



NIPPON KOGAKU K.K.

Nikon
FLASH UNIT

BC-7

INSTRUCTION MANUAL

NOMENCLATURE

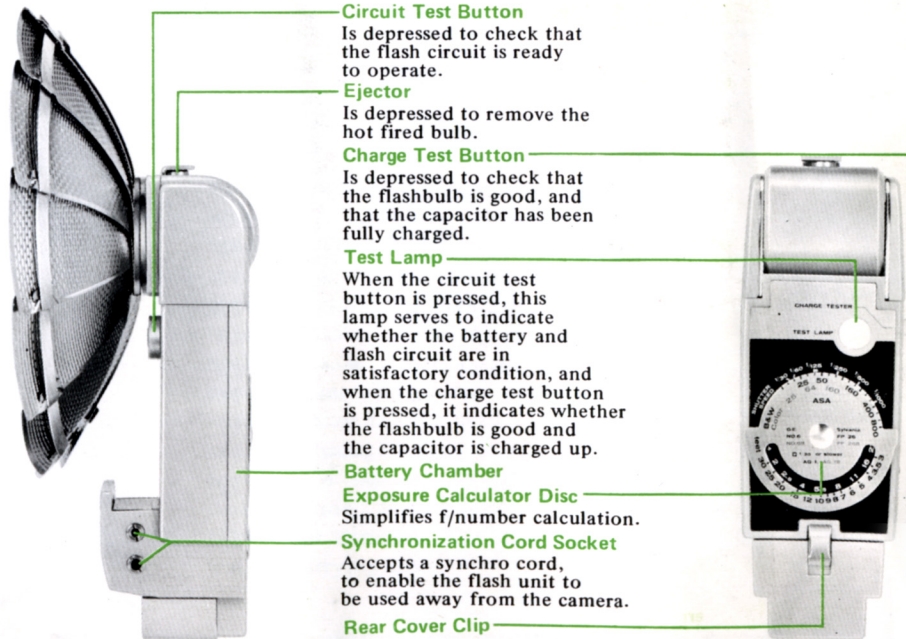
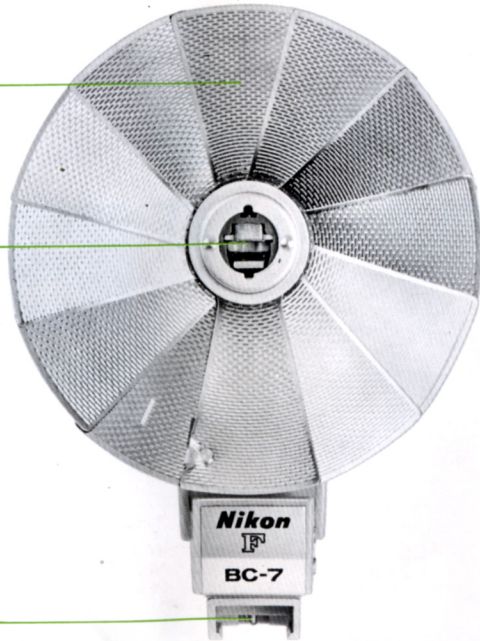
Reflector

Is of folding design, and can be tilted through an arc of 120° to provide bounce flash illumination.

Three-Way Socket

Takes any of three different types of flashbulbs.

Flash Terminal



Circuit Test Button

Is depressed to check that the flash circuit is ready to operate.

Ejector

Is depressed to remove the hot fired bulb.

Charge Test Button

Is depressed to check that the flashbulb is good, and that the capacitor has been fully charged.

Test Lamp

When the circuit test button is pressed, this lamp serves to indicate whether the battery and flash circuit are in satisfactory condition, and when the charge test button is pressed, it indicates whether the flashbulb is good and the capacitor is charged up.

Battery Chamber

Exposure Calculator Disc

Simplifies f/number calculation.

Synchronization Cord Socket

Accepts a synchro cord, to enable the flash unit to be used away from the camera.

