Canon

SPEEDLITE 199A

INSTRUCTIONS E

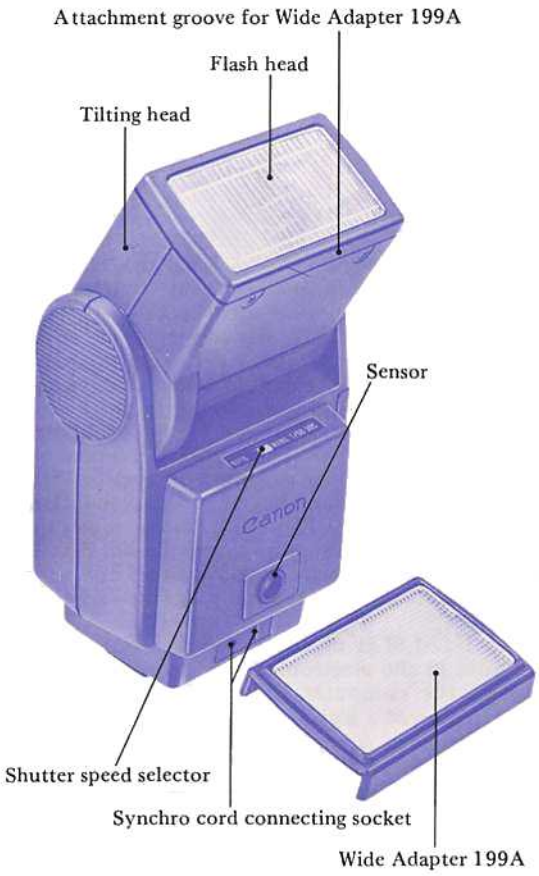
The Canon Speedlite 199A is a highly efficient automatic electronic flash unit designed for AE flash photography with Canon A-1, AE-1 and AV-1 cameras. If the camera is set at AE in the case of A-1 or AE-1, this Speedlite 199A has a unique function which sends signals to the camera and automatically sets the shutter speed and f/stop.

In the case of AV-1, f/stop is set manually on the aperture ring to same f/stop set on flash.

Though it is of the hot shoe type, this flash unit has a large light output and increases the freedom of flash photography with shutter speed selection switch, tilting head, and with the joint use of accessory motor drive or winder.

An I^2L LSI is used for the first time in the world in the electronic flash circuit. Together with the computer circuit of the camera, it has achieved a high level automatic system.

On cameras other than the A-1, AE-1, and AV-1, this Speedlite 199A can be used as an ordinary automatic electronic flash unit, i.e. setting both the aperture on the lens and shutter speed on the camera manually.



Fold out both front and back nomenclature pages for easy reference while reading the instructions.

Main Features

1. An electric signal from the 199A conveys the f/stop selected on the 199A to the camera side and automatically sets the f/stop on the camera except AV-1.
2. In the same way, the light output signal from the 199A automatically sets the shutter speed of the camera to 1/60 sec. (X contact).
3. Shutter speed settings of 1/30 sec. or below and B can be used with the A-1.
4. Battery consumption is reduced with the employment of the series control system.
5. The 199A may be used jointly with the Power Winder A or Motor Drive MA.
6. Average distribution of metering is obtained by suppressing the peak sensitivity at the center of the picture.
7. Stabilized exposure is obtained with the built-in regulator circuit.
8. The pilot lamp lights up to indicate that firing of flash is possible and flashes on and off to indicate that the condenser is fully charged.
9. The 199A has a built-in flash confidence light.
10. The flash firing section tilts up to 90°. Thus, bouncing of flash is possible with the 199A attached to the camera.
11. By setting the main switch at OFF, automatic flash settings cease operating and the camera returns to the normal non-flash AE control while the 199A is still attached to the camera.
12. The flash angle of coverage is designed for the field of a 24mm lens with the use of the Wide Adapter for 199A.

13. The 199A has a calculator dial which can be illuminated for using the unit in dark places. Aperture selection window gets also illuminated.
14. The 199A is equipped with low voltage synchronization circuit for electric shock protection.
15. The 199A employs two ICs, including an I^2L LSI.
16. At full charge, the 199A produces light output of Guide No. 30 (in meters) for ASA 100.
17. The automatic flash photography with the 199A offers three-f-stop choice.
18. Manually operated flash by cancelling the self sensing mechanism is possible.

Technical Data

Type: Electronic computer flash unit with a series control system.

Attachment: Clip-on type with a directly coupled contact. There is a lock mechanism.

Guide numbers: 30m (ASA 100); 16m (ASA 100, Wide Adapter attached), after pilot lamp lights up and flashes on and off.

Flash angle: Covers a 35mm lens on the 35mm format. Covers a 24mm lens when the Wide Adapter for the 199A is attached.

Recycling time:

1. When using alkaline-manganese batteries (AM-3 or LR6): approximately 10 sec. for the pilot lamp to light up when the batteries are new.
2. When using Ni-Cd batteries: approximately 6 sec. for the pilot lamp to light up after each firing when the condenser has been fully charged.

