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IMPORTANT SAFEGUARDS

WHEN USING YOUR PHOTOGRAPHIC EQUIPMENT, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:

1. READ AND UNDERSTAND ALL INSTRUCTIONS.

2. CLOSE SUPERVISION IS NECESSARY WHEN ANY APPLIANCE IS USED BY OR NEAR CHILDREN. DO NOT LEAVE THIS APPLIANCE UNATTENDED WHILE IN USE.

3. DO NOT OPERATE APPLIANCE IF IT HAS BEEN DROPPED OR DAMAGED—UNTIL IT HAS BEEN EXAMINED BY A QUALIFIED SERVICEMAN.

4. TO PROTECT AGAINST ELECTRICAL SHOCK HAZARDS, DO NOT IMMERSE THIS APPLIANCE IN WATER OR OTHER LIQUIDS.

5. TO AVOID ELECTRIC SHOCK HAZARD, DO NOT DISASSEMBLE THIS APPLIANCE, BUT TAKE IT TO A QUALIFIED SERVICEMAN WHEN SOME SERVICE OR REPAIR WORK IS REQUIRED. INCORRECT REASSEMBLY CAN CAUSE ELECTRIC SHOCK HAZARD WHEN THE APPLIANCE IS USED SUBSEQUENTLY.

6. DO NOT OPERATE APPLIANCE WITH A DAMAGED CORD.

7. DO NOT LET CORD HANG OVER EDGE OF TABLE OR COUNTER OR TOUCH HOT SURFACES.

8. IF AN EXTENSION CORD IS NECESSARY, CARE SHOULD BE TAKEN TO ARRANGE THE CORD SO THAT IT WILL NOT BE TRIPPED OVER OR PULLED.

9. ALWAYS UNPLUG APPLIANCES FROM ELECTRICAL OUTLET WHEN NOT IN USE. NEVER YANK CORD TO PULL PLUG FROM OUTLET. GRASP PLUG AND PULL TO DISCONNECT.

SAVE THESE INSTRUCTIONS
Introduction

WELCOME to the world-wide family of Sunpak owners. Your Sunpak Auto 522 is one of the most advanced electronic flash units in the world. It is the product of extensive research and development and has been designed to give you many enjoyable years of service. Because many of the fine features of your new Auto 522 are so unique, please take a few minutes to read this owner's manual carefully with your Auto 522 in front of you. The more you know about your new electronic flash, the better you can use it for maximum creativity in your pictures.

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### Description of Parts

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Basic Operating Instructions: (Automatic Operation)

1. Insert Batteries into Holder:
Insert batteries as illustrated into the removable AA Battery Holder. The holder has a guide showing the correct positioning of the batteries for proper polarity. Use either six AA alkaline or six AA nickel-cadmium batteries.

Note: In addition you may also use the Sunpak CL-2 NiCad Battery Cluster, Sunpak Powerpak for 510V Battery or the Sunpak Dual-Voltage AC Adapter.

2. Load Holder into Battery Chamber:
Insert the loaded battery holder as illustrated into the battery chamber of your Auto 522. Close battery door until it snaps.

Note: If you are using the Dual-Voltage AC Adapter or the high voltage Sunpak Powerpak for 510V Battery, plug connecting cord into the AC/High Voltage Socket on the back of the unit.

3. Mount on Camera (p. 10):
Attach camera to bracket and bracket to flash clamp. Connect the PC cord to the flash and camera. Set the shutter speed dial to the fastest speed recommended for flash synchronization (p. 11).

* Note: Move the Mode Selector Switch (on back) to the Auto position.

4. Set Film Speed Scale:
Slide the red button until the appropriate film speed (ASA number) is indicated. For ASA of your film, refer to the instructions supplied with the film.
5. Select Working Aperture:
With most films, you will have a choice of four apertures in automatic operation (seven in manual). For automatic operation, choose any f/stop as indicated in the Aperture Window and set your lens to this corresponding f/stop. For manual operation, adjust the Power Ratio Control for the desired aperture.

6. Turn the Unit On:
Set on/off switch to ‘batt.’ position. Using the Ready/Test (open flash) button, fire the Auto 522 about 5 times to form the capacitor. The ready light (amber color) will glow when the Auto 522 is ready to be fired. Be sure to set the Mode Selector Switch to the desired position. When in auto operation, the auto indicator light (green color) will glow. In addition, when your Auto 522 is flashed, the auto indicator will verify correct automatic exposure by lighting momentarily.

7. Aim Adjustable Bounce Flash Head:
The unique Adjustable Bounce Flash Head of your Auto 522 can be aimed in virtually any direction. If using automatic operation, the built-in sensor will properly adjust the flash for perfectly-exposed pictures. For off-camera auto bounce flash operation, the optional Remote Sensor is recommended.

