### X) MANUAL OPERATION

#### Creative Special-Effects Photography Through Controlled Flash Speeds

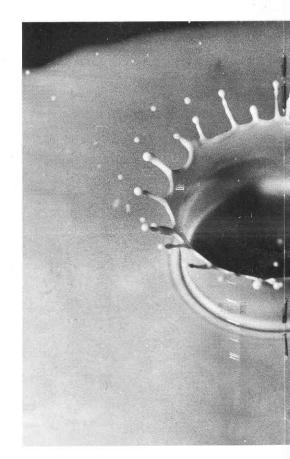
Your Sunpak Auto 611 Power Ratio control opens up a whole new world of photographic enjoyment ... with many important industrial and scientific benefits too. Because of this flash unit's unique electronic circuitry, you can actually control the duration (speed) of each flash. In automatic operation, your flash will light for a period ranging from 1/400th second to as fast as 1/50,000th second (depending on flash-to-subject distance). Yet in manual operation, the unique Power Ratio control allows you to control the flash speed every time regardless of flash-to-subject distance! At "Full" power, flash speed is approximately 1/400th second: at 1/2 power, about 1/800th second... and so on; at 1/128th power, the flash speed shortens to an incredible 1/50,000th second - fast enough to "freeze" virtually any moving object!

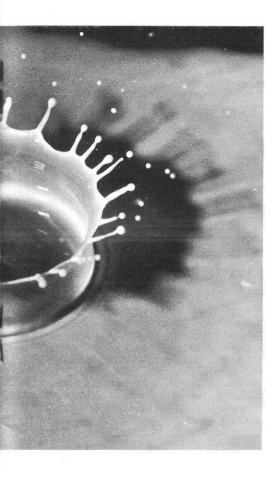
Scientists call it 'Motion-Analysis Study'. What is it? Pictures of objects in motion, photographed at high speed to reveal that motion to the eye. Perhaps a stone being dropped into a bowl of water. Or a balloon being burst. Or an egg, dropped on a counter top. A Karate expert, breaking a bottle. A Golfer's swing, a Bowler's ''delivery''... any of a thousand-and-one things in everyday life that we look at... but never really see. Now, we can:

- Set up your camera with flash attached in a convenient location — preferably, mounted on a sturdy tripod.
- Determine and set the correct lens opening for the power ratio selected (see chart, p. 21).
- 3) Drop the stone (or egg, or whatever; or, have this done by a friend) and snap the shutter as soon as the impact has begun that is, as soon as the object reaches it's destination. Your photograph will be exposed at the speed selected up to 1/50,000th second far faster than the costliest shutters permit.

You'll be amazed at the results!

Note: The Accessory Sunpak Sound Synchronizer is a precision electronic instrument which automatically 'trips' the flash when a preselected sound signal (such as clapping hands) is activated. It is intended for use in a darkened room, with the camera's shutter at 'B' position. It may be adjusted to fire the flash once, or in repeated bursts of light for multi-image effects (see p. 34).





### XI) MANUAL OPERATION

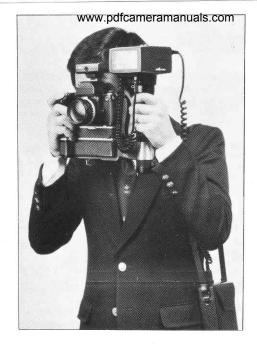
#### **Shooting At Controlled Recycling Times**

On "Automatic", your Sunpak Auto 611 will provide exactly the volume of light required, then save the remaining energy for subsequent shots. Many photographers, however, require the ability to shoot shot after shot very rapidly irrespective of flash-to-subject distance. Example: Photography of a sporting event with a motor-driven camera. Here, the Sunpak Power Ratio Control again provides a practical solution:



- Follow this rule: Each one-step reduction in operating "Power Ratio" reduces recycling time by approximately 50%.
- 2) Determine recycling time to "Full" power (manual) with your equipment and fresh batteries (or AC current should this power source be selected). Example: Recycling speed with SUNPAK Battery Cluster Type CL-1 is determined to be approximately 9.5 seconds at Full power.