Number of flashes:

1. When using alkaline-manganese batteries: 100 flashes allowing 30 sec. between each firing.
2. When using Ni-Cd batteries: 50 flashes allowing 30 sec. between each firing.

Color temperature: Equivalent to daylight color due to Canon's unique green compensator plate.

Flash duration: 1/1000 sec. ~ 1/50000 sec.

Flash control system: The light bounced back from the subject is measured and the series control system saves unneeded energy.

Distribution of metering sensitivity: Peak of light intensity is spread apart in order to attain more average reading for the screen area.

Auto flash working distance selector switch: Four-mode selection of three auto working ranges using red, green and yellow to separate one automatic setting from another plus manual setting.

Aperture indices: Red, green, and yellow for f/1.4 f/2.8, and f/5.6 respectively at ASA 25.
Red, green, and yellow for f/2.8, f/5.6, and f/11 respectively at ASA 100.
Red, green, and yellow for f/5.6, f/11, and f/22 respectively at ASA 400.

Exposure calculator dial: Numerical value reading type set by turning the outer rim. Calculator dial lights up by pressing the confidence light button.

Auto coupling ranges: Colors used match with three-f-stop settings.

Red mark:	1.5-10.6m (5-34.8ft.); 1.5-6.3m (5-20.7ft.) when using Wide Adapter
Green mark:	1-5.3m (3.3-17.4ft.); 1-3.2m (3.3-10.5ft.) when using Wide Adapter
Yellow mark:	0.5-2.6m (1.6-8.5ft.); 0.5-1.6m (1.6-5.3ft.) when using Wide Adapter

Auto coupling check: Confirmation of coupling is possible by lighting up of the confidence light.

Film speeds: ASA 25–800 or DIN 15–30 Click stops for every one-third step between marked figures.

Aperture scale: f/1–f/32

Distance Scale: 0.5-20m (1.5-50ft.)

Slow shutter speed setting: The use of slow shutter speeds is possible by setting the switch at the front to MANU. 1/60-30S position.

Bounce flash: Maximum tilting of 90° upward. Click stops at 75° and 60°.

Main switch: The red warning color appears when the main switch is ON. When turned OFF, normal without-flash AE photography is possible with the A-1, AE-1, and AV-1.

Power source: Four AA size alkaline-manganese (AM-3 or LR6) or Ni-Cd batteries. Magazine-type loading of batteries with Battery Magazine D.

Flash testing button: Doubles as pilot lamp.

Pilot lamp: Lights up when flash firing becomes possible and flashes on and off when fully charged.

When the pilot lamp lights up, the A-1, AE-1, and AV-1 automatically switch over to flash circuit.
The pilot lamp goes out when the main switch is OFF.

Contact and socket: Directly-coupled contact and socket for synchro cord. Slave unit cannot be used.

Size: 116mm x 79mm x 83mm

Weight: 490g (including batteries)

Accessories: Case, Wide Adapter for 199A, Magazine D, Synchro Cord A (optional)

Subject to change without notice.

① Load the batteries correctly.

② Attach the 199A to the camera.

③ Set the ASA/DIN film speed on the calculator dial.

④ Select the f/stop with the aperture selector switch.

⑤ Set the shutter speed selection switch (usually to AUTO).

⑥ Set the 199A's main switch to ON.

⑦ Focus on the subject.

⑧ Check the pilot lamp.

⑨ Check the display information in the finder.

⑩ Press the shutter release button.

⑪ Wind the film.

Automatic flash photography means that the photocell of the flash picks up the light bounced back from the subject, the capacitor stores up energy, and stops discharge of light as soon as the flash unit determines sufficient light was reflected from the subject to the unit's photocell.

There are three conditions in performing automatic flash photography.

1. Set the 199A to the film speed of the film to be used.
2. Set the shutter of the camera to X synchronization speed.
3. Decide the f/stop to be used.

If the above three conditions are fulfilled, then all there is left to do is to put in the switch, focus and release the shutter.

When cameras A-1' and AE-1 are used, there is no need to remove the aperture ring of the lens from the 'A' mark (automatic setting). But for AV-1, f/stop need to be set manually on the aperture ring.

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Setting on the Cameras for Completely Automatic Flash Photography

For A-1, AE-1, or AV-1 mounted with FD Lenses the camera should be left in the AE mode when the 199A is used. With the lighting up of the pilot lamp, the camera automatically switches over to flash circuit. The shutter speed as well as f/stop get automatically established for the A-1 and AE-1, and proper exposure is obtained from the amount of light reflected back from the subject. In the case of the AV-1, shutter speed get automatically established while f/stop is set manually on the aperture ring.

Preparations

1. Keep the aperture ring of the lens set at the A mark when using A-1 or AE-1. For AV-1, f/stop need to be set manually on the aperture ring.
2. In the case of A-1 it does not matter if the AE mode selector is set at Av or Tv. It also does not matter where the AT dial is set.
3. For lighter background in flash photography, user has the choice of setting shutter speed below 1/60 sec. for A-1 (see page 23).
4. In the case of AE-1, it does not matter where the shutter speed is set while the aperture ring of the lens is to be set at the A mark.
5. In the case of AV-1, the Selector Dial serving as the usual shutter speed dial is to be set at the A mark.