Note: The auto sensor must always face the subject for proper auto exposure control.

8. Take Your Picture:
Be sure your camera’s shutter speed is set for X synchro-

ization. This is usually 1/60th or 1/125th second for focal plane shutter SLR cameras.
Refer to your camera’s owner’s manual for the correct setting.
Also be certain that the flash PC cord is connected to the “X” synch terminal of the camera.
Operation

POWER SOURCES:

A. Your Sunpak Auto 522 may be used with six different power sources:

<table>
<thead>
<tr>
<th>SIX alkaline AA batteries</th>
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To Install Batteries:

1. Open the battery door as illustrated and remove battery holder.

2. Install batteries as illustrated in the holder. Be sure to observe correct polarity or you may cause damage to your Auto 522.

B. Alkaline or Nickel-Cadmium Batteries?

The major advantage of alkaline batteries is that they provide more flashes per set. While nickel-cadmium batteries will provide fewer flashes per set, they will recycle your Auto 522 slightly faster and can be recharged hundreds of times for more economical operation over the long run.
C. Using Multi-Voltage AC Adapter or Sunpak Powerpak for 510V Battery

1. For AC operation, be sure to check that the voltage selector on your Multi-Voltage AC Adapter is set to the appropriate voltage. Your AC Adapter has been factory set for 120V, the U.S. standard. For use in other countries where 100V, 220V and 240V are standard, you may adjust the setting as illustrated. Remove the small Phillips head screw located next to voltage window and rotate the selector switch with a screw driver to the proper voltage setting.

2. Plug into the AC/High Voltage socket on the flash and into standard wall outlet as illustrated. The AC Adapter supplies virtually unlimited flashes and is ideal for indoor use.

3. When you use the optional accessory Sunpak Powerpak for 510V Battery, refer to the instructions supplied with that unit. Plug into the Auto 522 in the same manner as you would with the Multi-Voltage AC Adapter. The Sunpak Powerpak for 510V Battery allows extremely rapid recycle times and the greatest number of flashes from any portable power source.

3. Replace Battery Holder in your Auto 522. Extra Battery Holders may be purchased for times when rapid replacement of batteries is necessary.

Note: The Battery Holder has been designed to fit your Auto 522 so as to assure proper use. Do not force since it will fit in only the proper position.

After the voltage setting has been made, the screw must be reinstalled to prevent accidental movement of the selector switch.

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MOUNTING FLASH ON CAMERA:

Your flash unit has a quick-release mounting clamp attached to the flash grip (handle). This clamp accepts a snap-in bracket; your camera is secured to the bracket. As the bracket may be removed from the clamp with a one-touch action, set-up and disassembly of your equipment is quick and positive.

1. Turn Locking Button on clamp counter-clockwise.
2. Press Locking Button firmly inward, and hold in place.
3. Slide silver end of bracket into center of clamp.
4. Release Locking Button. The bracket is now attached to the clamp. For ultimate security, you should tighten the locking screw by turning it fully clockwise.
5. Press the Camera Retaining Screw through opening at end slot on bracket, and turn screw clockwise firmly until threaded portion of screw passes above bracket slot. Center the camera retaining screw under your camera's tripod socket, and tighten securely.

6. Connect the PC cord to the flash sync outlet (on the side of the flash) and camera's flash outlet as shown.

   * If the camera has separate flash terminals marked "M" and "X", attach the Sunpak cord to the "X" terminal.
   * If the camera has a switch (usually around the lens barrel marked "M" and "X", set the switch to the "X" position.

7. Set shutter speed to the fastest speed usable for electronic flash with your camera, provided that speed does not exceed 1/850th second. On single-lens reflex cameras with focal-plane shutters, this speed is usually 1/60th or 1/125th; cameras with in-the-lens shutters usually allow synchronization at speeds up to the maximum of 1/850th Do not set shutter to a speed faster than 1/850th second, as this may cause under-exposure when the flash is used at maximum power. (If shutter has a switch marked 'M' and 'X', place at 'X' position.)

*Note: Should you desire to mount the flash on the right side of your camera, or raise or lower the flash handle within the clamp, this may be done by loosening the two Phillips-head screws inside the encircling ring of the clamp. Then reposition the encircling ring as desired. Be sure to tighten the screws again fully for maximum stability and correct lighting angle.
Operation of Power/Exposure Control Center

Automatic Operation

The sensitive Silicon Photo Transistor of your Auto 522 Sensor measures the light reflected by your subject and automatically controls the flash duration to assure correct exposure within a wide range of distances. It's easy to use:

1. Move Mode Selector on back of flash to 'Auto' position.
2. Rotate red button of Auto Exposure Dial until the desired ASA film speed is shown. (Example: ASA 100)
3. Rotate Auto f/stop Selector Knob until desired lens opening is corresponding with the thin white line. Set camera lens to this opening (f/number). (Example: f/2.8)

Note: At this F/stop setting your Auto working distance is 16' to 42'.

