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BEDIENUNGSANLEITUNG
MODE D'EMPLOI
MANUAL DEL PROPIETARIO
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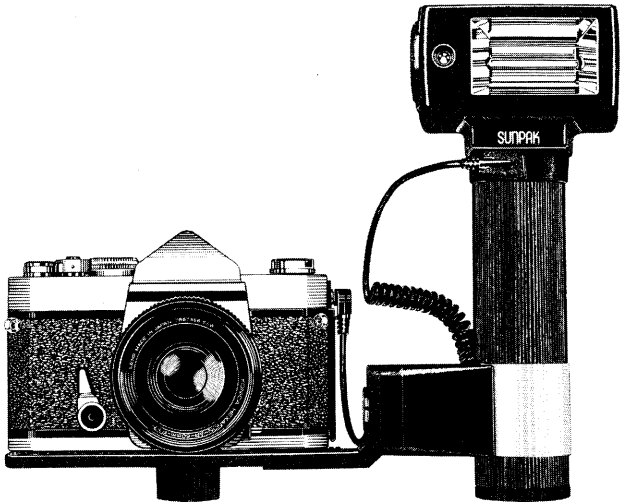


# AUTO ZOOM 3400

ELECTRONIC FLASH UNIT
ELEKTRONENBLITZGERÄT
FLASH ELECTRONIQUE
FLASH ELECTRONICO
ELEKTRONBLITZ


English

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Deutsch

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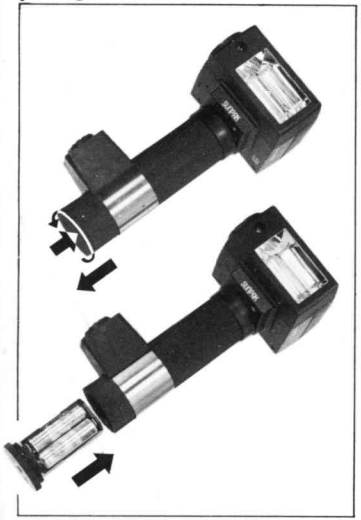
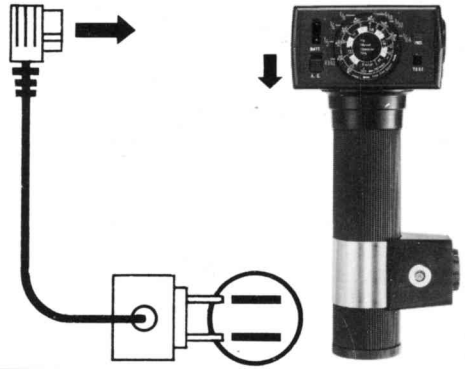
## 1 – 3



## 17 – 19

| A C plug | A C receptacle |
|---|---|
| Wechselstromkabelstecker | Wechselstrom-Steckdose |
| Fiche C.A. | Prìse pour alimentation |
| Enchufe AC (CA) | Receptáculo AC (CA) |
| Vekselströmsplugg | Vekselströmskontakt |



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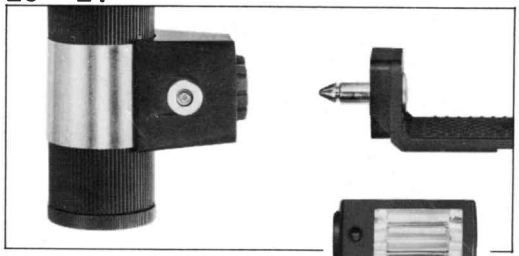

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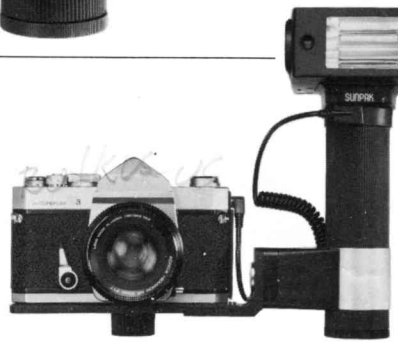


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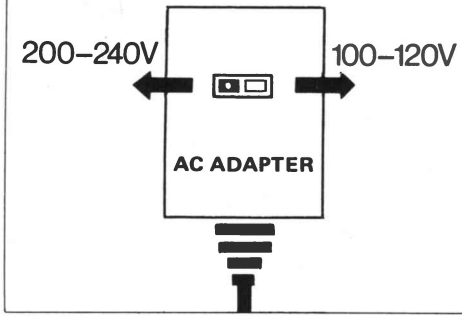