Automatic Setting of Shutter Speeds

In the case of A-1

1. The shutter speed is set at B when B is used.
2. At all other speeds it is automatically set at 1/60 sec.
3. Choice of shutter speeds slower than 1/60 sec in flash photography is possible.

* In the case of AT-1, the f/stop is manually set but shutter speed will be automatically synchronized at 1/60 sec. as in the case of AE-1.

In the case of AE-1

1. The shutter speed is set at B when B is used.
2. At all other speeds it is automatically set at 1/60 sec.

In the case of AV-1

1. The shutter speed is set at B when B is used.
2. At all other settings, the shutter speed is automatically set to 1/60 sec. for flash sync.

Loading the Batteries

1. Use four fresh AA size alkaline-manganese batteries or four fully charged AA size Ni-Cd batteries. In either case, batteries should be of the same brand.

2. Keep the 199A's main switch OFF.

3. Remove the battery chamber cover by sliding it forward while pressing down on it. Then take out Magazine D for installing AA size batteries.

4. Load the batteries following the diagrams inside the chamber. Push in the batteries from the side. Incorrect loading can lead to battery explosion.

5. Insert Magazine D so that the green dot on the magazine comes alongside the green dot in the chamber.

6. Since the battery contacts inside the housing are spring-loaded, press the magazine inward while sliding in the battery chamber cover.

* The use of carbon-zinc batteries is not recommended because the number of flashes available is small.

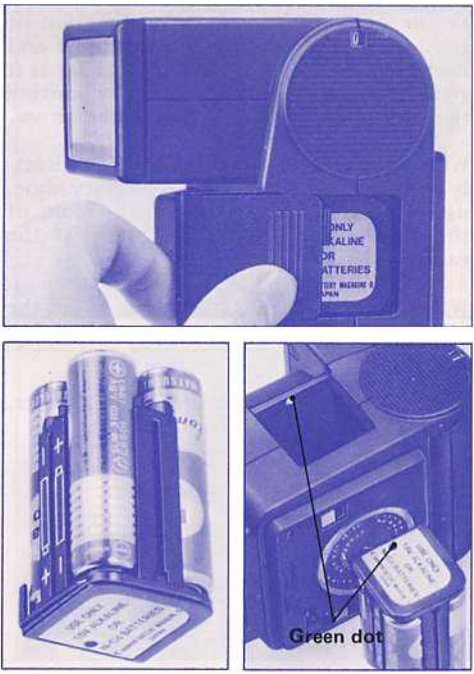
* Follow the instructions of the battery manufacturer when charging Ni-Cd batteries.

* The performances of batteries deteriorate in cold regions. Therefore, keep the batteries in a warm condition until just before use. Also keep spare batteries warmed up and change the batteries regularly so that warmed up batteries are always in use. Especially in temperatures

of 0°C or lower, the use of fully charged Ni-Cd batteries is recommended.

* Keep the batteries unloaded when not using the 199A for a long period of time.

* When replacing the batteries, replace all at the same time with four new batteries, all of the same brand.



Use of Wide Adapter 199A

Speedlite 199A is supplied with a Wide Adapter which attaches to the flash head section for 24mm lens use. For 35mm focal length or longer, use the 199A without the Wide Adpater which is, when not in use, stored away in the inside pocket of the case for this flash unit.

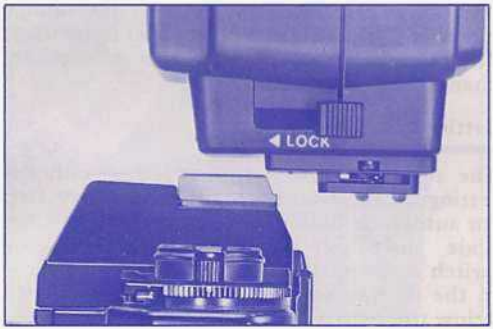
Attaching to the Camera

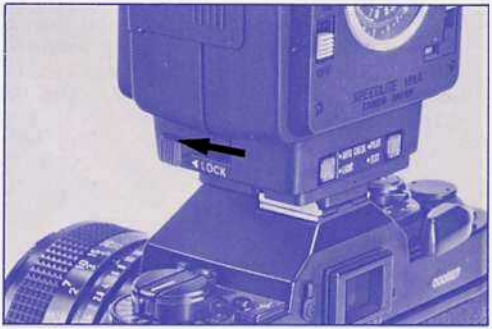
1. On the 199A, there is a locking foot to prevent the unit from slipping out of the camera's accessory shoe. When you slip in the flash unit, the locking lever should be at the position opposite the direction of the arrow. Turn the power switch off and insert the foot of the flash unit as far as it goes and then secure the unit by moving the lock lever in the direction of the arrow.

2. When using a camera without a directly-coupled contact on the accessory shoe, use Synchro Cord A between the front of the flash unit and the PC outlet of the camera.

3. When removing the flash unit from the camera, move the lever in the direction opposite the arrow.

* Before attaching the flash unit to a camera, wipe off the contacts clean.