*You will note that you may select any lens opening within a 4-stop range. For example, with ASA100 film openings from f/2.8 to f/8 may be used. By using a wider lens opening you gain the ability of taking pictures at the greatest distance — up to 42 feet at maximum aperture. Choosing a smaller lens opening reduces the maximum distance range, and increases depth-of-field or the 'zone' of overall sharpness. You may even set this control to an intermediate or fractional lens opening (such as f/4.5 or f/6.3) to match the maximum aperture of a particular lens, or for any desired reason.
*The minimum distance for correct automatic exposure is 1.6 feet, regardless of the lens opening in use.

*An interesting benefit of your flash's energy-saving (Thyrister) circuitry is that by shooting at the widest possible lens opening (f/2.8 with ASA100 film) you not only obtain the greatest distance range but also the greatest number of flashes, and fastest recycling times, in normal operation.

Reason: At a given distance, less energy is required to light a subject at f/2.8 than at smaller apertures (f/5.6 - f/22).

*Smaller lens openings (f/8 - f/22) provide greater 'depth-of-field' within their usable distance range (to 15 feet at minimum aperture). Choose them when you're taking pictures of children or sporting events, where it's hard to stay in focus because the subjects are usually moving. By shooting at smaller lens openings (f/8 - f/22) you'll generally get sharper pictures of moving subjects. This is also handy in dim light or with wide angle lenses, when precise focusing is somewhat harder than normal.

Example:
The automatic operation range and correct f/stop (with ASA 100 film). 1.6' to 42' at f/2.8.
Take the Picture

It's easy - just follow these steps:

1. Move the On/Off Switch on flash to appropriate position for power source in use.
2. You'll notice the Auto Mode Indicator on back of flash will glow. This confirms that your flash is ready for automatic operation.
3. Within seconds the Ready Lamp will also glow. When the capacitor is fully charged, the Ready Lamp will start to pulsate. Now, focus and ... Take the Picture! Your flash will automatically deliver the correct amount of light for correct exposure within the distance range indicated.

For Succeeding Exposures ...
Just wait until the Ready Lamp starts to pulsate, make sure you're within the usable distance range for the lens opening in use ... and shoot!

To Verify Correct Auto Exposure
Aim the flash towards the subject and press the 'Test' (Ready/Test) button. The flash will fire and, immediately, the Auto Signal Lamp will glow and then fade out; when this occurs, the automatic exposure will be correct. If the Auto Signal Lamp does not glow, choose a wider lens opening, or move closer to your subject and repeat the verification test. It's a simple, highly accurate way of confirming that your picture will be perfectly exposed before you take the picture.
Power Ratio (Manual) Operation

With the unique Power Ratio Control on your Auto 522, you can adjust the light output so your camera can be used over a seven stop range, from full to 1/64 power. This feature gives you greater depth-of-field control, ability to control battery life and recycle times, precise fill-in flash capability, macro/close-up capability and the ability to control flash duration.

4. You may determine the proper f/stop by matching the aperture and distance scales on your calculator dial. The distance scale refers to the flash-to-subject distance, not the camera-to-subject distance, so be sure to measure flash-to-subject when you are using the Auto 522 for remote lighting. (Example: At 10', use f/11 with ASA 100 film.)

Note: On your Power Ratio Control Dial, Film Speed Adjustment Indexes are marked in Blue and Red next to White dot.
Set ASA speed to correct mark when Tele or Wide accessory is used.
- Wide Red mark: Wide angle diffuser "21mm".
- Thin Red mark: Wide angle diffuser "28mm".
- Wide Blue mark: Tele-Kit "T-2" for 135mm lenses.
- Thin Blue mark: Tele-Kit "T-1" for 85mm lenses.

Use of Power Ratio Control at Full Power:

1. Set the Mode Selector Switch to the M/PR/MD setting.
2. Set the film Speed Scale to the desired ASA setting.
3. Adjust the Power Ratio Control to Full power.
1. When using the Power Ratio at Full power, set the Film Speed Scale to the desired ASA rating and be sure the Mode Selector Switch is set to the M/PR/MD setting.

2. Determine the flash-to-subject distance. When the Auto 522 is mounted to the camera, you can easily do so by focusing your camera's lens and reading the distance indicated by the distance scale on the lens.

3. Turn the Power Ratio Control dial until you have the desired f/stop opposite this distance. **Note:** In addition to Full, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64 you may also set intermediate positions as indicated by small white dots.