Rear Cover Clip



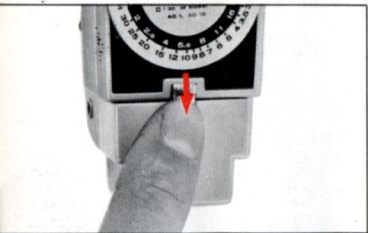
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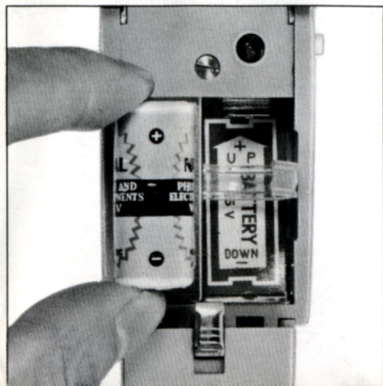
INTRODUCTION

The light and compact BC-7 flash unit clips directly onto the Nikon F. It has a "three-way" socket to take any of three different types of flashbulbs, test circuits to test the bulb and the firing circuit, and an additional socket for triggering from the camera and synchronization of extension flash units. Since the unit is of the battery-capacitor type, it gives a constant light output, even when the battery is almost exhausted. The flashbulb itself acts as a switch in the flash circuitry, to prevent unnecessary drain on the battery. Its reflector is of folding design for compactness, and tilts through an arc of 120° , in 30° steps for bounce lighting. With the optional accessory shoe, it can also be attached to Nikkormat cameras. The unit comes with a leather carrying case.

INSERTING BATTERY



Power for the unit is supplied by a single small 15V laminated dry battery, available anywhere, which is housed in a battery chamber. Installation or replacement is straightforward. Simply remove the rear cover by pushing the cover clip downwards. When inserting the battery, make sure that the positive and negative (+ and -) terminals are correctly aligned as shown inside the battery chamber. A vinyl tape in the battery chamber makes battery removal easy. Pass this tape under the battery when it is being inserted.



MOUNTING ON CAMERA

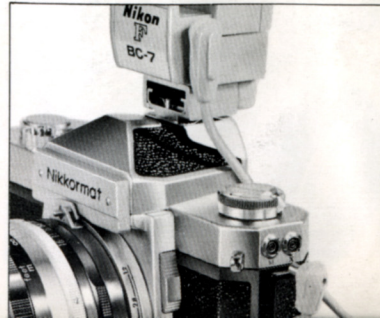
The unit fits directly on the Nikon F, and requires no synchronizing cord. Slide it onto the accessory shoe around the film rewind knob as far as it will go. This connects the terminal in the flash unit with the flash contact in the accessory shoe. Fitting or removal is more easily done with the reflector folded flat.

When used with Nikkormat cameras, an accessory synchro cord is required. A special accessory shoe which fits on top of the viewfinder is available for using this unit with the Nikkormat. For details, see the Nikkormat instruction manual.



Nikon F

Nikkormat



CHECKING FLASH CIRCUITRY

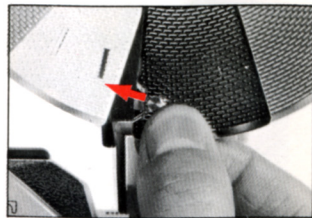
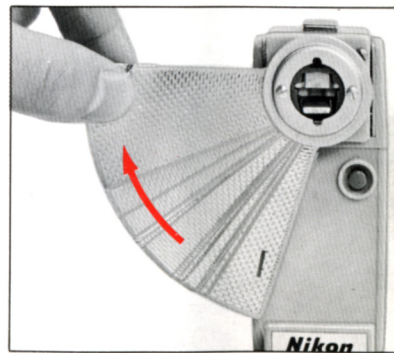


The unit incorporates a test circuit with a built-in test lamp to check the functioning of the synchro contacts of the shutter, the flash terminal, the capacitor and the battery. Tilt the reflector upwards so that the red circuit test button on the front of the unit is easily accessible. Wind the film advance lever ... (1), depress the circuit test button ... (2), then after a few seconds press the shutter release button on the camera ... (3). Instant lighting of the test lamp indicates that the flash circuitry and the battery are in good condition.

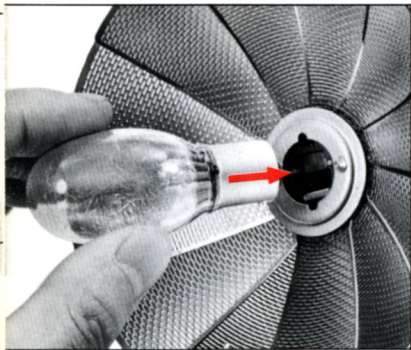
Caution: The above check should be carried out prior to film loading.

OPENING REFLECTOR

The reflector is of a folding design, and opens or closes like the segments of a Chinese fan. The segments are curved to give a parabolic reflector shape. The surface is grained to diffuse light evenly over the subject area. The angle of illumination is approximately 65° , allowing complete coverage of the picture angle even when using 35mm wideangle lenses.