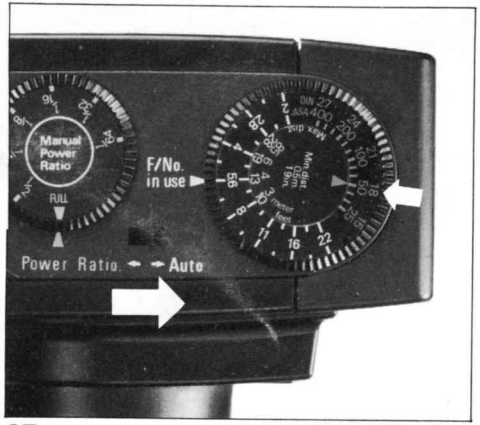

Voltage selector switch
Spannungswählschalter
Commutateur de sélection de tension d'alimentation
Interruptor selector de voltaje
Spenningsvelger

Rubber switch retainer
Gummischalterhalterung
Elément de retenue en caoutchouc
Retenedor de goma
Gummisperre

## 23

Synchrocord receptacle
Anschluß für das Synchronisation skabel
Prise pour cordon de synchronisation
Receptáculo del cable sincronizador
Tilkopling for synkroledning

25 – 26

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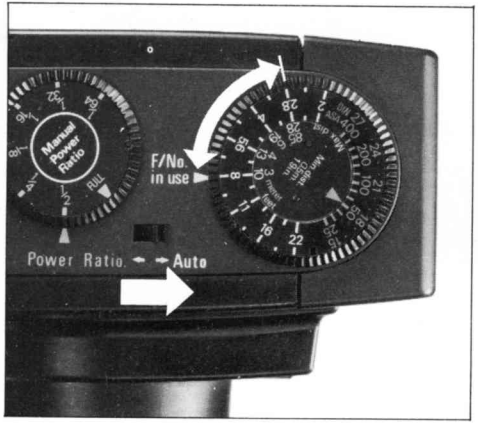


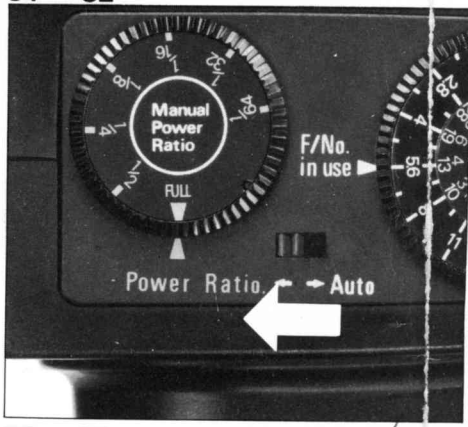

28 – 30

Auto aperture
Automatische Blende
Ouverture automatique
Abertura automática
Blenderåpning for Automatikk

Auto effective distance
Automatische effektive Entfernung
Distance utile en automatique
Distancia efectiva automática
Effektiv avstand for Automatikk


Outer Marking Missing

31 – 32

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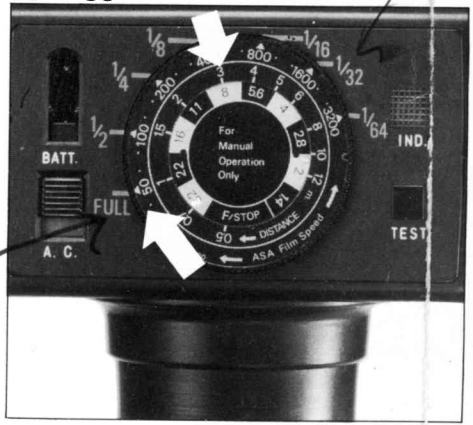

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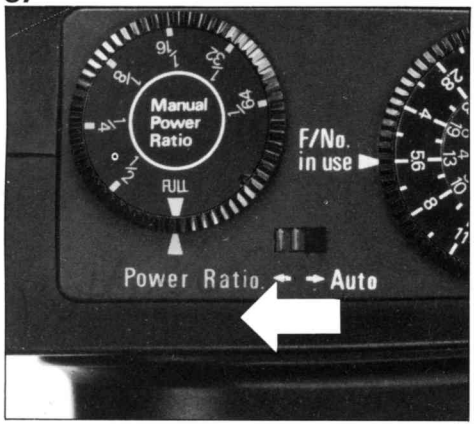