- 3) Set flash to 'Manual' and select Power Ratio accordingly! If exposures every five seconds are required, operate at 1/2 power. For exposures every second, a Power Ratio of 1/8th is thus indicated. (Note: As battery power may diminish in use, it is recommended to choose an even smaller Power Ratio wherever possible; for example, shoot at 1/16 power when it is known that 1/8 power will provide the approximate recycling speed required. This practice will compensate for inevitable fluctuations in line and battery voltage, differences in temperature, etc.)
- 4) Set lens to correct aperture for flash-tosubject distance, as indicated by Flash Calculator Dial. Then, shoot... again and again!
- \* Use of the optional Sunpak Professional 510v Battery Pak will shorten recycling times by as much as 500% ... allowing, at smallest Power Ratios, operation of motorized cameras at the highest rates of speed. See p. 33 for additional information on this valuable accessory.
- \* Use chart on p, 21 as a guide to optimum recycling speeds. For critical applications, individual tests are suggested with your equipment and power sources to determine exact recycling speeds under typical working conditions. These tests will accurately reflect usable recycling speeds with your "system"



# Approximate Flash Speeds and Recycling Times with SUNPAK Auto 611(Manual)

Optimum Recycling Times (Apx.)

Flash Speed (Duration)	With 510v Powerpak	With Nicad Cluster	With C Nicad 9.5 Sec. 5 Sec.	
1/400th sec.	2 Sec.	9.5 Sec.		
1/800th sec.	1 Sec.	5 Sec.		
1/1600th sec.	0.5 Sec.	2.5 Sec.	2.5 Sec.	
1/3200th sec.	0.3 Sec.	1.5 Sec.	1.5 Sec.	
1/6400th sec.	0.25 Sec.	0.7 Sec.	0.7 Sec.	
1/12500th sec.	0.25 Sec.	0.4 Sec.	0.4 Sec.	
1/25000th sec.	0.25 Sec.	0.25 Sec.	0.25 Sec.	
1/50000th sec.	0.25 Sec.	0.25 Sec.	0.25 Sec.	
	(Duration)  1/400th sec.  1/800th sec.  1/1600th sec.  1/3200th sec.  1/6400th sec.  1/12500th sec.	(Duration) Powerpak  1/400th sec. 2 Sec.  1/800th sec. 1 Sec.  1/1600th sec. 0.5 Sec.  1/3200th sec. 0.3 Sec.  1/6400th sec. 0.25 Sec.  1/12500th sec. 0.25 Sec.  1/25000th sec. 0.25 Sec.	(Duration)         Powerpak         Cluster           1/400th sec.         2 Sec.         9.5 Sec.           1/800th sec.         1 Sec.         5 Sec.           1/1600th sec.         0.5 Sec.         2.5 Sec.           1/3200th sec.         0.3 Sec.         1.5 Sec.           1/6400th sec.         0.25 Sec.         0.7 Sec.           1/12500th sec.         0.25 Sec.         0.4 Sec.           1/25000th sec.         0.25 Sec.         0.25 Sec.	

As shown on your flash unit's Calculator Dial, wider lens openings are required when shooting at smaller Power Ratios. To obtain the greatest distance range when using small Power Ratios in high-speed operation, use the fastest available ASA film speed. For example, with ASA 25 color film the

effective Guide Number is 14 at 1/32nd power — restricting you to distances up to five feet with an f/2.8 lens. By using ASA 400 film, your Guide Number would be increased to 56 — permitting use at 20 feet with the same f/2.8 lens. (see Guide Number chart, p. 23)

**Note:** Your Sunpak features an extremely efficient system for heat dissipation. With motor-driven cameras, you may take advantage of the ultra-fast recycling times without fear of damaging the flash. However, your flash should be given a few minutes 'rest' after each **hour** of continuous or extremely-heavy rapid-sequence operation. (This recommendation applies **exclusively** when your flash is used with motor-driven cameras at speeds of two frames per second or more.)

### XII) MANUAL OPERATION

#### **Choosing Guide Numbers**

A "Guide Number" is simply a number expressing the power of a flash unit in relation to the sensitivity (ASA film speed) of a particular film. In use, the photographer divides the flash-to-subject distance (in feet) into the Guide Number, and the result is the f/stop for correct exposure. Normally, reference to Guide Numbers is not necessary as the Computer Mechanism (and Calculator Dial) of your Sunpak Auto 611 make such calculations unnecessary. However, there are two instances in which precise Guide Number information is needed:

- 1) Use with "Flashmatic" (G.N.) Lenses Or Cameras. With lenses (or cameras) of this type, the flash unit is set to Manual and the lens aperture is automatically set as you focus. For correct exposure with such cameras or lenses, the Guide Number for your film/flash combination must be set on the Guide Number Scale of the lens.
- 2) In certain highly specialized areas of technical photography, the photographer may wish to judge the exposure by means of formulas based on Guide Numbers.