4. Be sure the distance scale shows there is the proper amount of light for a correct exposure of your subject. If not, increase or decrease the power as needed.

5. You are now ready to take your picture. Remember to adjust the aperture on your lens to match the aperture indicated on the calculator dial.
USING POWER RATIO FOR BETTER PICTURES

Depth-of-Field:

Note that the top picture has greater depth-of-field (the background and the foreground are in focus) and the bottom picture has less depth-of-field (the foreground is in focus but the background is not).

Because of the versatility of your Power Ratio Control, you have a choice of up to seven different apertures for maximum control of depth-of-field. You can use this control to create pictures you want.

Examples:

When photographing still life, more depth-of-field is often desired. Use the higher power settings and smaller lens openings for best results.

For portraits, use the lower power settings and larger lens openings to get less depth-of-field.
Precise Fill-In Flash:

The major advantage of fill-in flash is that it renders attractive outdoor portraits because it eliminates harsh shadows. Simply set your camera’s aperture according to the meter reading for the background. Next set your Power Ratio to the next lowest aperture opposite the actual flash-to-subject distance. This will give you a professional 1:2 lighting ratio. Be sure to use a shutter speed that will synchronize with electronic flash.

The top picture was taken without fill-in flash. The bottom picture was taken with fill-in flash. Note how pleasing the lower one is.

Freezing Action:

Your Auto 522 can freeze almost any action at full power with a flash speed of just 1/850th second. For even briefer flash duration, which will allow freezing of the fastest action, you can use the Power Ratio’s lower settings to obtain speeds as fast as 1/20000th second. See chart below.

<table>
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<tr>
<th>Power Ratio</th>
<th>Full</th>
<th>1/2</th>
<th>1/4</th>
<th>1/8</th>
<th>1/16</th>
<th>1/32</th>
<th>1/64</th>
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<td>Duration</td>
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Working with Motor Drive:

The MD setting on your Sunpak's Auto 522 flash has been designed for use with the new Power/Auto Wind cameras available today. With Sunpak unique Power Ratio Control, you now have the ability to greatly increase your picture-taking range abilities.

1. Set the mode selector switch to the M/PR/MD setting.
2. Set the Film Speed Scale to the desired ASA setting.
3. When the unit is 'on' and the Power Ratio Dial is set at either 1/32 or 1/64 power, you are in the 'MD' mode (marked in yellow).
   **Note:** When 1/32 or 1/64 power is set, the yellow 'MD' mode indicator lamp will glow.
4. With your Power Wind or Auto Wind camera, the Sunpak Auto 522 will recycle as fast as 4 frames per second.
   **Note:** Alkaline batteries are not recommended for MD operation. Nickel Cadmium batteries or Powerpak for 510V Battery will provide the best results.
Operating Adjustable Bounce Flash Head

Your Auto 522 has a unique flash head assembly which allows you to aim the light in virtually any direction. This allows you to use the Auto 522 to render more pleasing and more creative lighting results. For added convenience and repeatability, the Adjustable Bounce Flash Head has reference marks so you can determine the exact angle of bounce you desire.

1. To rotate the Adjustable Bounce Flash Head, grip with thumb and forefinger and gently turn to desired setting. **DO NOT FORCE HEAD**
2. To adjust the Flash Base, simply twist as illustrated with thumb and forefinger.

Wide Angle Lenses For best results when using moderate wide-angle lenses with direct flash, such as a 35mm focal length lens with a 35mm camera, be sure to adjust the bounce flash head so that rectangular reflector matches the rectangular format of the film. For other wide-angle lenses, use the optional accessory wide angle lens or diffusion filters (these accessories are included in the Sunpak Filter Kit - Cat. No. 651-767) or bounce lighting may also be used for maximum flash coverage.
OFF-CAMERA FLASH

Off-camera flash offers many of the benefits of bounce flash. In addition, it allows the full power of the flash to be used, thus permitting professional lighting effects (and smaller lens openings) irrespective of distance or ceiling reflection. It's easy to use.

1. Set flash to 'Auto' position, and adjust camera lens to f/number indicated by Auto Exposure Control Dial.
2. Focus on your subject. Turn Bracket Lock Ring counterclockwise. Hold camera securely in your right hand.
3. Press Quick-Release Button inwards, and lift flash away from bracket. Hold flash in left hand, as far away from your camera as possible; aim flash directly at subject.
4. Take the picture! Your flash will measure and deliver exactly the light required for your subject... and the highly directional lighting will provide excellent illumination. Since the flash is directed towards your subject off the optical axis, shadows will be directed away from the subject — out of the picture area.

It's a basic professional lighting technique... made easy by your Sunpak's unique Quick-Release Flash Bracket!
Copy Photography

Because of its unique Power Ratio Control, your Auto 522 is ideal for copy photography. By adjusting the power, you can use your Auto 522 to control light output, which is critical with the relatively short flash-to-subject distances.