LOCK


LOCK

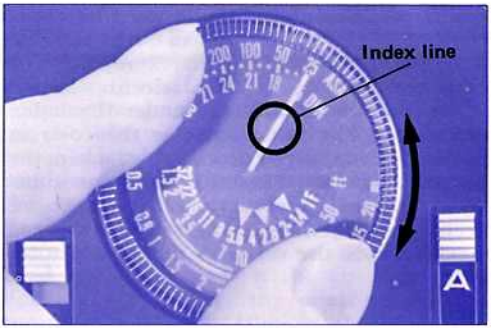
Film Speed Setting

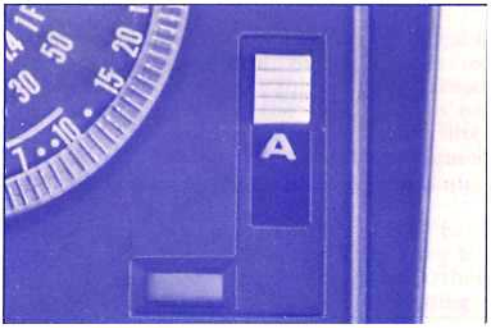
The guide number of the electronic flash unit changes with the speed of the film to be used. Therefore, be sure not to overlook setting the film speed on the flash unit as otherwise proper exposure cannot be obtained.
The guide number calculation takes into account ASA film speed set on the 199A, i.e. the ASA setting on the camera. Please make sure to set the ASA film speed correctly on the 199A as otherwise incorrect exposure will result for flash as well as non-flash photography. Turn the ASA film speed set dial while slightly pressing down on it. Set the orange index line to the speed of the film to be used. The aperture display will also change by changing the dial setting.

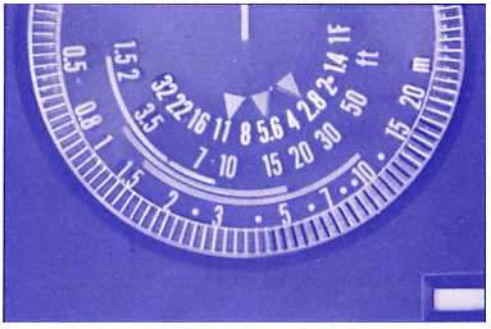
Setting of f/Stop

The setting of the f/stop, together with the setting of the film speed, is a necessary step for automatic flash photography.
Slide the flash control aperture selector switch and display either red, green or yellow in the display window. The A mark is seen below the switch.

* When the switch is turned to the lowest end, white appears in the display window. This means manual and pictures cannot be taken in automatic mode. The M mark appears above the switch.

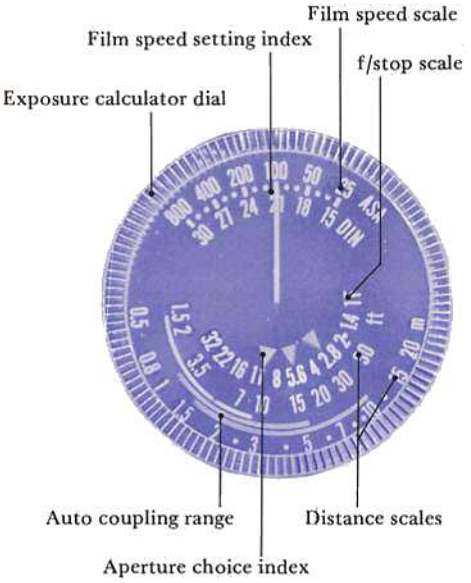

Index line
A


A



Reading of Calculator Dial

There are three aperture index marks. The f/stop selected with the selector switch will be the numerical value under the index mark having the same color as the color in the display window. For example, when the film speed is ASA 25 and a red color is displayed in the window with the aperture selector switch, then the 1.4 under the red index mark is the selected f/stop for automatic flash.



Automatic Coupling Range with the Choice of Three-f-stop Settings

The selection of the f/stop determines the coupling range with which proper exposure can be obtained. For your easy reference same colors as those used in the display window are used for the respective band along the distance marks to show the f/stop automatic coupling range.
When set at red, the distance where the red band starts and ends is the coupling range. For the red setting, the coupling range is approximately 1.5 to 10m.

* The coupling range is the distance applicable under the condition of light reflected back straight from the subject to the sensor of the flash. When the flash head is not facing the subject directly and tilted for bounce effect, the confidence light is to be checked by first test firing the flash.

* There is a gap in each of the color band and this discontinuity is for indicating the shorter coupling range (lessening of farthest working distance) in the case of using a wide adapter.

Guidelines for Three-f-stop Choice

The automatic coupling range always remains the same even with the change in film speed setting. The f/stops, however, change according to the ASA film speed. Therefore, use the following guidelines when selecting an f/stop.

1. When a deep depth of field is desired . . . . . Yellow display

2. When the distance is 1 meter or longer . . . . . Green display

3. When a shallow depth of field is desired, when the distance is 5 meters or longer, and in the case of bounce photography . . . . . Red display

* After setting the ASA film speed, read the shooting distance and the f/stop from the exposure calculator dial and then set the aperture selector switch to the most desirable f/stop represented by three different colors.