INSERTING FLASHBULB



The unit has a "three-way" socket to take any of the three different types of flashbulbs. Simply insert the flashbulb into the socket and push it firmly into place.

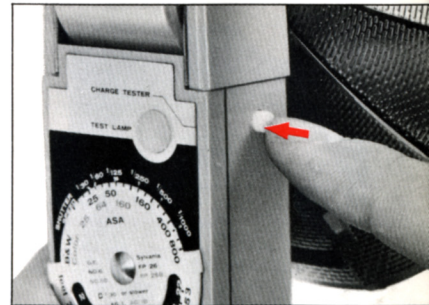
To remove, depress the ejector on top of the unit. The hot, newly-fired bulb will pop out of the unit, without the necessity of touching it by hand.



CHARGE TEST BUTTON

In the battery-capacitor circuit, the flashbulb itself completes the charging circuit, so that the capacitor does not charge up until the flashbulb is inserted into the socket. This arrangement preserves the battery, since only the minimum amount of current is used each time for the flash itself. After inserting the bulb into the socket, press the white charge test button on the side of the unit. Instant lighting of the test lamp on the back of the unit shows that the flashbulb in use is good and the capacitor has been fully charged.

Note: As the battery becomes exhausted, the capacitor takes longer to charge. This will result in a longer time being required for the test lamp to light.



FLASH SYNCHRONIZATION

Almost all types of flashbulbs may be synchronized with Nikon cameras. On the Nikon F, the flash synchronization is accomplished by setting the synchro selector and the shutter speed of the camera appropriately for the flashbulb. (The Photomic-series finders must be removed in order to set the synchro-selector ring). The table below shows the shutter speeds appropriate to various kinds of flashbulbs. For instructions on setting the Nikon F for flash, refer to the Nikon F instruction manual. For electronic flash, the selector should be set at FX. The Nikkormat cameras have two flash terminals marked "M" and "X" on the side of the camera. When the M terminal is used M and FP types of bulbs are synchronized at all shutter speeds, while MF type bulbs are synchronized at speeds slower than 1/60 sec. The X terminal is used only for electronic flash. For instructions on setting up the Nikkormat for flash, see the Nikkormat instruction manual.

Shutter speed	1000	500	250	125	60	30	15	8	4	2	1	B
Class												
FP	●	●	●	●	●	○	○	○	○	○	○	○
M	—	—	—	●	●	○	○	○	○	○	○	○
MF	—	—	—	—	—	○	○	○	○	○	○	○

EXPOSURE CALCULATION

Exposure Calculator Disc

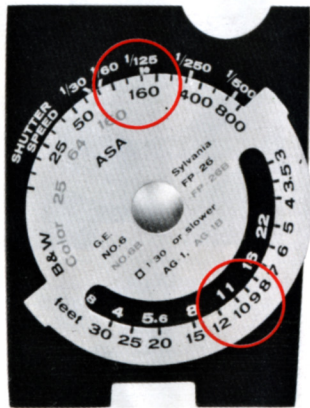
The unit carries on its back an exposure calculator disc to enable the correct f/number to be calculated for various flash-to-subject distances, by referring to the flash-to-subject distance scale around the lower portion of the disc. Set the ASA number of the film to the shutter speed being used by rotating the disc until the required film speed setting on the film speed scale around the upper part of the disc appears opposite the shutter speed setting on the shutter speed dial. The film speed scale has numbered settings from ASA 25 to 800 with dots between each pair of numbers for intermediate settings, such as ASA 32, 40, etc. There are two film speed scales, one for black-and-white film and the other for color, as color film requires one stop more exposure. At shutter speeds slower than 1/30 sec. the correct aperture is determined by means of guide numbers.



EXPOSURE CALCULATION continued

Example 1

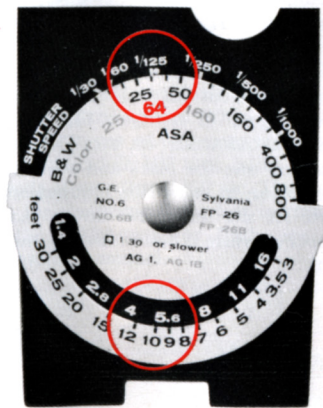
If the G.E. No. 6 (FP type) flashbulb is used, with the shutter set to 1/125 sec. and a black and white film of ASA 160, the correct aperture indicated is f/11, for a subject 10 feet (3m) away.



