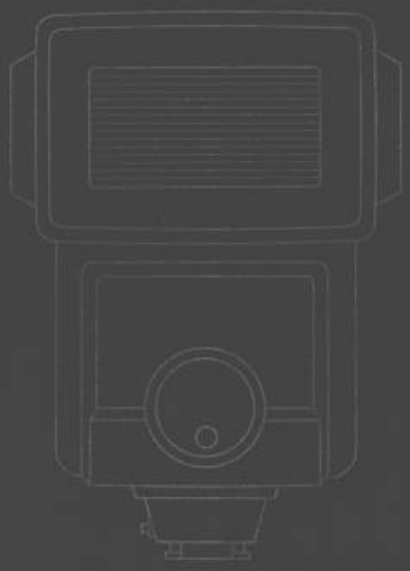
Vivitar

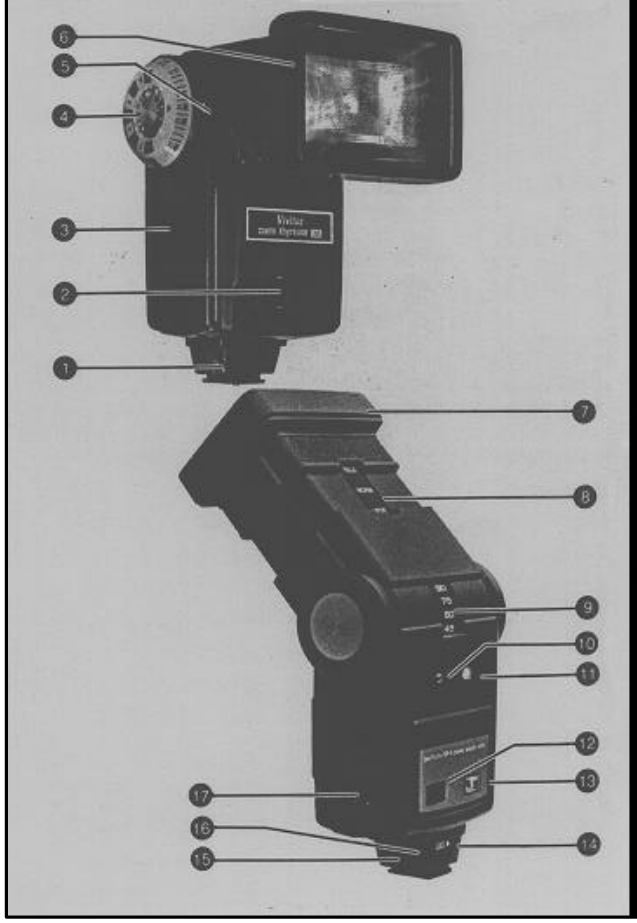


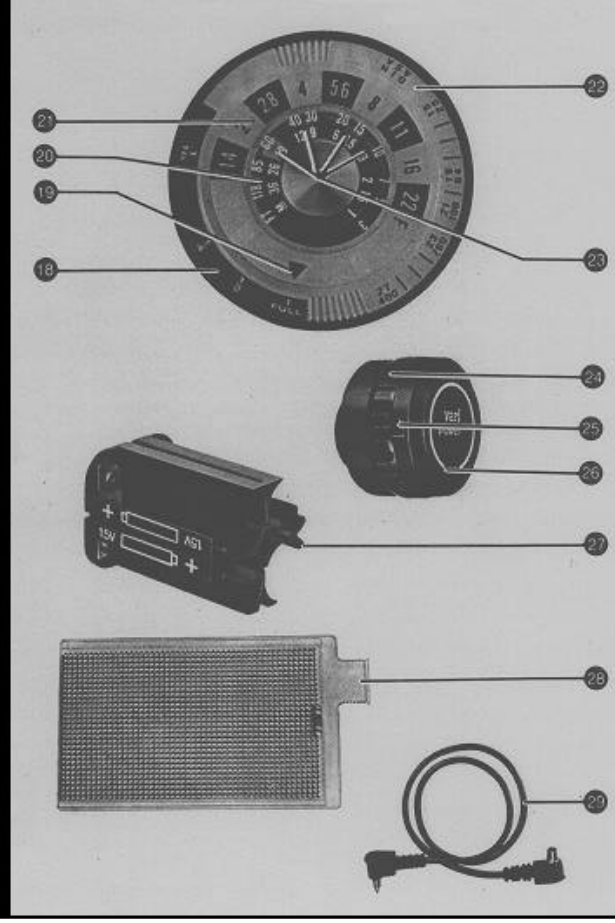
285 HV

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 equipment is used by or near children. Do not leave equipment unattended while in use.
3. Care must be taken as burns can occur from touching hot parts.
4. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged—until it has been examined by a qualified serviceman.
5. Do not let cord hang over edge of table or counter or touch hot surfaces.
6. If an extension cord is necessary, a cord with a suitable current rating should be used. Cords rated for less amperage than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
7. Always unplug equipment from electrical outlet when not in use. Never yank cord to pull plug from outlet. Grasp plug and pull to disconnect.





8. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.

9. To protect against electric shock hazards, do not immerse this equipment in water or other liquids.

10. To avoid electric shock hazard, do not disassemble this equipment, but take it to a qualified serviceman when some service or repair work is required. Incorrect reassembly can cause electric shock hazard when the equipment is used subsequently.

SAVE THESE INSTRUCTIONS

Description of Flash Unit

1. Open Flash Button
2. Sensor Socket
3. Battery Compartment Cover
4. Illuminated Calculator Dial
5. ASA/DIN Indicator Arrow
6. Lens/Filter Slot
7. Zoom/Bounce Flash Head
8. Zoom Setting Indicator
9. Bounce Angle Scale
10. Sufficient Light Indicator
11. Calculator Dial Light Button
12. On-Off Switch
13. Ready Light
14. Mounting Foot Lock Lever
15. Mounting Foot
16. Shutter Cord Socket
17. AC Adapter/HVP-1/PPG-1 Receptacle
18. Vari-Power Settings
19. Vari-Power Dial (Black Arrow)
20. Distance Scales (ft & m)
21. f-Stop Scale
22. ASA/DIN Film Speed Dial
23. Auto Modes (colored wedges)
24. Mode Selector Dial
25. Mode Selector Window
26. Vari Sensor Module
27. Alkaline/NiCad Battery Holder
28. 28mm Wide Angle Lens
29. Detachable Shutter Cord

Table of Contents

Getting Acquainted With Your 285HV Flash Unit

The purpose of this Owner's Manual is to familiarize you with your flash and give you the basics for taking flash pictures. After reading it, we suggest you experiment with the unit's various features by shooting a roll of film. This will help you to use your flash more effectively.

Once you've used your flash for a while, you may want more in-depth information on flash lighting techniques. There is a wealth of information currently available, and we suggest you check with your local photo dealer, bookstore or library for books on specific techniques.

Power Sources

Your Vivitar Model 285HV offers you the flexibility of working with several power sources. It operates on four 1.5 volt size AA alkaline batteries as a standard power source. If you'll be using your flash frequently, you may want to consider any of three other optional power sources:

1) *Nickel-Cadmium Batteries (NiCads)* — In addition to being rechargeable, NiCads also provide a faster recycling time. Ask your dealer about the Vivitar NC-3 NiCad Battery Pack and the Charge 12/20 unit for fast 20-minute recharges of the NC-3.

CAUTION: When using NiCad batteries, firing your flash continuously more than 25 times may damage your flash. Wait

a few minutes before you resume firing.

2) *The HVP-1 High Voltage Battery Pack* — Also available from your Vivitar dealer, this unit utilizes disposable high voltage batteries or the rechargeable Vivitar RB-510 battery to provide very fast recycle times and a greater number of flashes than that provided by the other battery power sources described above.

3) *The Vivitar PPG-1 Power Pistol Grip* — The PPG-1 Power Pistol Grip is a detachable pistol grip/flash holder for off-camera use and can provide supplemental power for faster recycling and more flashes. It uses four AA alkaline batteries, NiCads, or the special Vivitar NC-3 NiCad Pack. It has a 360° rotating shoe for added versatility.

4) *The Vivitar SB-4 AC Adapter* — This adapter allows you to use standard electrical outlets as an optional and economical power source.

IMPORTANT NOTE: When using the HVP-1, PPG-1 or SB-4 power sources, four fresh AA alkalines or one properly charged NC-3 battery pack must be in the flash unit to operate the synchronization circuit.

Ready Light

The Vivitar 285HV is equipped with a Ready Light (13) with a 3-stage operation: It glows red when the flash is at 1/2 power, glows green when the flash is at 3/4 power, and blinks alternately red and green when the Battery Saving Circuit is in operation and the unit is at full power.

The new 285HV has a modified triggering circuit which allows you to fire the flash *before* the Ready Light goes on. But be aware that underexposures may result when the unit is fired before the Ready Light is on.

Battery Saving Circuit

Your flash unit has a built-in circuit that acts to significantly prolong battery life. When this circuit is in operation, the Ready Light will blink alternately red and green.

