, and do not dispose of used battery in fires or expose them to heat, since dangerous rupture could occur.
- Do not store battery where they can be reached by small children.
- Be sure to take spare battery when leaving on an extended vacation, etc.



# **Optional Accessories**

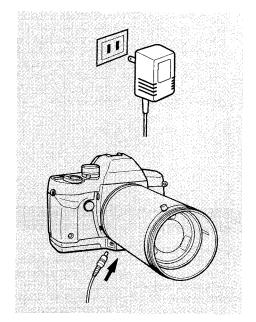
# 1. Dental-Eye II AC Adapter

This AC adapter allows the Dental-Eye III to be powered from a standard AC electrical power outlet.

#### <Connection>

Insert the AC adapter's plug into the camera's external power jack, then insert the blades on the adapter body into a standard household AC outlet.

- When the plug is connected to the camera body, camera power is switched from internal battery to the external AC adapter.
- Always make sure the AC adapter body is disconnected from the AC outlet before connecting or disconnecting the plug to/from the camera body.
- Be sure the adapter's plug is inserted fully and securely into the external power jack on the camera body.
- When using the Dental-Eye II AC Adapter, a drop in AC line voltage may upon rare occasions cause the camera's battery warning indicator " a" to light. This phenomenon, however, has no effect upon the camera's performance or functionality, and the camera may continue to be used normally.
- Do not attempt to use the camera with any other commercial AC adapters.



### <Specifications>

Input: AC 120 V

Output: DC 4.5 V, 2000 mA; output plug and cord length 2 m.

Time required for flash (recharging): about 2.5 seconds in accordance with set exposure standards.

**Dimensions:**  $60 \times 82 \times 66.5$  (not including output plug and cord)

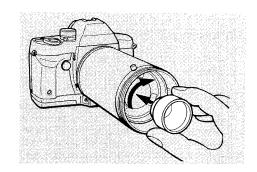
Weight: 490 g

# 2. Dental-Eye II 2x Closeup Lens

When mounted on the Dental-Eye III objective lens, this closeup lens allows extreme closeups at a magnification ratio of 2:1

#### <Use>

- ① Rotate the magnification ring until it is aligned at 1/1, then tighten the ring set screw to prevent the ring from turning.
- ② Adjust the focus by moving the camera forward and back while looking through the viewfinder.
- This lens is designed solely for use at the 2x (2:1) setting, and cannot be used between the range 1/1 and 2/1.



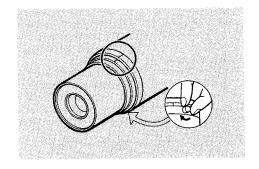
<Specifications>

Image magnification ratio: 2x Subject size:  $12 \times 18$  mm Shooting distance: 6.9 cm

Depth of field: +0.5mm to -0.5 mm

Dimensions: 37 (diameter) × 31 (length) mm

Weight: 33 g



### 3. Dental Eye Mirror Set

This is an oral photography mirror set allowing full photographs of upper dental arch, lateral molar surfaces, and lateral tongue surfaces.

# 4. "FL" Type Diopter Lenses

FL diopter lenses are available in eight strengths, including -5, -4, -3, -2, 0, +1, +2, and +3. The diopter lenses can be used in combination with the F3 eye-cup.



# **Specifications**

Model: One-piece single-lens-reflex camera with focal-plane shutter and built-in electronic flash.

Image size: 24 × 36 mm

Lens: 100mm / F4 macro lens (5 elements in 3 groups) Shutter type: Vertical traveling focal plane shutter

Shutter speeds: When internal flash is ON: 1/125 second When internal flash is OFF: 16 seconds to 1/4000 second

With X synchro: 1/125 second

**Exposure control:** 

When internal flash is ON: Shutter-priority flashmatic mode

When internal flash is OFF: Aperture-priority automatic exposure (fixed at F4)

Exposure metering: TTL center-weighted averaging system (only when internal flash is OFF).

Exposure range: EV 4 to EV 23 (with ISO 100 film at F4)

Film speed auto synchro: DX code automatic sensing (with non-DX films, fix at ISO 100)

① When internal flash is ON: ISO 50 to ISO 400 (1 step intervals)

Films of ISO 50 or below are exposed at ISO 50; films of ISO 800 or above are exposed at ISO 800.

② When internal flash is OFF: ISO 25 to ISO 5000 (1 step intervals)

Exposure compensation: +1 EV to -1 EV (in 1/3 step intervals)

Image magnification scale: 1/1-1/1.2-2/3-1/1.8-1/2-1/2.5-1/3-1/3.5-1/4-1/5-1/6-1/8-1/10-1/12-1/15

Subject area:  $24 \times 36$  to  $360 \times 540$  mm

Camera-to-subject distance: 155cm (1/15) to 15.5 cm (1/1)

Viewfinder: Pentaprism eye-level finder

Focusing screen: Horizontal split image prism with microprism

Viewfinder LED: Green

① Lighted: Flash ready (when internal flash is ON)

② Slow blinking: Flash charging (when internal flash is ON)

3 Rapid blinking: Low-light warning (when internal flash is OFF)

**Display panel:** Power indicator, exposure counter, self-timer remaining time, battery warning indicator **Film loading:** Auto loading type, with automatic winding to "01" on exposure counter.

Film winding: Auto winding with internal motor

Film rewinding: Auto rewinding with internal motor; following rewinding, motor stops automatically. Rewinding from midway through roll possible.

Exposure counter: Automatic resetting incremental type

Flash: Three-element built-in ring flash (upper, lower-right and lower-left for shadowless type; also upper element can be disabled when desired). Auto flashmatic mechanism, minimum aperture F22, guide number about 7.5 (with ISO 100 film)

Synchro contacts: Direct X contact

Battery: Uses one 6V Lithium (type 2CR5) battery (provides power for about 450 exposures, using continuous flash exposure at room temperature, new battery, under standard exposure conditions).

Camera back: Opens with back release lever; removable Data-back: Built-in quartz clock with automatic calendar

Printing data: Year-Month-Day, Day-Hour-Minute, -- -- (no print), Month-Date-Year, Day-Month-Year

Other: Carrying case

**Dimensions:** 151 (W)  $\times$  204 (D)  $\times$  112 (H) **Weight:** 1,390 g (not including battery)

Appearance and specifications subject to change without notice



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