

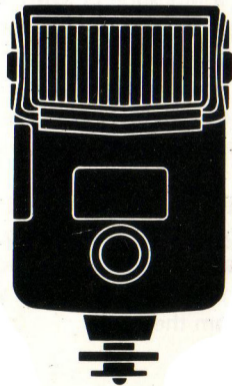
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# MINOLTA AUTO ELECTROFLASH 28 32



OWNER'S MANUAL



The Minolta Auto Electroflash 28 and 32 are convenient, versatile units that will make precise flash exposures automatically over a wide range or can be used manually. With either model, the flash head swings upward for automatic bounce flash, as well as direct. Each unit can be used cordlessly with a hot shoe or with its attachable sync cord. Coverage is sufficient for lenses down to 28mm wideangle on full-frame 35mm cameras. These Auto Electroflash units can be powered by sealed carbon-zinc or alkaline throw-away batteries, or optionally by a quick-rechargeable self-contained nicad pack, or by household AC through a special adapter. To these basic features, the Auto Electroflash 32 adds greater flash power, selection of two apertures for auto operation, and an illuminated computer dial.

Before using your model 28 or 32 for the first time, please read this manual all the way through — or at least the sections to cover your own needs — while providing power for your unit, attaching it to the camera, and handling and acquainting yourself with its parts and features. In this way, you can take good pictures and begin to realize the potential of your Auto Electroflash right from the start.

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## NOTES ON THIS MANUAL

This is a combined instruction manual for use with the Auto Electroflash models 28 and 32. For this reason, some illustrations may show features different from your model, and some sections may not apply to the flashgun you own. Proper operation is indicated for both models, however, and differences between them are clearly indicated in instructions and specifications.

Unless otherwise indicated, illustrations in this booklet show the Auto Electroflash 32, the model with the full complement of features, with appropriate notes to adapt them for use with the Auto Electroflash 28.

## NAMES OF PARTS

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- Flash tube and reflector  
with guard window
- Flash head
- Battery-chamber cover
- Sensor window
- Bracket clamp
- Cordless contact
- Attaching bracket



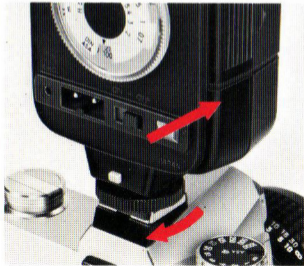


## SUMMARY OF OPERATION (for direct autoflash with batteries)

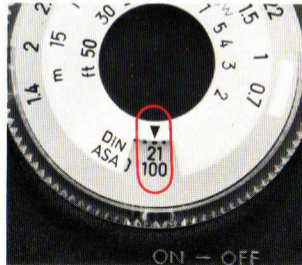
4 The steps pictured on this page outline use of the Auto Electroflash 28 and 32 in usual direct auto operation. They give a general idea

of how very easy it is to get perfectly exposed pictures with these units and are keyed to corresponding sections of the manual for ready

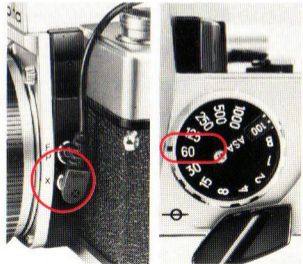
1 With serviceable batteries or Ni-Cd pack installed (see pp. 6 and 24), attach unit to camera (p. 8), using sync.-cord if necessary.



2 Set applicable film speed on computer dial of flash unit (p. 10).



3 Make sure camera is set for proper sync. and shutter speed (p. 9).

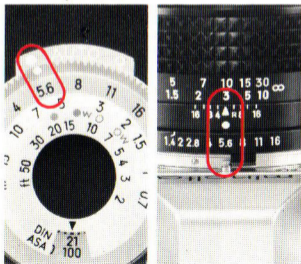


reference. This brief guide may also be useful as a quick refresher for good results after you have not used your flashgun for some time. It is not,

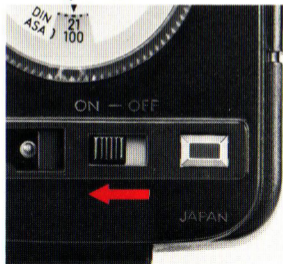
however, a substitute for the detailed instructions in the rest of this manual, which should be thoroughly studied for best results.