Battery Operation

Inserting Batteries

1. Set the Flash Head to the straight-ahead 0° position. Pushing with your thumb from the front of the unit, slide open the Battery Compartment Cover (3) and take out the Battery Holder (27). NOTE: There is a stop built into the cover to prevent it from coming all the way off the back. DO NOT FORCE THE COVER.

2. Insert four fresh 1.5 volt size AA alkaline batteries or NiCads, following the battery positioning marked on the Holder.

3. Insert the Holder into the battery compartment (align the square corner) and slide the Battery Compartment Cover closed.

There are some simple procedures to follow for getting the most out of your flash and batteries. Always turn your unit off right after you've finished using it to prolong battery life. Also, when storing your flash for a period of time, remove the batteries to prevent possible damage from battery corrosion.

Replace the batteries if the red Ready Light fails to glow within 30 seconds.

Forming the Capacitor

When your flash is new or when it has not been used for a period of time, the capacitor loses some of its ability to store electricity. When this occurs, you can "form" the capacitor as follows:

1. Set the Mode Selector Dial (24) to the manual "M" position.

2. With batteries in the flash, slide the On-Off Switch (12) to the RED "ON" position, or plug the optional SB-4 AC Adapter into both the flash AC Adapter Receptacle (17) and the wall outlet. *NOTE:* The flash's On-Off Switch must be in the "OFF" position when using the AC Adapter. Make sure there are batteries in the unit to work the synchronization circuit when using the SB-4.

3. When the green Ready Light glows, fire the flash using the Open Flash Button (1), allowing the Ready Light to glow 15 to 20 seconds first. After a sequence of 5 flashes, your capacitor will then be formed and you are ready to begin shooting.

Thyristor Circuit

Your Vivitar Model 285HV has a unique power conservation sytem called a thyristor circuit. In any of the four auto modes, this circuit saves the excess energy not needed for a proper exposure, threby providing very fast recycling time and a greater number of flashes per battery charge. The recycle time and the number of flashes per charge varies depending on the flash-to-subject distance and the auto mode used. As you move the flash closer to the subject, the 285HV recycles faster and is capable of providing more flashes per set of batteries.

Zoom/Bounce Flash Head

Zoom Position

The Zoom/Bounce Flash Head (7) allows you to coordinate the field coverage of your flash with the field covered by your camera lens. Positions are marked on the Zoom Setting Indicator (8) for wide, normal and tele — equivalent to camera focal lengths of 35mm, 50/55mm and 105mm. Extend or retract the Zoom/Bounce Flash Head to the position which is closest to the focal length of the camera lens you are using.

In addition, a 28mm Wide Angle Flash Lens (28) is included with your Model 285HV Flash. Insert the flash lens into the Lens/Filter Slot (6), with the tab on the lens at the bottom. The 28mm Flash Lens is designed to be used with the Zoom/Bounce Flash Head in the wide position.

Bounce Angle

The Model 285HV will tilt to any of five click positions (9) (0°, 45°, 60°, 75°, 90°), depending on the lighting you want to create. When the flash is set at the 45°, 60°, 75° or 90° position, you can bounce light off a reflective surface to create softer lighting.

Automatic Operation

Vari Sensor Module

Your Vivitar 285HV Electronic Flash is equipped with a removable Vari Sensor Module (26) that measures the light reflected from the subject and other reflective surfaces near the subject. This information is interpreted by a solid state computer in the sensor which programs the flash to automatically provide just the right amount of light required for a correct exposure. The practical advantage is that you don't have to change the f-stop on your camera lens when you move closer to a subject or farther away. As long as your subject is within the automatic operating range of the flash for that f-stop, the computer automatically makes the adjustment for you.

To remove the Vari Sensor Module from the flash, pull it straight out from the body of the flash. To mount the Module back on the flash, align the black ridge at the back of the Module with the groove in the Sensor Socket (2) and push the Module firmly into the flash.

Mode Selector Dial

The Mode Selector Dial (24) on the Vari Sensor Module allows you to set the 285HV for manual operation or for automatic operation with four different f-stops on your camera lens. This provides you with a means for controlling the depth of field in your photographs. Because the four f-stops vary with the speed of the film you are using, each automatic mode is assigned a color.

The Mode Selector Dial may be set to any one of four *auto positions:*

YELLOW—Utilizes the widest lens opening for relatively shallow depth of field and provides the greatest automatic operating range. Automatic operating range with Zoom/Bounce Head in NORM position: 6-60 feet (1.8-18.3 meters).

RED—Utilizes a medium lens opening for somewhat more depth of field. The automatic operating range is shortened accordingly. Automatic operating range with Head in NORM position: 5-30 feet (1.5-9.1 meters).

BLUE—Utlizes a smaller lens opening for greater depth of field. Automatic operating range with Head in NORM position: 2-15 feet (0.7-4.4 meters).