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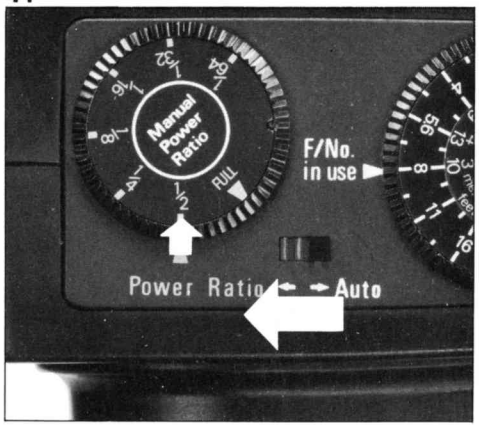
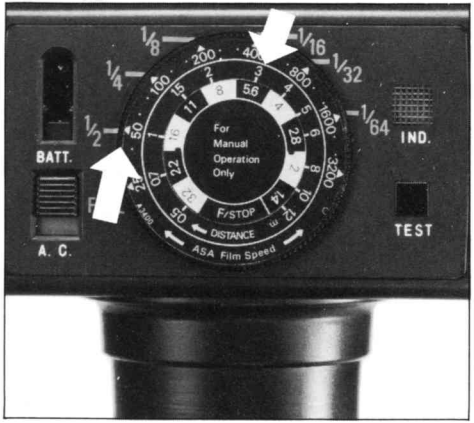



52 – 56


38 – 40

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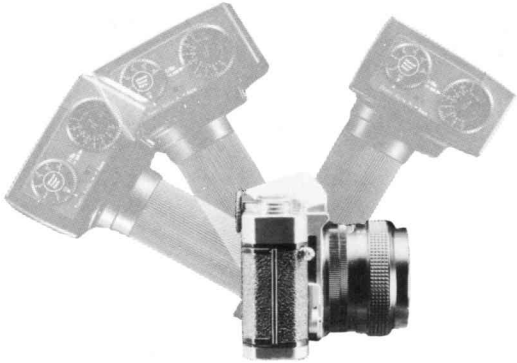
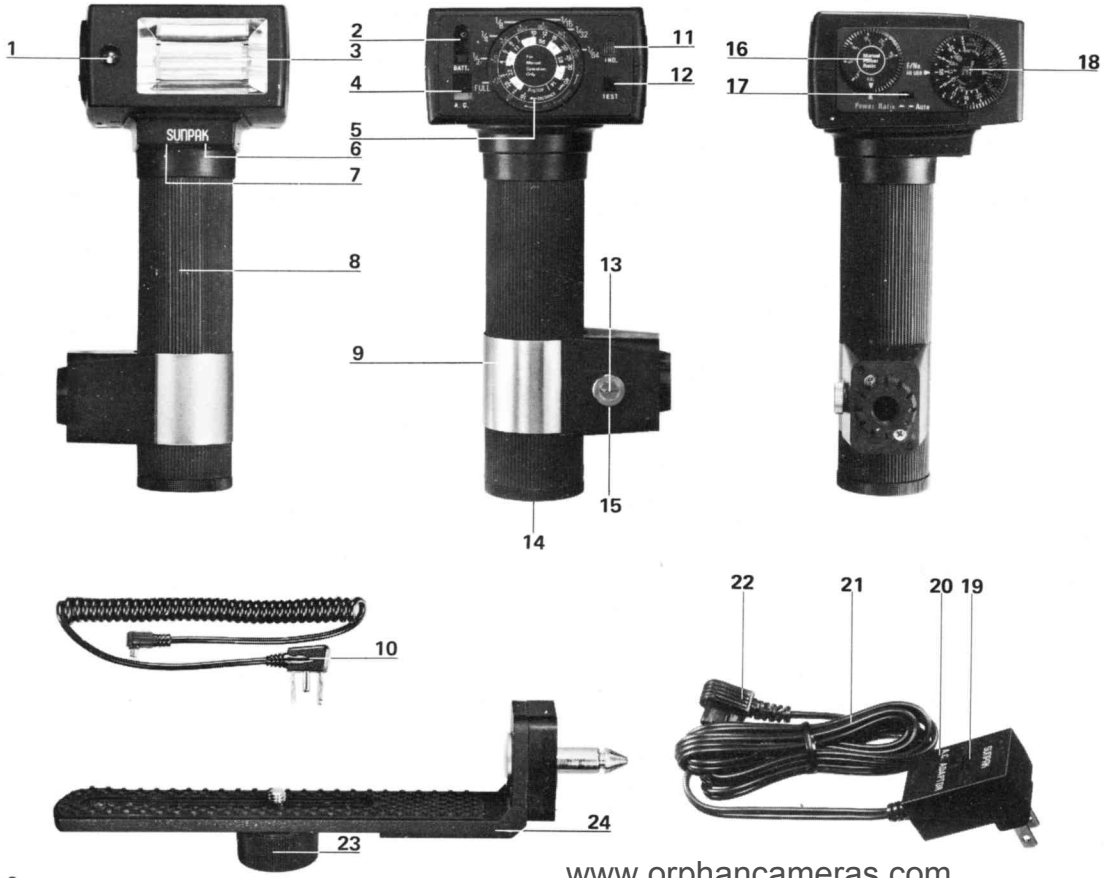