5

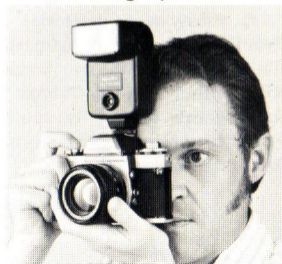
- 4** Set "AUTO" aperture on flash unit and same one on lens of camera (p. 12).



- 5** Move power switch to "ON" and wait for monitor lamp to light (p. 10).



- 6** With flash head facing forward as shown, push shutter release to photograph subject within the flash range (p. 13).



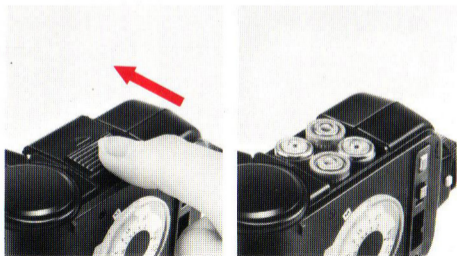


## BATTERIES

- 6 To best accommodate your needs, your Auto Electroflash 28 or 32 is designed to use a number of power sources. It can be powered by four 1.5-volt AA (penlight)-size non-rechargeable batteries of the *sealed* carbon-zinc (not recommended for model 32) or alkaline-manganese ("AM" or "alkaline") type, Mallory Mn 1500 or equivalent, the latter of which will yield considerably more flashes. Information on these throw-away batteries is given here. Instructions for the rechargeable Minolta Ni-Cd ("nickel-cadmium" or "nicad") Battery Pack NP-1 with its Ni-Cd Charger NC-1, both available together optionally, can be found on p. 24. For information on the optional Minolta AC Adapter-1, see p. 28.

### Installing

1. Remove the battery-chamber cover by sliding it off in the direction of the arrow toward the front of the unit.
2. After wiping terminals with a clean, dry cloth, insert four of the specified batteries, making sure that plus (+) and minus (-) ends are positioned as indicated inside the chamber.



- 3 Close the chamber by aligning the cover carefully, depressing ends of batteries slightly with it, and sliding it toward the rear of the unit until it snaps securely in place.



### CAUTION

If the flash unit is not to be used for more than a month, batteries should be removed to avoid the possibility of corrosion.

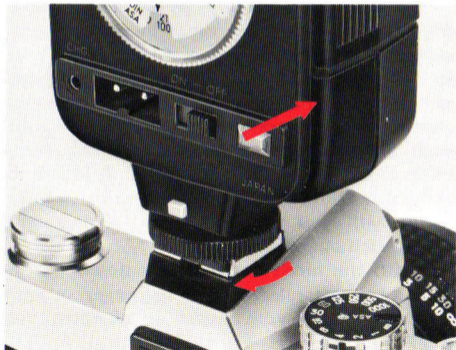
### Cold-weather operation

Batteries generally tend to decrease in capacity and flash recycling times increase accordingly as the temperature goes down. This is true to varying extents with alkaline and sealed carbon-zinc batteries as well as with ordinary ones. It is thus recommended that batteries be fresh if they are to be used in the Auto Electroflash 28 or 32 in cold weather (down to perhaps  $0^{\circ}\text{C}$  or  $32^{\circ}\text{F}$ ) and that you carry fresh spares with you for replacement if necessary during such operation.

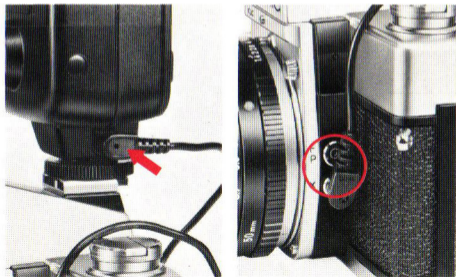
(With the nicad battery pack described on p. 24, no particular care is necessary in cold weather, except with regard to charging; see p. 27.)