PURPLE—Utilizes the smallest lens opening for maximum depth of field. Automatic operating range with Head in NORM position: 2-11 feet (0.7-3.3 meters).

For operating details, see the section "Shooting Automatically" and the chart of automatic f-stops and corresponding ranges at the rear of this manual.

In addition to the four auto positions, the Mode Selector Dial has a *manual* position "M." When set in this position, your flash unit will provide maximum light output regardless of the flash-to-subject distance. Operating details are given in the "Shooting Manually" section of these instructions.

To handle special situation needs, such as fill-in flash, multiple flash set-ups or for freezing high-speed action, your Vivitar

Model 285HV features a *variable power* system. With this system, you can reduce the light output from full power to 1/2, 1/4 or 1/16 power by setting the Mode Selector Dial in the corrspondingly marked position. For operating details, refer to the "Vari-Power" portion of the "Shooting Manually" section.

Calculator Dial

The Calculator Dial (4) is a convenient built-in guide for determining flash exposures. It is not electronically connected to the flash. After familiarizing yourself with the meanings of the numbers and colors, you will find the dial to be a very versatile tool. Under dim lighting conditions, press the Calculator Dial Light Button (11), and the dial is illuminated.

Operation:

1. Set the Zoom/Bounce Flash Head to the NORM position.

2. Set the black arrow (19) of the Vari-Power Dial (inner ring of Calculator Dial) to the FULL position. (See photo A.)

3. Set the ASA/DIN film speed.

To set the Calculator Dial for the ASA(ISO) or DIN number of the film you are using, turn the outer edge of the dial until the appropriate number on the ASA or DIN scale is opposite the white Film Speed Indicator Arrow (5). If the ASA or DIN number of your film is not on the Calculator Dial, use the film speed chart shown below to find the film speed location and align that speed with the white arrow.

FILM SPEED SCALE

DIN	27	26	25	24	23	22	21	20	19	18	17	16	15
ASA	400	320	250	200	160	125	100	80	64	50	40	32	25
Dial	400	I	I	I	160	I	100	I	64	I	I	I	25

4. Select auto operating mode

There are four colored wedges (23) with trailing range lines on the Calculator Dial. Each color represents an automatic operating mode which corresponds to an automatic f-stop. Each mode takes into account a combination of two things—the auto range and depth of field (greatest sharpness in front and back of subject). Which colored mode you select will depend on the combination you want.

Select the auto mode you want. The Calculator Dial will give you the minimum and maximum auto range and correct f-stop setting for the auto mode you've selected. To determine operating ranges of the selected mode, look on the dial and find the colored wedge of the mode and the range line that trails off from it. It looks like this: ◆≈ The number at the end of the line is the *closest* distance from your subject that the flash can be properly used. The number in the center of the wedge is the *longest* distance. The number above the colored wedge is the f-stop number to set your camera lens to.

If the colored wedges fall between two different f-stops, refer to the Automatic Operation Chart at rear of this manual in order to determine the best f-stop to use.

Example: You're using ASA/ISO 100 (DIN 21) film with the Flash Zoom Head in the NORM position. You select the RED mode. Your flash range would be 5 to 30 feet (1.5 to 9.1 meters) and the f-stop setting would be f4.0. (See photo A.)

5. Select desired zoom position.

After you have set up the Calculator Dial with the Zoom/Bounce Head in the NORM position, you may wish to operate the flash unit with the Zoom/Bounce Head in the WIDE or TELE position. When the Zoom/Bounce Head is extended or retracted from the NORM position, the distance scale on the Calculator Dial will change position automatically.

Example: With a setting of ISO/ASA 100 (DIN 21), when the Zoom/Bounce Head is set in the NORM position, the operating distance in the Red mode is 5-30 feet (1.5-9.1 m). When the

head is extended to TELE, the operating range for the Red mode becomes 6-35 feet (1.8-10.6 m). See photographs A and E for comparison.

Sufficient Light Indicator

The Sufficient Light Indicator (10) on your Vivitar 285HV lets you know before you take a picture if the light output will be sufficient for a proper exposure. It may be used when shooting in any of the four automatic modes, and is especially helpful in bounce light situations normally requiring complex exposure calculations. To test an exposure using the Sufficient Light Indicator:

1. Position your camera, flash, and subject just as you wish for the final picture.

2. Set the Mode Selector Dial on the Flash Sensor to the automatic mode color which matches the mode wedge color already selected on the Calculator Dial.