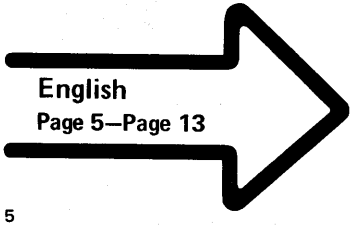



## English

1. Auto light sensor
2. AC receptacle
3. Flash window
4. Power switch (AC-BATT)
5. Manual exposure calculator
6. Slave unit receptacle
7. Synchro cord receptacle
8. Grip
9. Clamp
10. Synchro cord with parallel blade
11. Indicator lamp
12. Flash test button
13. Bracket attaching button
14. Battery cover
15. Bracket lock ring
16. Variable power selector
17. Auto/Manual selector switch
18. Auto aperture dial
19. Voltage selector switch
20. AC adapter
21. AC cord
22. AC plug
23. Camera set screw
24. Bracket

## CONCEPT

Welcome to the world-wide family of ***Sunpak*** owners! Your ***Sunpak Autozoom 3400*** electronic flash, made by one of the world's largest manufacturers of precision electronic flash systems, has been carefully eingineered and constructed to give you years of advanced photographic lighting. Since this flash is in many ways more versatile than other electronic flash units, please take the few minutes required to carefully read this Owner's Manual . . . with your ***Sunpak Autozoom 3400*** in front of you.




Your Sunpak Autozoom 3400 is an unusually powerful unit (Guide Number 34/ASA 100 in meter, 79/ASA 50 in feet) operating on interchangeable AA Nickel-Cadmium or 510v battery systems (Alkaline batteries may be used in emergencies as well); alternatively, it may be operated on standard AC current (100v – 240v) if desired. In automatic mode, the correct amount of light is automatically measured and regulated at any of four lens openings (or at any intermediate lens opening as well), at speeds ranging from 1/600th second to 1/50,000th second at close range. Energy-saving Thyristor circuitry stores, rather than 'dumps', the unused electrical power remaining after each flash; as a result, recycling time (at close distances) becomes as fast as 0.3 second — allowing practical application of motor-driven camera systems even at high rates of speed.

Yet Sunpak's variable-intensity computer mechanism may be used manually as well . . . allowing variations in lighting volume from full power to as little as 1/64th power, for total control of lens aperture, depth of field, and recycling time. Additionally, this variable — power capability makes outdoor synchro/sun photography (fill-in flash) remarkably simple and precise with any shutter type with 'X' synchronization. For the first time, flash owners can select the exact amount of light required for supplementary outdoor lighting quickly, conveniently, and accurately.

Particular attention has been paid to maximizing handling speed: the mounting bracket is a one-touch, instantly-detachable type (with 12-position 360° bounce capability as well). Batteries are housed in a slide-in cartridge, further reducing handling and 'down' time during interchange. For maximum convenience, the manual exposure calculator dial has positive click-stops to prevent inadvertent mis-setting.

Yet, this uniquely versatile flash weighs just 21.5 ounces . . . light enough to be conveniently used in continuous eye-level operation.

# OPERATION OF SUNPAK AUTOZOOM 3400

## I. SELECT POWER SOURCE

Your Sunpak Autozoom 3400 electronic flash accepts STANDARD AA-SIZE nickel-cadmium batteries. Each set provides from 45 to as many as 700 flashes per charge, with recycling time (interval between flashes) ranging from a maximum of five seconds to as little as 0.3 second at fractional power.

Nickel-cadmium batteries may be recharged hundreds of times, with each charge providing sufficient power for most shooting requirements. In addition, performance is extremely constant as compared to disposable Alkaline batteries, which may vary considerably in power.

For these reasons, nickel-cadmium batteries are recommended as the basic power source for your Sunpak Autozoom 3400.

## II. INSERT BATTERIES

### A) Using AA Nickel-Cadmium Batteries (Optional)

1. Twist battery compartment cover at bottom of flash grip to unlock while pushing up the cartridge.
2. Insert four AA Nickel-Cadmium batteries in the direction shown on the cartridge.
3. Replace battery cartridge and tighten firmly.
4. Turn Battery/AC Switch (on back) to 'Battery' position (so red is visible). This turns on the flash, which begins to warm up for use.
5. When Indicator Light (on back) glows, you're ready to shoot.

**Recharging Method**

6. Insert 4 size AA Nicad batteries into battery cartridge and install cartridge into grip.
7. Set Autozoom 3400 power switch to AC.
8. Connect charger cord to the other end of Autozoom 3400's synchro cord as illustrated.
9. Plug charger into AC power source and charge for 14 hours, Concern about overcharging is absent.
10. Disconnect charger after charging is completed.