Illumination of Calculator Dial and Aperture Selection Window

The calculator dial as well as the aperture selection window get illuminated when the confidence light button is pressed in. This is convenient for using the flash unit in dark places. However, when the aperture selector switch is at M setting, aperture selection window does not get illuminated.

Shutter Speed Selector Switch

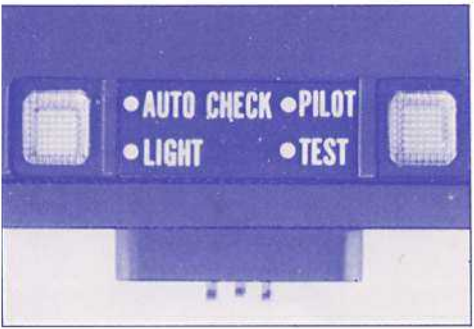
This is an exclusive switch for A-1 use. When this switch is set at AUTO, the shutter speed is automatically set to 1/60 sec. no matter where it may have been set. When the camera is set at B, synchronized photography is performed at B.
When switched to MANU (to the right), all fast shutter speed settings on the camera of 1/60 sec. or faster are automatically set at 1/60 sec. When the shutter speed setting on the camera is 1/30 sec. or slower, shooting is performed at the shutter speed of your choice. In other words, use of slow shutter speeds is possible for getting lighter background. In choosing slow shutter speed, the A-1 camera is to be, of course, set to Tv mode. In the case of the AE-1, it makes no difference whether the shutter speed selector switch on the 199A is set at AUTO or MANU.1/60-30S position.

Main Switch and Pilot Lamp

Set the main switch at ON after photographing preparations are completed. If the pilot lamp lights up after a while, it means the flash unit is ready for firing in automatic mode. Furthermore, if the pilot lamp flashes on and off, it means that the flash unit is fully charged.

Test Firing and Confidence Light

A flash is fired when the test firing button is pressed after the pilot lamp lights up. If the subject is within the range on the automatic mode, the confidence light will light up green after the flash is fired. Thus, there is a way of determining in advance if the flash-to-subject distance is sufficiently close for the one of the three auto coupling ranges. This feature is especially convenient for bouncing of flash. The confidence light will not light up if the flash-to-subject distance is outside the auto coupling range. The confidence light will not also light up when the aperture selector switch at the back of the flash unit is set to 'M' posidion.



Focusing

The flash-to-subject distance is close enough if the confidence light lights up green. The next step is to focus on the subject. Proper exposure cannot be obtained if the subject is outside the automatic coupling ranges. Therefore, it is very important to note the flash-to-subject distance.

Checking the Exposure and Shooting

After the pilot lamp lights up, press the shutter release button halfway and check the information inside the finder. Confirm proper focusing and press the shutter release button further down for shooting. Proper exposure has been obtained if the flash confirmation light lights up green.

Automatic Alteration from Flash Setting to Non-Flash AE Exposures

After each firing in flash photography the pilot lamp goes out and the circuit is automatically switched over to without-flash AE photography until the condenser is charged. This means pictures can be taken in continuons fashion, if the situation demands, and the camera will provide either automatic flash exposure or without-flash AE control.

Switching Off

Set the main switch at OFF after completion of flash photography in order to prevent battery drain. The connecting circuit between the flash unit and camera is cut off when the main switch is set at OFF, and ordinary AE photography can be performed with the flash unit still attached to the camera.

Viewfinder Information and Warnings.

Viewfinder information is displayed as you depress the shutter button slightly after the pilot lamp comes on. Proper flash picture is assured unless display for warning appears.

1. A-1 Display

Selected Mode	Shutter Speed ① ② ③	Flash Charge Signal ④	Flash Control f/stop ⑤	Manual Display ⑥
AE flash control	60 bu 30 or under	F	2.8 (for example)	–
Manual f/stop setting	60 bu 30 or under	F	2.8	M
Manual setting at the back of flash	60 bu 30 or under	F	–⑦	M

① With the exception of B, 1/60 will be displayed in the viewfinder irrespective of the shutter speed setting on the camera.
② "bu" will be displayed in case of bulb setting on the camera.
③ When the shutter speed selector on the 199A is at the Manual position with your intention of using 1/30 and slower shutter speeds, shutter speed of your choice will get displayed.
④ When the pilot lamp lights up, F will get displayed to indicate completion of charge.
⑤ The f/stop selected in the automatic mode on the 199A will be displayed.
⑥ When the aperture ring of your FD lens is removed from the 'A' mark, M to indicate manual setting will be displayed.
⑦ When the aperture selector switch is at M, f/stop information disappears and M will be displayed in the finder.