3. Set your camera lens to the f-stop indicated above that colored wedge on the Calculator Dial.

4. Switch on the flash unit. After the green Ready Light glows, fire the flash by pushing the Open Flash Button (1). If the flash exposure is adequate, the green Sufficient Light Indicator (10) will glow for about 2 seconds immediately after firing the flash. If it doesn't light up, do one of the following: Set your flash and camera to an automatic mode that uses a wider f-stop opening; or, decrease the flash-to-subject distance.

NOTE: The Sufficient Light Indicator is for use in any of the four Automatic Modes and will not light if the Mode Selector Dial on the Sensor is set on manual "M" or if the Sensor is not connected to the flash.

The Sufficient Light Indicator will, however, also light up when the Mode Selector is set to one of the fractional Vari-Power positions. This is of *NO SIGNIFICANCE* and should be disregarded.

Attaching The Flash To The Camera

Move the Mounting Foot Lock Lever (14) all the way to the left (unlock position). Insert the Mounting Foot (15) into the accessory shoe of your camera. Move the lever to the right until it clicks into the "LOCK" position.

Your flash has a built-in hot shoe contact. If your camera does not have a hot shoe, connect the Shutter Cord (29) to the flash Shutter Cord Socket (16) and to your camera's "X" sync terminal. (Refer to your camera instructions for specific information regarding your camera's flash synchronization.)

Shooting Automatically

As you select a wider lens opening (a smaller f/number), you increase the amount of light entering the lens, thereby increasing the flash range and the number of flashes per bettery set. You'll also benefit from faster recycling time.

Therefore, always try to select the auto mode that provides the greatest flash range. If your subject distance is well within the flash range selected, all the better. For example: your subject distance is 15 feet, your lens is a 50mm f2.0 or faster, and you are using ASA(ISO) 100 film. The flash unit Calculator Dial indicates a 15 foot maximum range in the Purple Mode, which corresponds to f11. You decide to use this mode. While this selection will give you proper exposure with significant depth of field, it will also use most of the energy in the flash capacitor. As a result, the batteries must work harder and longer to re-energize it, which causes long recycle time between flashes and fewer flashes per set of batteries.

The best auto mode for fastest recycle time and most flashes (but limited depth of field) is the yellow mode. (The next best is RED, then BLUE, etc.) It provides an enormous auto exposure range to 60 feet (up to 70 feet with the Flash Head in the TELE position). And because you must use a wider lens opening, it takes less light to expose the film. The auto sensor shuts the light off sooner, so a limited amount of energy from the

capacitor is used and the thyristor circuit holds the excess energy inside it. The batteries aren't depleted as quickly, so you get faster recycle time and more flashes.

Please note that while the f/number changes with the speed of the film, the auto range remains constant.

A. ON-CAMERA DIRECT FLASH

This method of operation with your 285HV allows you to photograph subjects at maximum distances from the flash while still maintaining automatic flash exposure control.

1. Set your camera to the correct shutter speed for electronic flash. (Refer to your camera instructions.)

2. If you have not already done so, set the Zoom/Bounce Head to the NORM position, and set the ISO or DIN number of the film you are using on the Calculator Dial (see page 11). The four colored wedges on the Calculator dial now line up below the four automatic f-stops for the film you are using.

3. Select any one of the four automatic mode color wedges and corresponding f-stops on the Calculator Dial that provides the automatic operating range or depth of field you desire. Generally speaking, the yellow mode will provide the fastest recycle time and most number of flashes. If your lens doesn't have an f-stop that corresponds to the yellow mode, then use the red mode.

4. Turn the Mode Selector Dial on the Vari Sensor Module until the color that corresponds to the f-stop you selected in step 3 above appears in the Mode Selector Window (25) on the side of the Module.

5. Set your camera lens to the auto f-stop you selected in step#3.

6. Set the Flash Head to the 0° tilt (straight ahead) position.
EXAMPLE OF ON-CAMERA DIRECT FLASH: You wish to photograph a subject 10 feet away and desire moderately great depth of field. Using ASA/ISO 100 film and the Zoom/Bounce Head in the NORM position, set the Mode Selector Dial to the Blue position and set your camera lens to f8. Your automatic operating range is from 2 to 15 feet (0.6-4.5 m). (See photo A.)

7. Slide the On-Off Switch to the RED "ON" position. Focus the camera. If desired, test the exposure using the Sufficient Light Indicator (see page 13). Take the picture when the green Ready Light glows. Your flash unit will automatically determine correct exposures without further adjustments as long as you remain within the automatic range you have selected.

Zoom settings—If you wish to extend or retract the Zoom/Bounce Head to the TELE or WIDE settings, this will not affect the operation of the automatic sensing system of the flash. It will, however, alter your operating range and flash light coverage. (See chart of automatic f-stop settings and corresponding ranges in rear of this manual.)