### B) Using AA Size Alkaline Batteries (Optional)

Repeat steps 1, 2, 3 and 4 on page 6.

### C) Using 510v Dry-Cell Battery Pak (Optional)

11. Insert 510v battery into Sunpak Quick-Pak as shown on Quick-Pak.
12. Set Sunpak Autozoom 3400 Battery/AC Switch (on back) to 'AC'.
13. Plug Quick-Pak cord into your Autozoom 3400's AC Outlet (directly above Battery/AC Switch on back).
14. When ready to shoot, turn Quick-Pak On/Off Switch 'On'.
15. When Indicator Light (on back) glows, you're ready to shoot.

## D) Using AC(Line) Current

**16.** Set AC adaptor voltage selector switch to match employed line voltage (100V-120V;200V-240V). To change the switch setting, remove the rubber switch retainer and change switch setting. After resetting, replace the rubber retainer at the opposite side of the switch.
***Important: Make sure voltage selector is set at correct position.*** If used at the wrong voltage, damage to your Sunpak flash may result.

**17.** Set Power Switch (on back of flash) to 'AC' position (black is visible and AC outlet is unobstructed).

**18.** Plug AC Adapter cord into your flash unit's AC outlet (on back, above Battery/AC Switch). Now, plug AC Adapter into wall outlet. This turns on the flash, which begins to warm up for use.

**19.** When Indicator Light (on back) glows, you're ready to shoot.



# III. MOUNT ON CAMERA

**20.** Depress Locking Button (silver) on Flash Grip clamp and push Flash Bracket inwards until it stops. Release Locking Button.

**21.** Turn retaining screw of Locking Button clockwise; this locks clamp and bracket securely.

**22.** Attach camera to bracket using large retaining screw on bracket.

**23.** Connect flash synch cord from flash (under Sunpak name in front) to camera's PC outlet. (If camera has outlets or selector switch marked 'M' and 'X', use 'X' outlet or setting.)

**24.** Set shutter to fastest speed ***synchronized with electronic flash.*** For non-interchangeable-lens cameras, this is usually the fastest speed. With interchangeable-lens cameras, the highest usable speed is generally 1/60th second; however, cameras with the vertical-travel Copal 'Square' shutter (or similar type) permit electronic flash synchronization up to 1/125th second.
Most cameras indicate the fastest 'X'-synch speed either by showing the letter 'X' on the speed dial, or by marking the fastest usable speed in a special color. If in doubt, check with your camera dealer (or in camera's instruction manual). Should this not be immediately possible, set shutter to 1/25th or 1/30th second: at this speed, ***all*** modern cameras are synchronized.

# IV. AUTOMATIC OPERATION

**25.** Turn switch on side of flash to "Auto" position (red is visible). Your Sunpak Auto-zoom 3400 flash has three calculator dials: one on the back, and two on the side. The larger (two-color) dial on the side is used for determining lens opening for automatic operation.

**26.** Set ASA speed for film in use by holding inner dial while rotating outer dial until speed is indicated by red triangle marked 'ASA'. (Example: ASA 50.)

**27.** Rotate calculator wheel clockwise until it stops. The triangle outside the wheel indicates the smallest lens opening which may be used (example: with ASA 50 film, smallest lens opening is f8). Now, rotate the calculator wheel counter-clockwise until it stops. The triangle outside the wheel now indicates the ***largest*** lens opening which may be used (example: with ASA 50 film, f2.8). You may shoot at ***any*** lens opening (or fractional opening) ***in between these minimum and maximum apertures,*** by simply setting your lens to the desired aperture and making sure that same aperture (for example: f5.6) is shown opposite the triangle on your calculator wheel.

**28.** The maximum distance at which you can shoot at a given aperture is shown by the "Max. dist." within the calculator wheel, opposite the same triangle which indicates

the lens opening. (For example: with ASA 50 film and a lens opening f5.6, the maximum distance indicated at the 'Max. dist'. is 4m/13'.) All pictures taken from 0.5m/19" to this maximum distance (4m/13' at this opening) will be perfectly exposed automatically by your Sunpak's computer mechanism.

**NOTE:** The minimum distance for correct exposure is 0.5m/19" at any lens aperture.

29. Now, just focus . . . and shoot! Your Sunpak Autozoom 3400 will automatically produce the correct volume of light for a perfectly-exposed picture.
30. For greatest distance range, select the widest lens opening (Example: f.28 with ASA 50 film) available by turning the calculator wheel counter-clockwise until it stops. (With this lens opening, you can shoot as far as 8.5m/28' from the subject.)