For copying, you can use a copy stand, modified enlarger baseboard and girder or a tripod which can have its pan head mounted to the bottom of the center column. In addition, you can use one, two or four Auto 522s.

Copy Photography is fun and can be used for:

* **Hobbies:** You can reproduce stamps, coins, seashells, butterflies, plant life and other items.
* **Vital Documents:** Diplomas, birth certificates, cancelled checks, licenses, etc.
* **Charts:** You can keep a photographic record of any charts or graphs you prepare for school or business. In addition, color transparencies of the charts can be made for slide presentations.
* **Valuable Possessions:** Items such as jewelry, silverware and works of art can be pre-photographed and used for insurance purposes.

A TYPICAL COPY SET UP FOR DOCUMENTS

1. An ideal set-up for shadow-free copies is having two Auto 522s, one connected to your camera, another to the Sunpak Auto Slave, aimed at a 45° angle to the subject on the same axis as the camera. As the illustration shows, twice the normal amount of light is hitting the subject, so you should either close down the lens aperture by one stop (two stops when using four units) or adjust the Power Ratio Control by half the Power Ratio setting (−1 stop).

2. If you own another electronic flash unit, you can use the Power Ratio Control on your Auto 522 to set the unit at a similar power level as the other unit. Simply match the guide number from the specification chart on page 32 with the appropriate power level to your other unit.
Hints for Taking Photographs Using a Copy Set-Up

1. When photographing a three-dimensional subject, such as a coin, try setting the flash units at a 60° axis from the lens. This is also excellent for subjects with an irregular flat surface such as an oil painting, and high gloss subjects. For best possible results, experiment with different angles until you get the results you like.

2. For showing shadow and texture on three-dimensional subjects, use your Auto 522 with each at different power levels. Again, experimentation is the best way to discover what is the best lighting ratio between the Auto 522 for the subject you are copying.

3. For a softer lighting effect, fire the 522 through a material that will diffuse its light. Items such as artist’s tracing paper and commercially available photographic diffusion material are ideal. For special effects, use one Auto 522 with an accessory color filter at a higher power level than an Auto 522 without a filter.

4. For lighting a highly-reflective subject with controlled light, try the tent lighting method. By simply taking heavy white paper or oak tag and bending it so the light from the unit surrounds, but won’t directly hit the subject as illustrated.
Other Flash Hints

Multiple Exposures
When shooting multiple exposures, your Auto 522 is ideal because of its multi-directional capability. Be sure to use a dark background and center your flash on each individual subject. When placing the same people in one background scene, a tripod or other rigid camera support is recommended.

Special Effects
One of the most popular special effects today is the "Shoot" technique of superimposing one image over another. The only requirement is a simple cardboard tube. Take the first exposure using available light and center the area of the image you wish to superimpose the image on. Then, take a second exposure on the same film, using your auto 522. Simply use the tube to cover all but the centered area. For smaller centering areas, use two tubes for a telescope effect. Because the light from your Auto 522 is higher than the available light in most cases, the image shot through the tube will dominate the available light image. For best results using this technique, make your superimposition on a dark area.

Open Flash
When shooting at night, you can use your Auto 522 to act as a fill-in flash while setting your shutter speeds for background exposure. Simply push the Test (open flash) Button on your unit for one, two or more flashes while the shutter is open.

Macro/Close-Up
By using the lower power levels on your Auto 522, the exciting world of Macro/Close-Up photography can be mastered. Because of the lower power levels available from the Auto 522 you can properly expose close-ups even when your flash is very close. To lower light intensity even further, bounce the light or use the diffusion filter available in the accessory filter kit.
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 522, 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 a remote flash even with indirect or bounce lighting at distances up to 100 feet or more. It plugs into the PC cord of the remote flash (or into the sync outlet of the Auto 522 if the 522 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 522, one or more extra flash units equipped with Sunpak Slaves... and you're ready for professional multiple-light effects. Here's how:

1. **Arrange main and remote flash units** as desired (see diagrams on the next page).
2. **Attach Slave Units to Remote Flashers,** 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 main flash** — the one which puts the most light on the subject. (In almost all instances, that will be the Auto 522.)
4. **Set your lens to an opening one f/stop SMALLER** than is indicated for the flash-to-subject distance of the Main flash — for example, to f/11 when f/8 is indicated by your Auto 522 Manual Exposure Calculator Dial.
5. **Take The Picture!** In almost every instance, this simple technique will insure a correctly exposed photograph.

* 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.

* 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 and "Sunpak Guide to Electronic Flash Photography"
Your Auto 522 is a System

For maximum creativity and ease of operation, many optional accessories are available for your Auto 522. Just like today's system cameras, you can customize your Auto 522 to suit your exact photographic requirements.