EXAMPLE: Using ISO 100 film and the Zoom/Bounce Head in the TELE position, set the Mode Selector Dial to the Blue position and your camera lens to f8. Your automatic operating range is now from 2 to 18 feet, instead of 2 to 15 feet as in the NORM position of step 6 above. (See photos A and E for comparison.)

B. ON-CAMERA BOUNCE FLASH

When the flash is set at 45°, 60°, 75° or 90°, the light can be bounced off the ceiling or other reflective surfaces to create a softer lighting. When using color film, keep in mind that the bounced light will take on the color of the reflective surface. So, unless you are creating a special effect, make sure you only bounce the light off white or neutral colored surfaces. As a general rule, set the tilt angle of the head so that the light is directed at the midpoint on the ceiling between the flash and the subject.

1. Set your camera to the correct shutter speed for electronic flash. (Refer to your camera instructions.)

2. If you have not already done so, set the Zoom/Bounce Head to the NORM position and set the ISO or DIN film speed on the Calculator Dial.

3. After positioning your subject, tilt the Flash Head to the desired bounce angle.

4. Select any one of the four automatic f-stops on the Calculator Dial that provides the automatic operating range or depth of field you desire.

Turn the Mode Selector Dial on the Vari Sensor Module until the color that corresponds to the f-stop you selected above appears in the window on the side of the Vari Sensor Module.

Remember that the automatic operating range must be sufficient to include the entire flash-to-bounce surface-to-subject distance.

5. Set your camera lens to the auto f-stop you selected in step 4.

EXAMPLE OF ON-CAMERA AUTOMATIC BOUNCE FLASH: Using ISO 100 film, bouncing the light off an 8 foot high ceiling onto a subject at a total flash-to-reflector-to-subject distance of 20 feet (6.1 m) from the flash, and desiring relatively shallow depth of field:

a) Set the Flash Head tilt to the appropriate angle;

b) Set the Flash Head to the NORM zoom position;

c) Set your camera lens to f4.0;

d) Set the Mode Selector Dial to RED.

NOTE: Bouncing off surfaces such as curtains or acoustical tile ceilings will add to the effective distance between flash, bounce surface and subject because they absorb light. Make sure the auto mode operating distance covers this effective distance.

Your flash unit will automatically determine correct exposures without further adjustments as long as you remain within the automatic range you have selected.

6. Slide the On-Off Switch to the RED "ON" position. Focus the camera. If desired, test the exposure using the Sufficient Light Indicator (see page 13). Take the picture when the green Ready Light glows.

C. OFF-CAMERA DIRECT and BOUNCE FLASH

An entirely new realm of photography opens up to you when you use your Vivitar 285HV off the camera for more pleasing direct lighting or for extra soft automatic bounce flash lighting. The Sensor on the flash may be removed and mounted on your camera accessory shoe via the optional Vivitar SC-3 sensor connecting cord. The flash can then be aimed either directly at the subject or at many different types of reflective surfaces such as ceilings, walls or photo umbrellas and still maintain fully automatic exposure control. From an operating standpoint, off-camera bounce flash is the same as on-camera bounce flash.

For your convenience, various Vivitar accessories are currently available for use in off-camera flash work:

- The Vivitar SC-3, a 1.2 meter coiled extension cord, enables mounting of the removable flash sensor onto your camera accessory shoe. Provides flash synchronization with camera.
- The Vivitar PPG-1 Power Pistol Grip, or the PG-2 Pistol Grip Kit, for ease of handling. The PPG-1 also provides auxiliary power for faster recycle time and more flashes. The Kit includes the Pistol Grip, the 35mm Camera Bracket and the Cable Release.

Shooting Manually

A. DIRECT FLASH

If you wish to use your 285HV in the Manual Mode (for taking pictures beyond the automatic flash range or when using multiple flash lighting), proceed as follows:

1. Set the Mode Selector Dial (24) to the manual "M" position.

2. Estimate the distance from the flash to the subject. The easiest way to do this is to focus your camera and refer to the distance indicated on the camera lens barrel after focusing.

3. Find the flash-to-subject distance on the Calculator Dial Distance Scale and set your lens to the f-stop indicated above that distance. (Disregard the colored wedges on the Dial when shooting in the manual mode.)

EXAMPLE: If you are 40 feet from your subject and are using the NORM flash head position and ISO 100 film, set your lens f-stop to f2.8. (See photo A.)

4. Slide the On—Off Switch to the RED "ON" position. Check camera focus. Take the picture when the green Ready Light glows.

CAUTION: For rapid sequence flash pictures in the manual mode, you may fire your 285HV as soon as the green Ready Light glows. However, to prevent possible damage, avoid a continuous series of more than 25 flashes and allow the unit to "rest" for 4 minutes between series.