2. **Exposure Warning**

1. Automatic Flash Photography
   When the f/stop selected on the 199A is larger than the maximum opening of your lens, the maximum f/stop of your lens will be displayed and will flash on and off to give underexposure warning. In such a case, select smaller f/stop on the 199A.
   On the contrary, when the f/stop selected on the 199A is smaller than f/16, e.g. f/22, f/22 will flash on and off in the viewfinder. But if your lens actually has minimum f/stop of f/22, you may disregard the flashing warning and still get properly exposed pictures. If the minimum f/stop of your lens is f/16, choose a brighter f/stop on the 199A.
2. Discrepancy between the Actual f/stop and the f/stop Display in the Viewfinder.
   The f/stop display sometimes differs by a half stop. This is because the input value is rounded to every half f/stop figures and that does not affect proper exposures. For the same reason, flashing sometimes starts even when the maximum f/stop of your lens and the f/stop setting on the 199A corresponds. You may disregard the flashing warning and still get properly exposed pictures. But check the f/stop setting on the 199A anyway.
3. Manual Flash Control

   Warnings are exactly the same as described in the above paragraphs for the FD lenses. Since the f/stop for the camera is to be set manually by moving the aperture ring, M for manual will get displayed in the viewfinder.
   For the FL lenses, viewfinder information does not provide a complete reference and the viewfinder displays should be cancelled by using the display lever on the top of the camera.

Viewfinder Displays When Using the AE-1 Camera

The meter needle position shows the f/stop selected on the 199A.
In the case of a discrepancy between the f/stop selected on the 199A and the f/stops available on the lens, under-exposure lamp flashes on and off or the meter needle enters the over-exposure mark. In these cases, change the f/stop setting on the 199A.
This indication method is the same for both automatic setting or manual setting of the f/stop by moving the lens' aperture ring from the 'A' mark. In the latter case, the M lamp will flash on and off. When the automatic flash photography is discontinued by setting the selector at the back of the 199A to M, the meter needle will swing all the way up, the only information you can obtain in the viewfinder will be the flashing on and off of M to indicate complete cancellation of automatic flash photography.

Viewfinder Display When Using the AV-1 Camera

After the 199A's pilot lamp lights up, the meter needle will swing up to 60 when the two-stage shutter release button is pressed halfway.

Precautions for Automatic Flash Photography

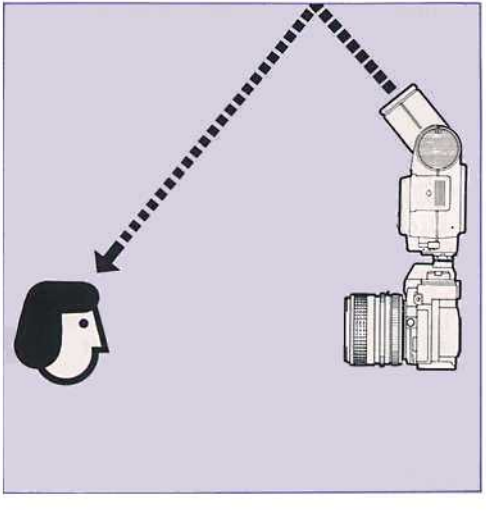
There are cases in which the subject and background are not suited for automatic exposure flash. For example, when the main subject is small and the background is dark or far away, or on the contrary when the surroundings are whitish or bright and reflection is strong.
Under these conditions, automatic exposures in flash are affected by the background and the subject becomes over-exposed or under-exposed. In order to avoid this, it is best to switch over to manually operated aperture using the guide number.

If the shutter release button is continuously pressed before the pilot lamp lights up, in the case of the A-1, AE-1, and AV-1, the camera's circuitry will not take into account the flash charge signal. Repress the shutter release button after confirming the lighting up of the pilot lamp. Also, in the case of photography using the selftimer, press the shutter release button only after confirming the pilot lamp is lit.

When shooting a subject from a distance of less than one meter, unevenness in flash sometimes occurs due to the difference in the optical axes of the electronic flash unit and lens.

Bounce Flash

Applying reflected light illumination on the subject by facing the flash head of the electronic flash unit towards the wall or ceiling is called bounce flash. Because it is a reflected light, the loss of light volume cannot be avoided, but there will be no dark shadows and a soft illumination is obtained. Furthermore, the flash angle is wider and ideal for obtaining beautiful even bounce light results. Automatic flash photography is possible also in the case of bounce flash photography. For best results, you should test-fire the flash unit first to determine if the flash-to-subject distance is close enough. If it is, the confidence light comes on green.



Tilting of Flash Head

As bounce provision, the flash head can be tilted upward to 90° with click stops at 75° and 60° positions.
Adjust the position of the head according to the height of the ceiling and the flash-to-subject distance.

* The easiest method of bounce flash photography is to tilt the head 90° and bounce the flash against the ceiling.

* As at the 0° position the flash is fired directly to the subject in front, the flash head is designed to face slightly downward (3°) for parallax compensation in order to avoid unnatural shadows.

* The necessary conditions for bounce flash photography are that the surface where the flash is to be bounced should be wide in area, should not be colored and should have a high reflection efficiency.

* Surfaces with low reflection efficiency or colored surfaces badly affect color reproduction. High ceilings are also not very good. In these cases, use a white reflecting object such as poster paper.

* The closer the reflection surface is brouhgt to the electronic flash unit, the greater the contrast. A soft effect is obtained when the reflection surface is drawn away from the flash unit.