- The degree of creative control which this allows you is genuinely remarkable. It is entirely practical to work at an in-between (fractional) lens opening such as f3.5, f6.3, or whatever precise opening is desired. Through this continuously-variable Sunpak system, you may enjoy total depth-of-field control.

## V. MANUAL OPERATION AT MAXIMUM POWER

31. Move Power Ratio/Auto Switch (on side of flash) to Power Ratio position (so blue is visible).
32. For maximum light output (enabling you to shoot at greatest distances), set Power Ratio/Selector Dial (smaller dial on left) to 'Full' as shown.
33. Now, refer only to the large calculator wheel on the back of your flash. Set the correct film speed opposite the 'Full' indicator around the dial. (Example: ASA 50.)
34. Focus your lens as you normally do; read off the distance shown on the distance scale of your lens. (For example: 3 meters (10').) The lens opening appearing ***below*** this distance (on the calculator dial) is the correct lens opening for a picture at this distance. (Example: correct lens opening with ASA 50 film and subject at 3 meters (10 feet) is f8.)
35. Set this opening on your lens, and shoot. All photographs taken at this distance will be properly exposed.
36. In general, the sole advantage of manual exposure control at full power is the ability to shoot at distances greater than 8.5meters (28 feet).



## VI. MANUAL OPERATION:
### Selecting Light Output For Different Lens Openings

Your Sunpak Autozoom 3400 electronic flash has the unique capability of varying light output (duration) even when used in manual mode. This allows you to shoot at wider lens openings (f/numbers) to control depth-of-field (simultaneously shortening recycling time and greater numbers of flashes). Yet, this remarkable feature is extremely easy to use:

37. Move Power Ratio/Auto Switch (at side of flash) to 'Power Ratio' position (so blue is visible beside-switch).
38. Focus as you normally do; read off the distance indicated by the distance scale on your lens. (Example: 3 m/10')
39. Choose and set the desired lens opening on your camera's lens. (Example: f5.6.)
40. Rotate Calculator Wheel (on back of flash) until correct distance ( 3 m/10') appears above desired lens opening (f5.6)
41. Now, the correct Power Ratio setting appears alongside the ASA speed for the film you are using. (Example: For ASA 50 film, Power Ratio for f5.6 aperture at 3 meter/10 feet is ½.) Set this number (½) on the Power Ratio dial as shown.
42. **Shoot** . . . your Sunpak Autozoom 3400 will automatically deliver the correct volume of light for a perfectly-exposed picture at this distance and lens opening. In this

Burkus

example, using straight manual exposure (at full power) would have required a lens opening of f8; yet your Sunpak allowed you to shoot at f4. You could also expose at f5.6, f2.8, f2.0 or f1.4 by simply positioning the distance above the desired lens opening, then reading the Power Ratio setting above the film speed and re-setting it. Thus, total depth-of-field control is now yours . . . with the remarkable Sunpak Autozoom 3400.

Another potentially invaluable aspect of this unique light-varying control is the ability to control recycling time ***even in manual operation.*** For example, when using the widest lens opening (f2.8, f2.0 etc.) possible for the film type in use, recycling time is reduced to an astonishing 0.3 seconds . . . approximately ***thirty times*** faster than is possible in maximum-power manual operation. This is made possible because, unlike conventional thyristor systems, Sunpak's energy-saving system continues to function when the Variable Power control is employed. This advanced feature — controllable recycling — makes the Sunpak Autozoom 3400 particularly valuable to owners of motor-driven cameras; at minimum power settings, cycles as fast as three frames per second may be used.

# VII. MANUAL OPERATION:

## Synchro/Sun Photography (Fill-In Flash)

Your Sunpak Autozoom 3400 electronic flash can be of significant benefit even in outdoor photography. Example: bright day at the beach . . . much too bright for your subject to face into the sun. So you turn her around, and shoot against the sunlight: a backlit shot. You even carefully take a close-up meter reading of her face, to insure that the exposure is based on the light on her face (relatively dim) and not the background light (extremely bright). While this technique will produce a well-exposed image of the subject, the background will be rendered far too light; the brightness values in the scene are beyond the ability of any film to record . . .

**Solution:** Sunpak Autozoom 3400 . . . and its variable-intensity lighting selector.

**Here's how:**

**43.** Select the highest shutter speed at which your camera is synchronized for electronic flash ('X' synch). (Example: 1/60th second.)

**44.** With your camera's built-in meter (or a separate meter if one is used), determine the correct lens opening ***at this shutter speed*** for the brightest part of the scene (usually, the background). Set your lens to this opening. (Example: f11.)

**45.** Now, focus. On your Sunpak's calculator wheel (on back of flash), position the distance (indicated by your lens' distance scale) above the correct lens opening (the one for which your camera is already set). (Example: 1.5 meter/5 feet.)