Zoom

If you want to extend or retract your Zoom/Bounce Head to the TELE or WIDE setting, it will affect your f-stop and/or operating range, and you should recheck your Calculator Dial for new information.

NOTE: If you wish to mathematically calculate your f-stops, divide the Guide Number by the flash-to-subject distance. Remember that the Guide Number will change with extension or retraction of the Zoom/Bounce Head. See the Manual Operation Chart for a complete listing of Guide Numbers for various films speeds (ASA/ISO and DIN) for each of the three zoom head positions and the Super Wide Angle Flash Lens.

B. BOUNCE FLASH

Your 285HV can be used in the manual "M" mode for bounce flash at distances beyond the maximum automatic operating range.

First, set the Mode Selector Dial to manual "M." To determine the proper exposure when using bounce flash in the manual mode, use any ONE of the following methods:

1. In rooms of average size and color, a good general rule is to open your lens TWO f-stops wider than if you were shooting direct.
OR...

2. After setting the proper ISO/DIN number on the Calculator Dial, find the total flash-to-reflector-to-subject distance on the Calculator Dial and note the f-stop indicated above that distance. Open your lens ONE f-stop wider than indicated on the dial.

EXAMPLE: Photographing at a flash-reflector-subject distance of 20 feet with ISO 100 film, flash f-stop is f5.6, but you must set your camera lens to f4.0.
OR...

3. If the total bounce distance exceeds the maximums appearing on the Calculator Dial, first measure the distance from the flash to the reflecting surface to the subject. Then, divide that total distance into the flash Guide Number for the film speed you are using and the Zoom/Bounce Head position. Note the resulting number (round off the the nearest f-stop), and open your lens ONE f-stop wider.

NOTE: When figuring flash to subject distance using manual bounce flash, be sure to consider the light absorption of the reflective surface. Bouncing off surfaces such as curtains, for example, will add to the effective distance between the flash, the reflector and the subject. To ensure properly exposed pictures when bouncing off curtains or acoustical tile ceilings, open your lens ONE additional f-stop over the setting determined by any of the above methods.

VARI-POWER

There are cases where you may wish to go beyond the basic "normal" manual operation as explained above. Such cases might be for flash fill-in outdoors, multiple flash light with light ratio control, need for faster recycle time, faster action freezing, or when you want to use a specific f-stop not available in auto mode for depth of field control.

To handle these needs, your Vivitar Model 285HV has a variable power system. With Vari-Power, you can reduce the light output levels from full power to 1/2, 1/4 or 1/16 power.

To operate the Vari-Power system:

1 Set the black arrow of the Vari-Power Dial (inner ring of the Calculator Dial) to:	**2** Set the Mode Selector Dial to:	**3** Increase (open) camera aperture:
1/2	1/2	1 f-stop
1/4	1/4	2 f-stops
1/16	1/16	4 f-stops

As you turn the inner ring, the Calculator Dial will automatically indicate the new f-stop above the flash-to-subject distance.

Fill-in Flash

Your flash can be used outdoors in the daytime, either for better lighting on overcast days or to reduce shadows on bright days.

1. Set your camera to the correct shutter speed for synchronization with electronic flash. (Refer to your camera instructions for the correct speed.)

2. Using your built-in or hand-held meter, determine the f-stop required for a daylight exposure at the flash sync speed.

3. Set the Vari-Power Dial (19) to align the camera-to-subject distance with the f-stop indicated by the meter.

EXAMPLE: Zoom/Bounce Head in NORM position, ISO 100 (DIN 21), synchronized at 1/60, meter reading f16, camera-to-subject distance 5 ft. You want strong fill-in flash. Rotate the Vari-Power Dial (inner ring of Calculator Dial) until f16 aligns with 5 ft., and your resulting Vari-Power reading is 1/2. (See photo B.) Recheck the film speed setting to make sure it hasn't

been inadvertently moved.) You then change your Mode Selector Dial to read 1/2. For normal rather than strong fill, change the Vari-Power settings to 1/4.

NOTE: By zooming the Head from NORM to WIDE, you can change exposure by 1/2 f-stop.

Multiple Flash Lighting

The Vari Sensor Module on your Model 285HV makes multiple flash lighting easier, because when you use your flash as a fill-in light with main flash, you can "dial in" the lighting ratios.