Here, the unique thyristor Power Ratio Control of the Sunpak Auto 611 provides even greater versatility — for with any ASA film speed, you may in effect select the Guide Number ... simply by moving the Power Ratio Control to the position indicated in the Guide Number Chart (P. 23).: Any of eight Guide Numbers may be selected for a given ASA film speed!

- \* Individual photographers will immediately discern other areas in which the unique thyristor-linked variable power control mechanism will prove an aid to better photography. Obvious situations would include multiple-light portrait and product photography, where an entire series of pictures may be taken with the "ratio" or relative strength of main, fill, and backlights adjusted by means of the Power Selector no need to move flash units or light stands back and forth as before!
- \* Another important advantage: Obtaining extra flashes in emergencies where replacement batteries are not conveniently available. For example, you're shooting a wedding ... and halfway through, the recycling time lengthens substantially, indicating that fresh batteries or recharging are needed. Solution: switch to "Manual" operation at a fractional power setting such as 1/4th or 1/8th power and increase the available number of flashes irrespective of distance accordingly: approximately 4X as many on 1/4th power. 8X on 1/8th, and so on.

### Guide Number Selector for SUNPAK Auto 611

ASA Speed Power Ratio	12	16	20	25	32	40	50	64	80	100	125
Full	56	64	71½	80	90	101	113	128	143	160	180
1/2	40	45	50½	56	64	71½	80	90	101	113	128
1/4	28	32	36	40	45	50½	56	64	71½	80	90
1/8	20	223/3	751⁄4	28	32	36	40	45	50½	56	64
1/16	14	16	18	20	223/3	251⁄4	28	32	36	40	45
1/32	10	111/3	123	14	16	18	20	22 <sup>2</sup> / <sub>3</sub>	251⁄4	28	32
1/64	7	8	9	10	111/3	123/3	14	16	18	20	223/3
1/128	5	53/3	61/3	7	8	9	10	111/3	12%	14	16

#### Notes:

ASA Film Speeds shown correspond to ASA indices on Auto 611 Calculator Dials.

160	200	250	320	400	500	640	800	1000	1250	1600	2000	2500	3200
202	226	254	286	320	360	404	452	508	566	640	720	808	904
143	160	180	202	226	254	286	320	360	404	452	508	566	640
101	113	128	143	160	180	202	226	254	286	320	360	404	452
71½	80	90	101	113	128	143	160	180	202	226	254	286	320
50½	56	64	71½	80	90	101	113	128	143	160	180	202	226
36	40	45	50½	56	64	71½	80	90	101	113	128	143	160
251/4	28	32	36	40	45	50½	56	64	71½	80	90	101	113
18	20	22 <sup>2</sup> / <sub>3</sub>	251⁄4	28	32	36	40	45	50½	56	64	71½	80

## XIII) CLOSE-UP AND MACRO PHOTOGRAPHY WITH YOUR AUTO 611

One of the most fascinating and rewarding of all photographic fields is the realm of close-up photography. Your Sunpak Auto 611 offers many practical benefits for superior close-ups...



- 1) In Automatic Operation Using Close-Up Or Macro Lenses (Without Extension Tubes or Bellows).
- A) Select smallest available auto lens opening. (Example: f/11 with ASA 100 film.) Set Auto Exposure Dial and lens to this opening.
- B) Hold (or position) flash so that the front of the flashtube housing is at least 19" from the subject.

If possible, detach flash bracket and mount your flash on a tripod for utmost stability. Should this not be possible, you may loosen the retaining screws of the bracket clamp (see p. 8), and reposition the flash handle so that it is lower and aims the flash directly at your subject. Alternatively, the flash may be 'bounced' off a simple white card or equivalent (see p. 13)

C) Take The Picture! So long as the flash unit is 19" or more from the subject, and the sensor is aimed towards the subject, your photograph will be correctly exposed automatically.

### 2) In Manual Operation with Extension tubes or Bellows.

Bellows units and extension rings allow close-ups to life-size (24 x 36 mm) or larger. Here, flash is needed more than ever ... yet your camera and lens are only inches away from the subject — too close for accurate automatic exposure operation. And ... when using bellows units or extension rings, an increase in exposure ("Exposure Factor") becomes necessary. Solution: Sunpak Auto 611 and its unique Power Ratio control!