Joint Use of Equipment for Motorized Photography

Before shooting single-frames with Power Winder A or Motor Drive MA, confirm the lighting up of a pilot lamp. Continuous shooting with automatic winding in flash photography is possible for a subject having a high degree of reflectance with bright color tones such as white. The distance from the subject should be less than 2m. Continuous shootings of around five frames become possible using ASA 100 film, when on top of aforementioned prerequisite, the flash unit is loaded with a fresh set of batteries, flash condenser is fully charged, and flash control aperture selector switch set to red.

If the voltage drops during the shooting, the pilot lamp goes off and the automatic flash settings cease operating. The camera returns to its ordinary non-flash automatic exposure control. To cope with this situation which may arise during continuous shooting, select most appropriate shutter speed or an f/stop on the camera for non-flash AE photography beforehand. When the pilot lamp lights up again, continuous shooting with automatic winding in flash photography is resumed.

* For continuous photography, use a fresh set of batteries or fully-charged Ni-Cd batteries.
* For producing maximum number of flash firings in one continuous shooting, close subject distance and bright color tones become significant factors.

1. Operation When Using FD Lenses

When the aperture ring of the lens is removed from the 'A' mark, it obviously means manually setting the f/stop but the flash unit still retains the automatic exposure function for the respective coupling ranges.
The flash photography will give the same result as when the lens is set at the 'A' mark for the flash to set the A-1 and AE-1 for the proper f/stop. As the aperture is manually set, this mode is convenient for making exposure compensation adjustment with reference to the f/stop choice on the flash unit.
In the case of the AV-1, manual aperture setting is the only one and required method for automatic flash photography.

2. Operation When Using FL Lenses

FL lenses do not have full aperture metering signals. Therefore, f/stops cannot be automatically set. The user refers to the f/stop on the calculator dial of the flash unit in manually setting the f/stop on the lens.
Even in the case of manually setting the f/stop on FD and FL lenses, the flash unit will set the camera for the proper synchronization speed in the case of A-1 and AE-1 cameras.
In the case of AV-1, the f/stop on all the lenses need to be always set manually and the flash unit will just the same set the camera for the proper synchronization speed.

Manual Aperture Setting by Disengaging the Auto Flash Mode

Setting the aperture selector at the back to M places the 199A in manual mode. Thereafter, f/stops are decided from the guide number in the same manner as when using an ordinary electronic flash unit. The shutter speeds, however, in both A-1 and AE-1 (and AV-1) do not have to be adjusted because they are automatically set. **In the case of AV-1, the Selector Dial serves as the usual shutter speed dial.** Ordinarily under this method, the f/stop is calculated by using the guide number every time the shooting distance changes. Then the lens aperture is set to this f/stop before shooting. The calculator dial eliminates much of this troublesome task.

Setting of f/Stop

1. Set the aperture selector switch at the back at M.
2. Be sure to also set the film speed.
3. Focus the camera on the subject.
4. Read the shooting distance on the lens.
5. Look for the same distance on the calculator dial.
6. Take note of the f/stop against that distance on the calculator dial.
7. Set the lens to the f/stop taken from the calculator dial.
8. Press the shutter release button after the pilot lamp lights up and after it starts flashing on and off.

* When an f/stop obtained seems to fall between half-click stops, move the aperture ring to the click stop on the brighter side.

* When you find it necessary to shoot immediately after the pilot lamp lights up, open your lens one f/stop to get correct exposure as the flash unit is not yet fully charged.

* Information in the finder of the A-1 will include the shutter speed, fully charged signal and manual M displays. The f/stop display will disappear.
* In the AE-1 finder, the meter needle will swing all the way up and the M for manual operation will flash on and off.
* In the AV-1 finder, the meter needle will swing up to 60.
* In the case of manual operation in flash photography, the camera will not automatically revert to the without-flash AE mode between the lighting up of the pilot lamp. This is because the aperture ring of the lens is removed from the 'A' mark. It means sequence shooting of with and without-flash (between the charging of the condenser) is not possible.
* For your easy reference, the following is the formula used for obtaining the f/stop:

$$\text{f/stop to be obtained} = \frac{\text{guide number}}{\text{shooting distance}}$$

However, attention should be given as to whether you are working in feet or meters.
* 30 (in meters) for ASA 100 is the guide number for the 199A.
* The guide number changes according to the film speed. The calculator dial on the 199A automatically changes the reading for a change in the film speed setting on the dial.
* The user takes flash photography in manual mode (setting aperture selector switch at the back to M) when the photographic situation does not prompt automatic flash exposures, when shooting at close range or for special picture composition purpose.
* When performing flash photography with the flash unit unmounted from the camera, use the flash unit-to-subject distance instead of the camera-to-subject distance on the distance scale of the lens in determining the f/stop.

Bounce Flash in Manual Operation (Auto/Manual Switch at the Back of the 199A Set to M)

It is ordinarily said that the light volume loss in bounce flash is two f/stops when the height of the ceiling is 2.5m. But remember that this is only a guideline.
The bounce flash result is affected by various factors including the color of the reflected surface and the reflection efficiency.
Therefore, you should take test shots in advance to obtain the necessary data.