1. Set up your main flash and determine the f-stop you're going to use.

2. Set up your secondary flash unit at a distance equal to the main flash-to-subject distance.

EXAMPLE: The main flash unit must be in the manual mode and have the same power as your fill-flash unit. Setting the Vari Sensor Dial on the fill-flash unit to the FULL position gives you a main-flash/fill-flash ratio of 1:1. Setting the dial on the fill unit at 1/2 gives you a main/fill ratio of 3:1 because the main flash unit is putting out *twice* as much light as the fill flash, i.e. the main flash gives out two units of light and the fill flash gives out one unit of light, thus giving out a total of 3 units of light and creating an overlap of one unit of light from each. A setting of 1/4 gives you a ratio of 5:1 and 1/16 gives you 17:1.

With this flexibility and accuracy, a multiple flash lighting set-up can be tuned to achieve delicate nuances of creative effects.

3. Another use of the Vari-Power capability is in its "action-freezing" potential. As the power output is reduced, the flash duration is shortened, thus resulting in greater action-stopping ability.

Specifications

Power Specifications

BCPS (Beam Candle Power Seconds): 2,500 (Manual)

Power Source	No. of Flashes	Recycle Time (seconds)
HVP-1, RB-510, NC-3	170	1.50
HVP-1, E497, NC-3	430	1.25
PPG-1, NC-3 in grip & flash	85	3.8
PPG-1, Alk. in grip & flash	200	5.5
NC-3 in flash alone	50	6.0
AA Alk. in flash alone	100	10.4
SB-4, NC-3 in flash	1,410*	4.0
SB-4, AA Alk. in flash	1,480**	4.8

*before NC-3 requires recharging.
**before AA Alkaline batteries must be replaced.

All specifications are with the 285HV set in the manual mode. In most cases, recycle time and number of flashes will improve in the automatic mode if the subject is at less than maximum auto distance.

All specifications are approximate and number of flashes and recycle time will vary according to battery condition, temperature and other variables.

General Specifications

Flash Duration (approx.):
Auto — 1/1,000 to 1/30,000 second
Manual — 1/1,000 second

Angles of Illumination: Zoom Setting	Horizontal	Vertical
Super WIDE (28mm) w/Wide Angle Flash Lens inserted	70°	53°
WIDE (35mm)	60°	45°
NORMAL (50mm)	46°	34°
TELE (105mm)	27°	20°

Color Temperature: 6,000°K

Camera/Flash Synchronization Connections:
Hot Shoe, Shutter Cord

Weight (without batteries): 14.9 oz. (423 g)

Dimensions (Head in 0° position): 4" W x 5.2" H x 4.2" D (100 mm W x 130 mm H x 105 mm D)

Accessories Included: 28mm Wide Angle Flash Lens, PC-1 Shutter Cord

Specifications subject to change without notice.

Vivitar 285HV Zoom Thyristor Flash System Accessories

CHARGE 12/20
20 minute recharger for NC-3 NiCad Battery Pack.

NC-3
Rechargeable NiCad Battery Pack. Use only with Charge 12/20 or discontinued Charge 15.

SB-4
Adapts 285HV for use with AC current.

PC-31
3 foot coiled shutter cord for extended distance between flash and camera.

AP-1
Spare Battery Holder for AA alkaline or NiCad batteries.

SL-2
Wireless remote flash trigger. Automatically fires remote flash units in multiple lighting set-ups. Shoe rotates 360° horizontally, 1/4x20 tripod thread on bottom.

HVP-1
High Voltage Battery Pack holds disposable high voltage battery (type E497) or Vivitar rechargeable RB-510. The Battery Pack comes with a strap and pad for convenient and comfortable shoulder rest. Requires HVC-1 connecting cord.

C-1
Soft Carrying Pouch Case for flash unit.

FK-2
Kit includes 6 filters: UV, ND4, 85B, Red, Yellow, Blue. Includes carrying case.

WFK-2
Kit includes 6 filters: Extra Wide Angle Diffuser, ND4, Blue, 85B, Yellow and UV. Includes carrying case.

SC-3
1.2 meter coiled Sensor Extension Cord for use between flash unit and remote sensor for creating special effects.

Manual Operation Guide Numbers

(ASA-Feet)

ASA Film Speed:	25	64	80	100	125	160	200	400	1000
Super Wide (28mm)	35	56	62	70	80	90	100	140	230
Wide (35mm)	50	80	90	100	112	126	140	200	325
Normal (50mm)	60	96	107	120	134	152	170	240	400
Tele (105mm)	70	112	125	140	156	177	200	280	460

(DIN-Meters):

DIN Film Speed:	15	19	20	21	22	23	24	27	31
Super Wide (28mm)	11	17	19	21	24	27	31	43	65
Wide (35mm)	15	24	27	31	34	38	43	61	100
Normal (50mm)	18	29	33	37	41	46	52	73	115
Tele (105mm)	21	34	38	43	48	54	61	85	135