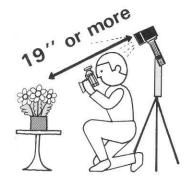
- A) Place your flash so that the reflector surface is approximately 19" (1.6') from the subject.
- B) On your Sunpak Manual Power Ratio Dial, set the ASA speed for film in use. Then, turn the Power Ratio Dial to align the distance (1.6') with the smallest possible aperture of the lens. Example: f/16. Set your lens to this opening.

C) Your flash is now set for the correct Power Ratio setting for normal photography. Example: With ASA 100 film, correct Power Ratio position at 1.6' is 1/32nd.

This setting is the correct one for all exposures not requiring additional compensation for bellows extension or magnification. However, photography at a distance closer than about eight times the focal length of a lens requires additional exposure to compensate for the increased lens-to-film distance. This exposure factor is normally shown on scales attached to the bellows units, or in the instructional material supplied with extension tubes and bellows. Normally, this factor is applied by opening the lens to a wider aperture - which is basically undesirable in close-up photography. To apply it, and continue shooting at the same lens opening regardless of the "exposure factor", simply...

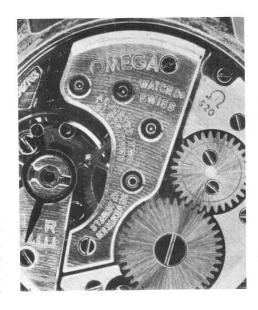
- D) Multiply the "exposure factor" by the Power Ratio originally obtained for uncompensated exposures at 1.6". Example: Shooting at 1:1 (1X—life size), the indicated exposure factor with your bellows unit is "4". You have already determined a Power Ratio setting of 1/32nd for uncompensated exposures. 4 x 1/32 = 4/32 = 1/8; the correct Power Ratio is in this case 1/8. Set this Power Ratio... and shoot—no further adjustment of any sort is required!
- This procedure is applicable not only to photography of three-dimensional objects bút in slide duplicating as well. In use, the flash is placed 19" from the outer surface of the duplicator. A film test is suggested to determine the absorption factor of the diffusion shield normally used with slide copiers; this factor is then applied to the ASA film speed and operation from that point carried out as described above. If the original slide is under-exposed, adjust the Power Ratio control to provide more light for example, 1/4th power instead of 1/8th. If the slide is over-exposed, reduce brightness by adjusting the Power Ratio control to provide less light (example: 1/16th power instead of 1/8th).

Placement of the flash at 19" or more from the subject is strongly recommended. At this distance, a wide light path is obtained: Equally important, light output of the flash is uniform. Using your flash at closer distances may result in over-exposure as well as possible misdirection of the light.



# Exposure Factor Guide for Macro Photography When Using Extension Rings or Bellows

Magnification	Field S	Exposure		
Ratio	35mm	6x6cm	Factor ②	
0.1x	240x360mm	560×560mm	1,2x	
0.2x	120x180mm	280x280mm	1.4	
0.3x	72×108mm	168x168mm	1.5	
0.4×	60x90mm	140x140mm	2.0	
0.5x	48x72mm	112x112mm	2.3	
0.6×	40x60mm	93x93mm	2.6	
0.8x	30x45mm	70x70mm	3.2	
0.9×	27x40mm	62×62mm	3.5	
1.0×	24x36mm	56x56mm	4.0	
1.2x	20x30mm	47×47mm	4.8	
1.4x	17x26mm	40×40mm	5.8	
1.6x	15x22mm	35x35mm	6.8	
1.8x	13x20mm	31x31mm	7.8	
2.0x	12x18mm	28x28mm	10,0	
2.5x	10x15mm	22x22mm	12.0	
3.0x	8x12mm	19x19mm	16.0	
3.5x	7x10mm	16x16mm	20,0	
4.0x	6x9mm	14x14mm	25.0	
6.0x	4x6mm	9x9mm	50.0	
8.0x	3x4.5mm	7x7mm	80.0	



- Notes: 1 Field size shown represents total area recorded on negative at magnification shown. SLR viewfinders generally show a somewhat smaller field than is actually recorded on film.
- ② Exposure Factors actually vary for specific lenses. Use suggested factors shown as a guide; for most precise information, please contact manufacturer of lenses in use.
- \* When using close-up attachment over the lens, increasing of exposure is not required.

### XIV) MULTIPLE FLASH OPERATION

For genuinely professional lighting effects, the only thing better than a Sunpak flash is ... two Sunpaks! (Or more.) It's easy to use your Sunpak in conjunction with another Auto 611, or almost any other electronic flash.