**Sunpak Battery Holder:**
Extra battery holders are available for the Auto 522. Ideal for fast, convenient changes. Cat. No. 651-783

**Sunpak Nicad Cluster CL-2:**
Provides 50 to 430 flashes per charge. CL-2 can be charged in approximately 3 hours using the Sunpak QBC-5 Charger.
Cat. No. 651-784
QBC-5 Charger: Cat. No. 651-809

**Sunpak QBC-5 Nicad 3-Hour Charger:**
The charger is for use with the Sunpak CL-2 Nicad Cluster. It will fully recharge batteries in approximately 3 hours. Sunpak QBC-5 Nicad 3-hour Charger:
Cat. No. 651-809
Sunpak CL-2 Nicad Cluster:
Cat. No. 651-784
Sunpak Multi-Voltage AC Adapter AD-26:
This AC Adapter permits you to operate your flash on 100V, 120V, 220V, and 240V AC. The benefits to you are unlimited number of flashes and maximum economy. Cat. No. 651-741

Sunpak 510-Volt (High Voltage) Power Pak:
Allows professional 510-Volt batteries to be used for most rapid recycle times and situations where extended number of flashes is a must. Has built-in voltage regulation, adapter plug and detachable cord. An accessory 10' coiled cord is also available.
Sunpak 510V Power Pak:
Cat. No. 651-723
Sunpak 10' Coiled Cord:
Cat. No. 651-754

Sunpak NC 510:
This battery provides the fastest recycle times of any available power source. The NC 510 can be recharged for hundreds of cycles and provides approximately 65 to 420 flashes per charge. Cat. No. 651-727

SUNPAK REMOTE SENSORS:
Allows maximum flash creativity over a continuous four stop automatic range.
Sunpak Remote Sensor RS-005:
Cat. No. 651-787
Sunpak Dedicated Remote Sensors:
Provides full camera dedication with full electronic interfacing.
CA-5 for Canon cameras
Cat. No. 651-050
MX-5 for Minolta & Leica cameras
Cat. No. 651-053
OT-5 for Olympus cameras
Cat. No. 651-059

5' Extension Cord for Remote Sensor:
For use with Auto 522 Remote Sensors
RS-005, CA-5, MX-5 and OT-5.
Cat. No. 651-788
Sunpak Filter Kit/Sunpak Filter Holder:
Filter Kit consists of red, blue, green and yellow color filters as well as a neutral density filter, 85B color correction filter for use with tungsten film, and two wide-angle diffusers. Supplied with case. Filter Holder is also available separately. Filter Kit: Cat. No. 651-767
Filter Holder: Cat. No. 651-722

Sunpak Bracket Extender:
This Bracket Extender is designed to hold the Remote Sensor when used with cameras which do not have an accessory shoe. Cat. No. 651-759

Sunpak Zoom Tele Kit:
Ideal for use with telephoto and zoom lenses of the most popular focal lengths, the Sunpak Tele Kit actually increases light intensity while decreasing the angle of illumination. This dual position fresnel lens outfit may be used for focal length lenses from 85 to 135mm with 35mm format cameras. For specific recommended set-ups with various 35mm format lenses, see chart.

<table>
<thead>
<tr>
<th>Lens (mm)</th>
<th>Zoom Tele Kit Position</th>
<th>Guide No. (ASA 25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>–</td>
<td>60</td>
</tr>
<tr>
<td>85</td>
<td>T1</td>
<td>74</td>
</tr>
<tr>
<td>135</td>
<td>T2</td>
<td>85</td>
</tr>
</tbody>
</table>

Cat. No. 651-786
Inside Your Auto 522

Thyristor Circuitry:
Sunpak's advanced thyristor circuitry is the latest in electronic flash technology. In less-advanced automatic flash units, when the automatic sensor shuts off the flash, the circuit still expends the available energy as if a 'full' power flash had been produced. However, thyristor circuitry saves the unused energy for the next flash. This means more flashes per battery and recycling times are more rapid, depending on distances and lighting conditions.

Wide-Angle Illumination.
The use of wide-angle lenses is very popular in photography today. Your Auto 522 can be used with 35mm lenses on 35mm cameras without any accessories. By using the diffusion filters available in the accessory Auto 522 Filter Kit, lenses up to 21mm focal length on 35mm cameras may be used. By using bounce light, even wider focal length lenses may be used.

Aged Gold-Tone Flash Tube:
Modern electronic flash units operate at speeds of 1/850th second or less. This burst of light is far shorter than the optimum exposure time today's films have. Your Auto 522 uses a unique gold-tone flash tube that has been aged and pre-flashed until critical color balance is achieved. This means your Auto 522 will give you warm, pleasing, correct color rendition with all daylight films.