**46.** Read off the Power Ratio number above the ASA speed of your film (on the calculator dial). (At 1.5 meter/5 feet and f11, correct number is ½ for ASA 50 film.) Set this number (½) on the Power Ratio dial at the side.

**47.** Move Power Ratio/Auto Switch to 'Power Ratio' position (so blue is visible).

**48.** Shoot . . . your Sunpak Autozoom 3400 will automatically deliver the correct volume of light to fill-in your subject's face perfectly. And, since your lens opening and shutter speed were originally determined for the background light, this also will be perfectly exposed.

The possibilities are almost endless: subjects partially in sunlight, partially in shadow; subjects under trees or foilage, which casts hundreds of small shadows across the subject; a subject indoors, gazing through a window, part of their face lit by the daylight and part unlit: in these and a thousand and one situations, your Sunpak Autozoom 3400 will create strikingly beautiful daylight/synchro photographs for you.

## VIII. BOUNCE LIGHTING

Your Sunpak Autozoom 3400 electronic flash allows soft, shadowless 'bounce' lighting to be used whenever desired. This advanced lighting technique beams the light off ceiling or wall, to spread a soft, diffused light evenly throughout the entire area. Bounce lighting is almost totally free of the shadows which often accompany direct lighting, making it particularly valuable for photography of people as well as finely-detailed close-up and macro subjects.

**49.** Loosen locking screw on Sunpak flash clamp by turning it counter-clockwise. Press retaining button inwards and holt it.

**50.** Partially remove bracket from flash clamp, and rotate bracket clockwise until desired angle is reached.

**51.** Release flash bracket, which snaps into place. Tighten locking screw.

Your Sunpak Autozoom 3400 is now ready for bounce flash photography.
(Note: exposures must be determined manually, preferably by experience or test shots in the rooms most likely to be used. As a starting point, allow two f/stops additional exposure — say, f4 instead of f8 — for an average white ceiling at a height of seven or eight feet. Wherever possible, bracket exposures — shoot several at different lens openings — to insure perfect exposure.)

## IX. MULTIPLE FLASH OPERATION WITH SUNPAK AUTO SLAVE UNIT

Using two or more Sunpak electronic flash units can produce stunningly-attractive professional portraits. Equally, using additional flash units stragegically positioned (for example, at different locations at a basketball game) can substantially expand photographic capabilities. How to do: use the compact, solid-state Sunpak Auto Slave Unit, available from your Sunpak dealer. This permits wireless synchronization of any number of Sunpak Autozoom 3400 electronic flash units at distances up to 30 meters/100 feet from the 'Master' unit. When the master unit (with shutter cord connected to the camera) is fired, all other slave-equipped units fire simultaneously.

**52.** Plug Sunpak Slave Unit into receptacle under flash head of auxiliary (second) flash unit.

**53.** Adjust sensor eye of Slave so that it faces master flash unit.

**54.** Determine correct lens opening manually (as a starting guide, close down lens one f/number from indicated aperture when using two directly-aimed flashes).

**55.** Connect main flash to camera in normal manner.

**56.** Shoot . . . When the light from the master (camera-connected) flash reaches the Sunpak Slave's sensor, the Slave automatically fires the second flash in perfect synchronization with the first! The Sunpak Slave operates at distances of up to 30 meters/100 feet from the master flash, and is unaffected by even the brightest indoor lighting.

**Note:** Always use Sunpak Slave for multiple flash with your Sunpak Autozoom 3400. Due to the low voltage (24 volts) of the triggering circuit, series operation using connecting cables is not possible. In use, these flash units are particularly suitable for multiple-flash work because of their unique ability to vary light output via the Power Ratio control. Thus, one can easily adjust intensity of main, fill-in, or any other lights — without actually moving each flash. For more comprehensive details on application of multiple-flash, consult any of the excellent reference manuals available from your Sunpak dealer.

# X. HELPFUL HINTS

## A) 510v Battery Power Option

The advantages of nickel-cadmium batteries are outlined on page 6. For professional use, however, you should also consider the . . .

BOARD, U7

**510v Dry cell and Sunpak Power Pack**

This heavy-duty system gives you from 540 to as many as 10,000 flashes on one disposable battery. It provides the fastest recycling time (0.3-1 second) of all power sources, and really makes sense if you're on extended professional assigments where you have to be ready to shoot constantly. Correct battery type here is Eveready 497 (other manufacturers numbers include U320 and VS797).