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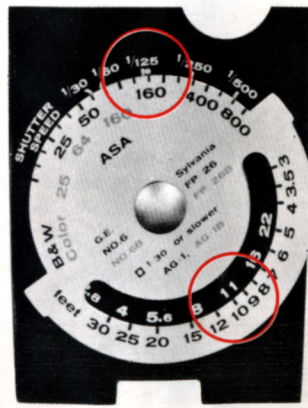
Example 2

If the G.E. No. 6B bulb is used with the shutter set at 1/125 sec. and with a color film of ASA 64, the correct aperture indicated is midway between f/4 and f/5.6 at the 10 feet distance.



Example 3

When the AG-type flashbulb is used with the shutter set to speeds slower than 1/30 sec., the film speed scale should be aligned with the white dot adjacent to the 1/125 sec. setting on the shutter speed scale, to determine the correct aperture. For example, if the G.E. AG-1 bulb is used with the shutter set at 1/30 sec. and with black and white film of ASA 160 rating at the 10 feet distance, rotate the exposure calculator disc so that the white dot appears opposite the 160 mark on the B&W film speed scale. The correct f/number is computed as f/11.



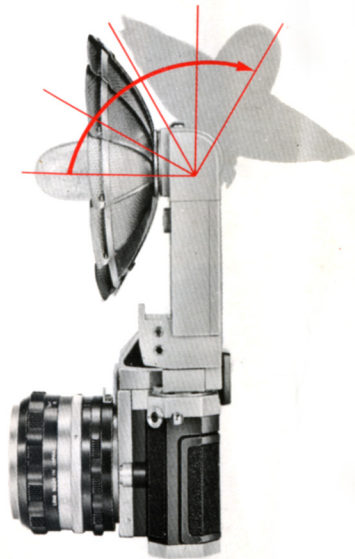
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Guide Numbers

Besides the exposure calculator disc, exposure with flash can also be determined by means of guide numbers. The guide numbers are so computed as to take account of the flash intensity and the film speed, and are the product of the lens aperture and the flash-to-subject distance. Every packet of flashbulbs provides guide numbers for all available types and speeds of film. To find the correct aperture, divide the guide number of the flashbulb in use by the flash-to-subject distance. If the G.E. No. M2B bulb, with a guide number of 200, is used 15 feet away from the subject with the shutter speed set at 1/30 sec. and the film speed rating is ASA 125, the correct aperture is calculated as $200 \div 15 = f/13.3$. The published guide numbers are generally computed on the basis of a flash unit with a fixed, large-diameter reflector with a polished surface. Thus, use of the published guide numbers will lead to slight underexposure with the BC-7 flash unit, which has a grained-finish collapsible reflector. About a half stop of additional aperture should be added to compensate for this. If the aperture calculated is $f/13.3$, for example, adjust the aperture setting to about $f/11$.

BOUNCE FLASH

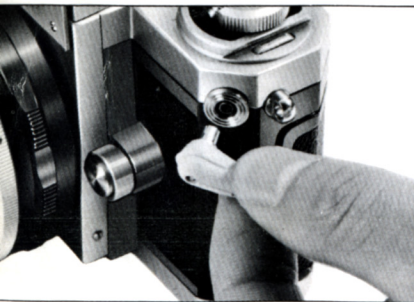
The reflector can be tilted upwards through an arc of 120° , in 30° steps for bounce flash lighting. Direct the flash at light colored walls and ceilings. The light bounced from the reflecting surface is diffused, and the subject illumination is soft and almost shadowless. However, a certain degree of exposure increase must be added to that obtained from the guide number, as the intensity of light is reduced to a certain extent. The degree of the exposure increase varies, depending on the reflection characteristics, distance of the reflecting surface, etc.



FLASH OFF CAMERA



To yield better modeling and shadow displacement, the flash should be placed above or to one side of the camera. An accessory synchro cord 1m long, is available to connect the flash unit with the camera. Plug one end of the synchro cord into the flash terminal on the camera and fit the other end in the synchronization cord socket on the side of the flash unit.



FEATURES/SPECIFICATIONS

- Three-way type flashbulb socket
- Angle of illumination approx. 65°
- Collapsible type reflector tilts upwards through 120° in 30° steps for bounce lighting
- Battery-capacitor power source
- Test lamps give instant check of bulb and flash circuitry
- Synchro cord socket provided
- Direct, cordless connection to the Nikon F
- 15V laminated battery
- Weight approx. 180g without battery