#### **Understanding Multiple Flash**

- \* The 'main' flash is the one which is attached to the camera. A light-sensitive slave unit is attached to each of the 'remote' (other) flash units; when the main flash is fired, the other flash units are triggered in perfect synchronization by the slave units. The only cord involved is the one going from the 'main' flash to the camera, so you don't have to contend with wires dangling across the floor.
- \* The Sunpak Auto Slave is a perfect partner for your multiple-flash work. It's very small, requires no batteries, and is extremely sensitive being able to trip an extension flash even with indirect or bounce lighting at distances up to 100 feet or more. It plugs into the PC cord of the extension flash (or into the Remote Sensor of your Auto 611 if the 611 is used as a 'remote' flash).

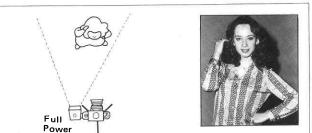
Although the Sunpak Slave is very sensitive to electronic flash light, it's unaffected by bright 'ambient' room light or even daylight — so your flash won't go off accidentally. And the Sunpak Auto Slave is supplied with a handy adapter that lets you attach any shoe-mount flash to any standard tripod.

All you need is your Sunpak Auto 611, one or more extra flash units equipped with Sunpak Slaves ... and you're ready for professional multiple-light effects. Here's how:

- Arrange main and remote flash units as desired (see diagrams, below).
- 2) Attach Slave Units to Remote Flashes, and PC cord of main flash to camera. Turn flashes 'On', and set each flash for Manual operation.
- 3) Determine the lens opening for the most important flash the one which puts the most light on the subject. (In almost all instances, that will be the Auto 611.)
- 4) Set your lens to an opening one f/stop SMALLER than is indicated for the flashto-subject distance of the most important flash — for example, to f/11 when f/8 is indicated by your Auto 611 Manual Exposure Calculator Dial.
- 5) Take The Picture! In almost every instance, this simple technique will insure a correctly-exposed photograph. (See specific exposure information beside diagrams, right)

- For optimum exposure accuracy in multiple flash photography, use of an electronic flash meter is suggested. This measures the total useful light of any combination of flash units, showing the exact lens opening for optimum exposure. Information on the Gossen Electronic Flash Meter system may be obtained from Sunpak dealers or from Gossen, Box 1102, Woodside, New York 11377.
- Do not use extension cords to trip the remote' flash units. The low-voltage circuits of modern electronic flash systems often fail to trigger when long cords are employed. Slave units are more convenient and much more reliable.

#### Use This Arrangement

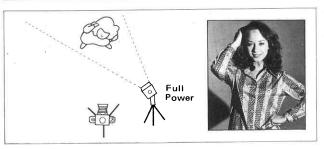


#### For This Effect

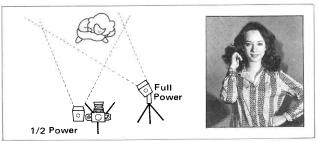


#### Notes:

Standard lighting makes deep shadow right side of subject.



611 at full power, slanting lighting makes high contrasty picture and more cubic picture will result than straight lighting like above.



Here, another 611 at 1/2 power (or a small shoe-mount flash like Sunpak 200) is used with the camera. It gives fill-in light to weaken high contrast nicely and trip the 611 at the ether side. You will see the picture is much better than aboves.

#### Use This Arrangement

#### For This Effect

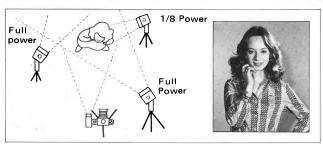
#### Notes:

Full Power Full Power 1/2 power

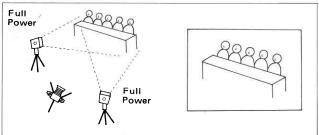
Same as afare-mentioned, except note how the background is now much brighter. Here, another 611 at full power with slave was placed behind the subject, aimed at the background.

It gives a lighter 'mood' to the portrait.

\* These basic diagrams will suggest many creative potentials to the photographer. For a comprehensive analysis of professional multiple-flash technique, please refer to the publication "Professional Portrait Techniques", No. O-4H, published by the Eastman Kodak Company. Your dealer can supply you with this and other valuable books on professional lighting techniques.