**IMPORTANT:** Whichever battery type you choose, you can extend battery life greatly by first 'warming up' your Sunpak on AC current (particularly if your flash has not been used for some time). When the flash has not been used, a relatively large amount of energy is required to 'form the capacitor' or warm up the unit for the first shot. (You might compare it to boiling water: it takes lots of energy to start it boiling, but only a small amount to keep it boiling once it's heated.) By pre-warming your Sunpak on AC current when possible, you'll get many more flashes per set of batteries.

## B) Check Camera and Flash Controls

On the flash, simply make sure that the Power Ratio/Auto Switch is towards 'Auto' when operating automatically, towards 'Power Ratio' when operating in any manual mode (full or variable power). When working on manual, the Power Ratio dial must be at the 'Full' position for full-power operation.

On the camera, make sure the synch cord is plugged into the 'X' outlet (or that the synchro switch, if one is present, is at 'X' position). And, make sure the shutter is set at the fastest speed that's ***synchronized for electronic flash.***

## C) Use the Fastest Possible Shutter Speed

If your camera synchs with electronic flash at 1/125th second, shoot at 1/125th instead of a slower speed. The faster the speed, the less likely that the existing (ambient) light will cause a secondary or 'ghost' image to appear on the film.

## D) Use 'Test' Flash to Check Lighting Effects

When your flash is turned on, pressing the 'Test' button on the back of the flash will fire the flash without actually exposing your film. This lets you preview a lighting effect (and also provides a handy check that everything's working properly before an important picture, too).

# XI. CARE OF YOUR ELECTRONIC FLASH

Your Sunpak Autozoom 3400 electronic flash has been engineered to require almost no 'maintenance' in the normal sense of the word. Still, to insure top performance year-in and year-out, follow these basic pointers:

### A) Inspect Batteries Frequently.

'Inspect' means for reasonable recycling time; if it's longer than 20 seconds (Alkaline batteries), 10 seconds (nickel-cadmium batteries), or 3 seconds (510v battery), your batteries should be replaced (or, if nickel-cadmium type, recharged). It's also wise to check your batteries from time to time for *appearance:* sometimes, even the best of batteries discharge some chemical material through the jacket, and leave a whitish powder on the battery surface, which can pass onto the electrical contacts of the flash. (If this has happened, replace batteries after cleaning the flashgun's battery contacts with a penknife.) It's also a good idea to remove the batteries from time to time and wipe them with a dry handkerchief: the cleaner the battery surface, the easier it is for the battery energy to pass through your flashgun's electrical system.

### B) Remove Batteries When Not in Use.

In the event you will not be using your flash for several weeks or more, remove the batteries and store them separately (inside a plastic bag is a good way).

## Technical Specifications on Sunpak Autozoom 3400:

| | |
|---|---|
| **Guide Numbers:** | 34/ASA 100 in meter; 24/DIN 18 in meter,<br>56/ASA 25 in feet |
| **Angle of Illumination:** | 60° Horizontal and 50° Vertical<br>(Covers the format of 35 mm wide lens) |
| **Power Source:** | AA Alkaline Batteries (4)<br>AA Nickel-Cadmium Batteries (4)<br>510v Dry Battery (1)<br>100 ~ 240v AC |
| **No. of Flashes:** | With Alkaline Batteries, 90 – 1,800<br>With Nickel-Cadmium Batteries, 45 – 700<br>With 510v Battery, 540 – 10,000<br>With AC Current, Unlimited |
| **Recycling Time:** | With Alkaline Batteries,<br>0.3 (1/64) – 13 (Full) Seconds<br>With Nickel-Cadmium Batteries,<br>0.3 (1/64) – 6 (Full) Seconds<br>With 510v Battery,<br>0.3 (1/64) – 1 (Full) Second<br>With AC Current,<br>0.3 (1/64) – 6 (Full) Seconds |
| **Flash Duration:** | 1/600th Second – 1/50,000th Second |
| **Automatic Aperture Control:** | Continuously variable over four-stop range<br>(f4–f11 with ASA 100 film) |
| **Computer Range:** | 0.5 – 8.5m/19'' – 28' (maximum aperture),<br>0.5 – 3.0m/19'' – 10' (minimum aperture) |
| **Sensor Acceptance Angle:** | 28° |
| **Variable Power Selector:** | Continuously-variable from full to 1/64th<br>power in manual operation |
| **Color Temperature:** | 5500° K, matching standard color films<br>(day light type) |
| **Synchronization Contact:** | Polarized 3-prong Shutter Cord; remote<br>Slave input. Open Flash Control. |
| **Mounting:** | Instantly-detachable bracket with 12-position<br>360° bounce control |
| **Weight:** | 610 grams/21.5 oz. |
| **Dimensions:**<br>**(including grip)** | 94 x 95 x 212mm<br>3.6'' x 3.7'' x 8'' |

**Notice:** Features and specifications are subject to change without prior notice.