Monitor Circuit:
Your Sunpak Auto 522 contains a built-in monitor and voltage regulation circuit that will maintain your unit at 100% power. The amber ready light will glow when the unit is at 85% power: an acceptable level for most picture taking. The ready light will pulsate when the unit is at 100% power and you will hear an audible pulsating signal caused by the monitor circuit electronically switching the power supply on and off. This power level is automatically maintained until the flash is fired; assuring consistent and repeatable results and, at the same time, reducing battery drain by as much as 50%.

Note: The monitor circuit does not function when using the Multi-Voltage AC adapter or Sunpak Powerpak for 510V. Battery accessories.

Use with 'Flashmatic' Cameras or Lenses:
Many 35mm rangefinder-type cameras (such as the Konica Auto S 3) incorporate their own automatic flash exposure controls. With cameras (or lenses) of this type, the flash is set to Manual (selector switch to white symbol 'M') AND THE LENS APERTURE IS AUTOMATICALLY SELECTED BY THE CAMERA 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.
Guide Numbers of Your Auto 522

<table>
<thead>
<tr>
<th>Manual Power Ratio</th>
<th>25</th>
<th>50</th>
<th>64</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>400</th>
<th>800</th>
<th>1600</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full</strong></td>
<td>60</td>
<td>85</td>
<td>96</td>
<td>107</td>
<td>120</td>
<td>134</td>
<td>240</td>
<td>340</td>
<td>480</td>
</tr>
<tr>
<td>1/2</td>
<td>42</td>
<td>60</td>
<td>68</td>
<td>76</td>
<td>85</td>
<td>95</td>
<td>170</td>
<td>240</td>
<td>340</td>
</tr>
<tr>
<td>1/4</td>
<td>30</td>
<td>42</td>
<td>48</td>
<td>54</td>
<td>60</td>
<td>67</td>
<td>120</td>
<td>170</td>
<td>240</td>
</tr>
<tr>
<td>1/8</td>
<td>21</td>
<td>30</td>
<td>34</td>
<td>38</td>
<td>42</td>
<td>47</td>
<td>85</td>
<td>120</td>
<td>170</td>
</tr>
<tr>
<td>1/16</td>
<td>15</td>
<td>21</td>
<td>24</td>
<td>27</td>
<td>30</td>
<td>34</td>
<td>60</td>
<td>85</td>
<td>120</td>
</tr>
<tr>
<td>1/32</td>
<td>11</td>
<td>15</td>
<td>17</td>
<td>19</td>
<td>21</td>
<td>24</td>
<td>42</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>1/64</td>
<td>7.5</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>15</td>
<td>17</td>
<td>30</td>
<td>42</td>
<td>60</td>
</tr>
</tbody>
</table>

To determine maximum effective range in manual operation (in feet), divide the guide number by the aperture (f/stop).

$$\text{Distances} = \frac{\text{G.N.}}{\text{f/number}}$$
Care of Your Auto 522

Your Sunpak electronic flash has been engineered to require almost no "maintenance". Still to insure best performance year-in and year-out follow these basic pointers:

1. Storage:
   If you don't use your Auto 522 for several weeks, or if you plan to take it on a trip, the accessory compartment case is recommended. This case will not only hold your Auto 522, but its many accessories. Also be sure to remove the battery pack before storage to prevent possible damage due to battery leakage.

2. Inspect Batteries Frequently:
   Check for reasonable recycling time (the length of time it takes the ready light to come on between flashes): if it's more than 20 or 30 seconds, a fresh set of alkaline batteries should be obtained. (Or if nickel cadmium batteries are used, they must be recharged).
   It's also wise to check your batteries for appearance: Sometimes even the best of battery discharge or leak some chemical material through the jacket and leave a whitish-powder on the battery which passes onto your Sunpak flash unit's electrical contacts. (If this has happened, replace the batteries after cleaning the Sunpak's internal battery contacts with a eraser.)
   Finally, it's a good idea to remove the batteries once in a while and wipe them with a handkerchief. The cleaner the battery surface, the easier it is for the energy to pass through your flashgun's electrical system.

3. Remove Batteries:
   If for some reason you do not intend to use your flash unit for a period of several weeks or more, remove the batteries and store them separately. Inside a plastic bag is one good way.

4. Make Connections Securely
   Make sure the flash is securely attached to the bracket (and that the bracket is securely attached to your camera!)

5. Maintenance:
   If your Auto 522's reflector window becomes dirty, use one drop of lens cleaner on a lens cleaning tissue. A small amount of lens cleaner and lens tissue or a slightly moist cloth can be used to clean the rest of the unit. BE SURE TO THOROUGHLY DRY THE UNIT IMMEDIATELY AFTER CLEANING.