By aiming another 611 at 1/8 power (or a small shoe-mount flash like Sunpak 100) at the subject's hair, a sparkling, natural looking 'highlight' is obtained. Best for women! No change in exposure is needed, since the extra flash doesn't put more light on the face.



If shot "head on", this picture would be 'flat' and uninteresting. But no one flash can light nearest and farthest subjects with equal brightness. With two flashes, it's easy.

### XV) USING FILTERS FOR SPECIAL EFFECTS

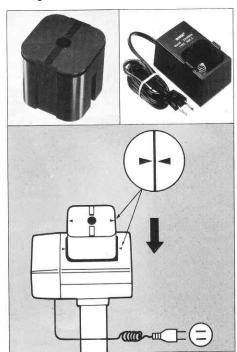
The Flashtube Housing of your Sunpak Auto 611 accepts filter holder (optional) to slide-in filters for special-effects applications. While not necessary in normal picturetaking, such filters offer a wide range of creative possibilities for altering color balance for a desired effect. Your dealer can supply you with economical acetate or gelatine filters in squares, which are simply trimmed to fit. For a complete filter "system", you may obtain a Chromega CP Filter Set (a product of Berkey Marketing Companies' Omega Division, Box 1102, Woodside, New York 11377) containing 23 3" x 3" filters in the most popular shades of cyan, magenta, and vellow; these economical filters will give you a wide range of special-effects capabilities and allow you to 'warm' or 'cool' the color of the flash at will.

- \* No filters are required for light dispersion when using your flash with wide-angle lenses up to 35mm (on 35mm cameras) or 75mm (on 2%" x 2%" cameras). With ultra-wide angle lenses of shorter focal length, some edge darkening may be apparent. Should this occur, use your Auto 611 exclusively in 'bounce' mode with such lenses to insure even illumination.
- \* When using your flash on 'Automatic', no compensation is required for exposure as the Remote Sensor is measuring the light actually emitted by the flash. However, when using filters with appreciable light absorption or dispersion, remember that the usable maximum distance is reduced proportionately.



### XVI) NICAD CLUSTER

After you have taken flash pictures, the recycling time (interval between flashes until the Ready Light glows) will become progressively longer. When this time exceeds 15 seconds, the Nicad Battery Cluster should be recharged.



### **BATTERY CHARGING**

- 1) Remove Battery Cluster from unit.
- 2) Insert the Battery Cluster into compartment of SUNPAK Quick Charger Type QBC-1.
- Plug Charger, Cord into 100–120V AC outlet.

Your Nicad Cluster will recharge fully in approximately three hours. (Time will be shorter if the Battery Cluster is not completely 'drained'.) However, in most stances sufficient energy will be accumulated within 15 minutes to permit 10 or more flashes in automatic operation at short distances. (As line voltage can vary appreciably in some areas or during 'brown-outs', charging for an additional 30 minutes—1 hour may prove advisable.)

- \* No harm will result to your Charger or batteries if the Charger is left on for period of up to 72 hours. However, the Charger should not be left on for more than 3 days.
- \* If using individual 'C' nickel-cadmium batteries (optional), please refer to instructions supplied with these batteries or their charger.
- Do NOT attempt to recharge any battery other than the Sunpak Nicad Cluster inside your recharger unit.
- 1) Use Correct Batteries. This flash unit is designed for optimum performance when used with the Sunpak Nicad Cluster, 510v Powerpak, and 'C' size nickel-cadmium batteries. Other battery types (alkaline, zinc-

### XVII) CARE OF YOUR ELECTRONIC FLASH

- carbon, or rechargeable batteries other than nickel-cadmium) should be used in emergencies exclusively, due to the much longer recycling times and smaller number of flashes obtained.
- 2) Inspect Batteries Frequently, 'Inspect' means for reasonable recycling time (the length of time it takes the indicator light to come on between flashes); if it's more than 15 or 20 seconds, or if, in 'Auto' mode, the Auto Signal Lamp goes off for one second or more, your batteries should be recharged (if Nickel-Cadmium) or replaced (if 510v). It's also wise to check individual batteries for appearance: sometimes, even the best of batteries discharge or leak some chemical material through the jacket ... and leave a whitish-powder on the battery, which passes onto your Sunpak's electrical contacts. (If this has happened, replace the batteries after cleaning the Sunpak's internal battery contacts with a penknife.) Finally, it's a good idea to remove the batteries or Batterv Cluster once in a while and wipe with a handkerchief - the cleaner the battery surfaces, the easier it is for the energy to pass through your flashgun's electrical system.
- 3) Remove Batteries For Storage. If for some reason you do not intend to use your flash for a period of several weeks or more, remove the batteries and store them separately (inside a plastic bag is a good way).