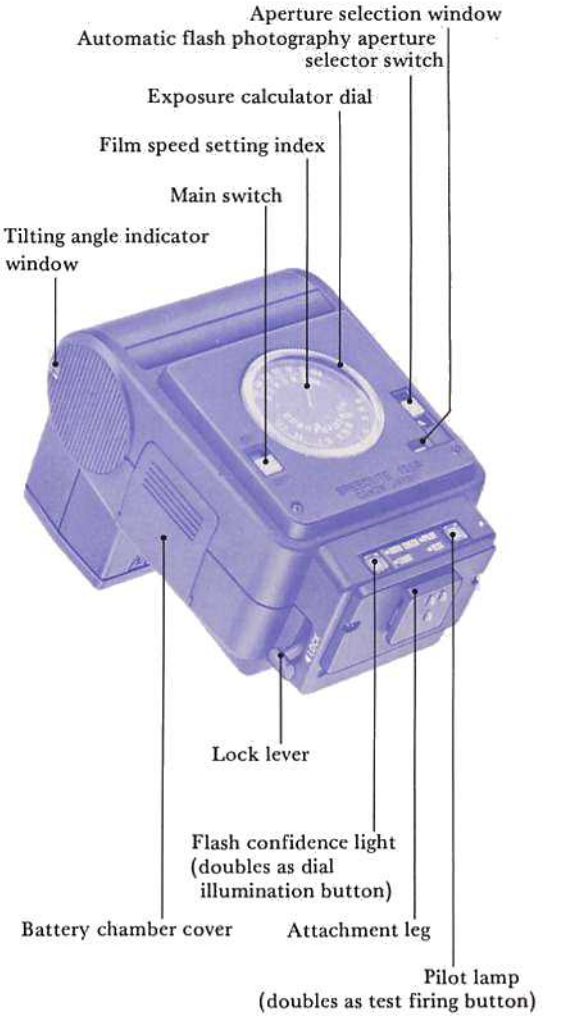
Using the Wide Adapter 199A

The Wide Adapter is used when taking flash pictures with 24mm and 28mm wide angle lenses.
The flash angle is widened to cover the entire picture. Therefore, it can also be used with 35mm and 50mm lenses. However, when this Wide Adapter is attached, the light volume is reduced. Naturally, therefore, the flash coupling range becomes limited. For this reason, the respective band in color around the distance scale are not continuous lines. The longer lines to the left are for your reference when the wide adapter is in use. The procedure for the 199A's use is otherwise same.

When Using on Other Cameras

Speedlite 199A can be used on other cameras for automatic exposure flash photography (setting the f/stop on the lens manually while leaving aperture selector switch at the back of the 199A to A) and manually operated photography (setting aperture selector switch to M) using guide numbers.
In the case of a camera without a directly-coupled contact, use Synchro Cord A for connections. And set the shutter speed at X contact of the camera to be used.

1. In using the Synchronization Cord A, attach it to the 199A first and then plug in the other end firmly to the PC outlet of the camera.
2. In the case of automatic exposure flash photography, set aperture selector switch at the back to A, and set the lens manually to the f/stop of your choice given on the calculator dial.
   If focus is obtained within the automatic exposure coupling range as designated by the respective colored band on the dial, correctly exposed pictures can be taken.
3. In the case of manually setting the f/stop on the lens through guide number calculation, use the calculator dial as reference for the f/stop setting on the lens with relation to the flash-to-subject distance.
4. When the 199A is used on an automatic flash lens shutter camera, set aperture selector switch at the back to M and set the guide number on the camera side to 30 in meters (or to an approximate value in case there is no marking for 30 in the guide number scales).


Aperture selection window
Automatic flash photography aperture selector switch
Exposure calculator dial
Film speed setting index
Main switch
Tilting angle indicator window
Lock lever
Flash confidence light (doubles as dial illumination button)
Battery chamber cover
Attachment leg
Pilot lamp (doubles as test firing button)

Precautions for Automatic Exposures in Flash Photography

Proper exposures cannot be obtained under the following conditions:

1. When the aperture ring of the lens is off the 'A' mark.
2. When aperture selector switch at the back of the 199A is set at M.
3. When the film speed setting on the flash unit is incorrectly set and differs from the speed of the film in use.
4. When the flash-to-subject distance exceeds the coupling range for the automatic flash exposures.
5. When the f/stop choice on the flash unit is not avilable on the lens, e.g. f/1.4 on the calculator dial when the maximum aperture of the lens in use is f/1.8.

Precautions in the Handling of the Flash Unit

1. Even when the flash unit is not being used for a long time, you should test-fire the flash from time to time to keep the capacitor in good shape.
2. When the flash unit is out of order, do not attempt repairing it yourself because of dangers from the high voltage circuit. Please take it to a Canon Service Station for repair.
3. Please carefully protect the flash unit from getting it wet. When it has been exposed to rain or snow, wipe the flash unit immediately with a dry cloth.
4. Do not leave the flash unit for a long time under direct sunlight, in high temperature or in very humid places. Such conditions may become a cause for the flash unit becoming out of order.

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