6. Service:
   In the unlikely event that your Sunpak electronic flash requires service, return it to your dealer or the sole U.S. Distributor at the address shown on page 36. Do not, under any conditions, attempt to disassemble and/or adjust it 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 carefully.
TECHNICAL SPECIFICATIONS SUNPAK AUTO 522 THYRISTOR FLASH

Flash Type:
Professional Handle-mount with Auto and Manual Power Ratio Control.

BCPS: 2550

Guide Numbers: (at Full Power)
ASA 400 film: 240
ASA 100 film: 120
ASA 25 film: 60

Angle of Illumination:
IN DIRECT FLASH: 60° Horizontal by 45° Vertical; permits use of 35mm lenses on 35mm cameras, 80mm lenses on 6x6 cameras, 80mm lenses on 6x7 cameras.

Interchangeable Power Sources:
6xAA Nicad Battery
6xAA Alkaline Batteries.
AC: (Optional) Multi-Voltage AC Adapter (AD-26) at 100/120/220/240V Selector.
Sunpak NICAD CLUSTER CL-2
Sunpak Powerpak for 510V Battery.
Sunpak NC 510 Rechargeable Battery

<table>
<thead>
<tr>
<th>Power Source</th>
<th>Maximum Power</th>
<th>Minimum Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>With AA Nicad Batteries:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of flashes per set:</td>
<td>50</td>
<td>430</td>
</tr>
<tr>
<td>Recycling time:</td>
<td>4 sec.</td>
<td>0.3 sec.</td>
</tr>
<tr>
<td>With AA Alkaline Batteries:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of flashes per set:</td>
<td>100</td>
<td>800</td>
</tr>
<tr>
<td>Recycling time:</td>
<td>8 sec.</td>
<td>0.3 sec.</td>
</tr>
<tr>
<td>With Sunpak Multi-Voltage AC Adapter (AD-26):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recycling time at 120V:</td>
<td>12 sec.</td>
<td>0.3 sec.</td>
</tr>
<tr>
<td>With Sunpak Nicad Cluster CL-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of flashes per set:</td>
<td>50</td>
<td>430</td>
</tr>
<tr>
<td>Recycling time:</td>
<td>4 sec.</td>
<td>0.3 sec.</td>
</tr>
<tr>
<td>With Sunpak Powerpak for 510V Battery:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of flashes per battery:</td>
<td>340</td>
<td>2900</td>
</tr>
<tr>
<td>Recycling time:</td>
<td>2 sec.</td>
<td>0.25 sec.</td>
</tr>
<tr>
<td>With Sunpak NC510 Rechargeable Battery:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of flashes per set:</td>
<td>65</td>
<td>420</td>
</tr>
<tr>
<td>Recycling time:</td>
<td>2 sec.</td>
<td>0.3 sec.</td>
</tr>
</tbody>
</table>
### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flash Speed:</strong></td>
<td>1/850th-1/20000th second depending on auto range or manual power ratio control in use.</td>
</tr>
<tr>
<td><strong>Automatic Aperture Range:</strong></td>
<td>Continuous within 4-stop range (f/2.8, 4, 5.6, 8 with ASA100/DIN21 film).</td>
</tr>
<tr>
<td><strong>Automatic Distance Range:</strong></td>
<td>1.6'-42' (at maximum aperture). 1.8'-15' (at minimum aperture).</td>
</tr>
<tr>
<td><strong>Sensor Acceptance Angle:</strong></td>
<td>15°</td>
</tr>
<tr>
<td><strong>Bounce Flash:</strong></td>
<td>Adjustable bounce flash head; 47 automatic way.</td>
</tr>
<tr>
<td><strong>Variable Power Ratio Range:</strong></td>
<td>Full, 1/2, 1/4, 1/8, 1/16, 1/32 and 1/64.</td>
</tr>
<tr>
<td><strong>Mounting:</strong></td>
<td>New instantly-detachable quick-release bracket with 12-way circuit protective bounce control (included).</td>
</tr>
<tr>
<td><strong>Synchronization Contact:</strong></td>
<td>PC Cord</td>
</tr>
<tr>
<td><strong>Color Temperature:</strong></td>
<td>5500° Kelvin, most suitable for today's color films.</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD):</strong></td>
<td>9.7&quot;x3.9&quot;x3.9&quot;</td>
</tr>
<tr>
<td><strong>Weight:</strong></td>
<td>25.4 oz. (less batteries)</td>
</tr>
<tr>
<td><strong>Supplied With:</strong></td>
<td>Battery holder, PC cord, Quick-Release Bracket, Clamp.</td>
</tr>
</tbody>
</table>

All specifications subject to change without notice.
ELECTRONIC FLASH AUTO 522

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