- 4) Make Sure Flash Is Securely Attached to bracket and that bracket is securely attached to your camera!
- 5) Store Flash Carefully. When you're done using your flash, detach the mounting bracket by pressing in the release button turn. Locking Fine colonial release button will not operate. Remove flash bracket from camera, and carefully store flash unit, bracket, and cord ... together, so they'll be ready next time you're taking pictures!
  - As with any precision instrument, protect your flash from moisture, extended exposure to extremely hot (e.g. trunk of car) or cold temperatures, or hard bumps or jolts. You'll be rewarded with thousands of excellent exposures...
- 6) Service. In the unlikely event that your Sunpak electronic flash requires service, return it to your dealer or the sole U.S. Distributor. Do not, under any conditions, attempt to disassemble and/or adjust the Flash Unit, Battery Cluster, or electrical accessories yourself: electronic flash operates on high voltage, and should not be taken apart. However, keep in mind that flash failure is more likely to result from weak batteries than any other single cause: if it doesn't fire, check batteries and contacts (including shutter cord) carefully.

### XVIII) MAJOR ACCESSORIES FOR THE SUNPAK AUTO 611

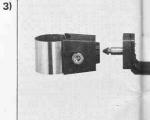
Your Sunpak Auto 611 Thyristor flash accepts a comprehensive system of flash accessories. Here are the most important ones:

1) Sunpak Professional 510v Powerpak (Cat. No. 651–723). This is a compact auxiliary power source which accepts a 510v dry battery (Eveready #497 or equivalent). The 510v battery will give a minimum of 70 flashes (full power, manual) and as many as 5,000 in automatic or fractional-power operation. Many professionals prefer this power source as it yields the fastest recycling times, and greatest number of uninterrupted flashes, of all battery types. The 510v Powerpak is supplied in a convenient leather case with strap, and may be worn over the shoulder or belt-mounted.

This Powerpak incorporates an automatic voltage regulator, which signals if battery power is above the level for consistent operation. Neon lamp on top of Powerpak goes 'off' if battery power drops below the level. It is supplied with a detachable 5' coiled cord connecting to the AC Outlet of the flash. For remote-control applications, a special 10' coiled Connecting Cord (Cat. No. 651–754) is also available.

- 2) Extra Sunpak Nicad Battery Cluster (Cat. No. 651 725). Special Quick Charge Nicad Module recharges separately from flash, so if you have two Nicad Battery Clusters, you can use one as the power source of Auto 611 unit, while charging the other in the Charger.
- 3) Sunpak 6 x 6 Mounting Bracket (Cat. No. 651–752). This is an oversize square camera support that's excellent for use with 2¼" x 2¼" (6 x 6 cm) single and twin-lens reflex cameras. It attaches to the quick-release clamp supplied with your flash. Gives extra stability convenience with 2¼" cameras.

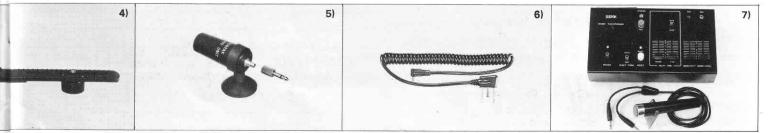




- 4) Sunpak Adjustable Locking Bracket (Cat. No. 651–750 Clamp, No. 651–751 Bracket)' A deluxe version of the standard camera brakcet, with special 'locating' pins which lock the camera on the bracket, preventing any inadvertent shift of camera while on bracket. It's a valuable accessory with heavy cameras with motor-drive attachments, or large-format cameras such as the Koni-Omega and Rapid Omega. Attaches to standard Sunpak Quick-Release Clamp.
- 5) Sunpak Auto Slave (Cat. No. 651–715). A very handy, very dependable accessory when you're using two or more Sunpak flash units (see p. 28). Attaches to PC Cord of Auto 611 and most other flash units; has a unique suction-cup base that lets you attach it to almost any part of the flash in use. Also includes an adapter permitting mounting any shoe-mount flash on a tripod.
- 6) Replacement Sunpak Coiled Flash Cord (Cat. No. 651–753). This cord is needed only when your Auto 611 is used in manual mode (without the Remote Sensor). One end attaches to any PC shutter contact; the other plugs into the flash unit, using Sunpak's unique three-prong safety plug fitting that makes it impossible to insert the cord into an AC outlet — even accidentally.
  - Owners of Koni-Omega, Rapid Omega, Kowa Super 66, and similar cameras with screw-lock PC outlets may prefer the optional screw-lock PC cord (6', coiled), Cat. No. 706–214.
  - The Sunpak Auto 611 also accepts any conventional two-blade (household-type) flash cord. Such cords do not incorporate the Sunpak safety 'prong', but operate perfectly with your flash unit.

7) Sunpak Sound Synchronizer (Cat. No. 651–713). A compact electronic device which fires your Auto 611 and other flash units at a predetermined signal, such as a breaking bottle, clapping hands, or any other noise. May be set for single or continuous flashing; adjustable for volume of signal and for flashing delay. For complete specifications, please contact your Sunpak dealer or the manufacturer.

**Note:** Replacement cords, clamps, and other 611 components are available from Sunpak dealers.



# XIX) TECHNICAL SPECIFICATIONS OF SUNPAK AUTO 611 THYRISTOR FLASH

Flash Type	Professional Handle-Mount Auto and Manual with Remote Sensor.								
Light Output In BCPS	4,000								
Guide Numbers	With ASA 25 film, infinitely variable from 80 (at full power) to 7 (at 1/128th power). With ASA 100 film, from 160 (full power) to 14 (at 1/128th power).								
Angle of Illumination	In direct flash, 60° Horizontal by 45° Vertic lenses on 2¼" x 2½" cameras, 85mm wide-ang In Bounce Flash: Omnidirectional – sufficient and 50mm lenses on 6 x 7 cameras (depending	gle lenses on 6 x 7 can nt for use of 21mm le	neras.	ras, 40mm lenses on	2¼" x 2¼" cameras,				
Interchangeable		With Sunpak Nicad Cluster	With Individual 'C' Nicads (4)	With 510v Battery	100-240v AC (50/60 Hz.)				
Power Sources	No. of Flashes (Full~1/128th power) Recycling Times (1/128 power~Full) Recharging Time to Full Charge Capacity Recharging Time to 20 Flashes	40~800 0.25~9.5 Sec. 3 Hrs. 10 Min.~1.5 Hrs.	60~1,200 0.25~9.5 Sec.	70~5,000 0,25~3 Sec.	Unlimited 0.25~30 Sec.				
Flash Speed	1/400th second - 1/50,000th second (manual	); 1/400th second — 1	1/50,000th second (	automatic).					
Automatic Aperture Range	Continuous, over 4-stop range (f/4.0 – f/11 w	ith ASA 100 film).							
Automatic Distance Range	19 inches — 40 feet (at maximum aperture) 19 inches — 14 feet (at minimum aperture).		6						
Remote Sensor Acceptance Angle	28°								
Power Ratio Range	Full, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64 and 1/12	8th power.							
Color Temperature	5500° Kelvin, balanced for daylight-type colo	r films.							
Mounting	Instantly-detachable quick-release bracket with 12-way clickstop bounce control.								
Other Features	Auto Signal Lamp confirms auto operation a shoe and detachable PC Cord.	nd correct exposure;	Ready Light glows	at 100% power; Rei	mote Sensor with hot				
Dimensions	4.8" x 3.8" x 10" (flash); 2.5" x 2" x 1" (Ser	sor).	5						
	34.5 Oz. (flash, less batteries); 2.5 Oz. (Sensor								

### XX) ABOUT THE MANUFACTURER.....

For nearly two decades, the innovative technology and meticulous craftsmanship of Sunpak electronic flash units have led to their selection by more than *seven million* photographers throughout the world.

Each flash unit is manufactured in its entirety by Sunpak Corporation, and is designed to offer significant benefits for superior flash pictures.

Many important patents in electronic flash technology are held by Sunpak, including that for the unique Thyristor Variable Power Ratio system of this flash. Additionally, each Sunpak unit is equipped with a special Gold-Toned flashtube, specially coated and pre-flashed to assure optimum color balance with today's color film types without use of corrective filters.

Prior to release, each Sunpak flash model is subjected to numerous exhaustive and highly discriminate tests included impact-resistance tests at forces up to 70x gravitational acceleration, and numerous other tests both to individual components and completed flash units.

The resultant consistency and uniformity of Sunpak electronic flash systems has been yet another significant reason for their acceptance by photographers in more than fifty nations throughout the world.

Welcome.... to the Sunpak world of light!