## ATTACHING TO CAMERA

- 8 With cameras wired for cordless flash, simply slide the attaching bracket of the flashgun as far as it will go into the camera hot shoe and turn the bracket clamp as shown to secure it there.

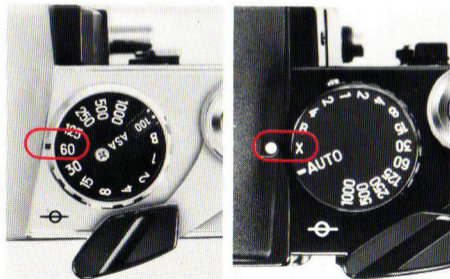


With other cameras, secure the bracket in the accessory or flashgun shoe in the same way; insert the single-prong plug on one end of the attachable sync-cord provided into the flashgun's sync-cord socket until it snaps in place; and plug the PC connection on the other end into the camera terminal for "X" synchronization.



## SETTING SYNC. AND SHUTTER

1. Make sure that the camera is set for X synchronization and/or that the flashgun is properly connected with the X sync. terminal of the camera.
2. Also make sure that the camera is *not* set for a shutter speed faster than the manufacturer's recommendation for electronic flash (usually the special "X" setting or 1/60 sec.



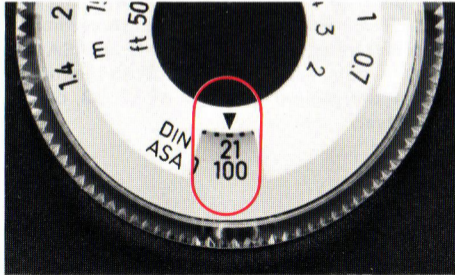
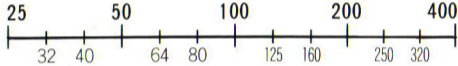
or slower for full-frame 35mm cameras having horizontal-run focal-plane shutters; between-the-lens shutters with X sync. can be used at all speeds).

### NOTE

On cameras equipped with the "flashmatic" system which varies the aperture automatically with distance focused, use the Auto Electroflash 28 on manual with a camera GN setting of 28 in meters at ASA 100, 46 in ft. at ASA 25, or 20 in meters at DIN 18, etc., With the model 32, set the camera for a GN of 32, 52, or 22, respectively.

## SETTING FILM SPEED

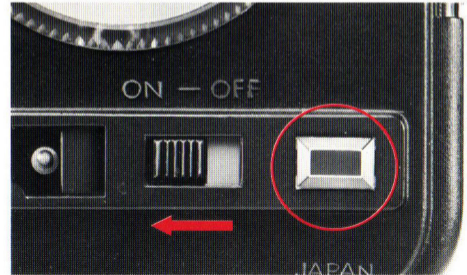
- 10 By means of the grip provided, move the film-speed scale until the indication for the film in use clicks into place opposite the triangular index. Marks between those for numbers on the scale indicate film speeds as follows:



## POWER SWITCH AND MONITOR LAMP

To turn the unit on and charge its capacitor with batteries (p. 6) or the nicad pack (p. 24), move the power switch to "ON." With the AC adapter (pp. 28-29), the capacitor will start charging when the flash is connected with the power source.

The monitor lamp should light to indicate recycling as shown in the table:



| Power source                       | Auto Electroflash model |       |
|------------------------------------|-------------------------|-------|
|                                    | 28                      | 32    |
| Fresh sealed carbon-zinc batteries | 7-11                    |       |
| Fresh alkaline batteries           | 7-10                    | 10-12 |
| Ni-Cd Battery Pack NP-1            | 3                       | 4.5   |
| AC Adapter-1                       | 5-8                     | 7-14  |

Recycling time will increase as batteries are discharged. When the monitor lamp fails to light within 30 seconds, batteries should be replaced with fresh ones (all four at the same time) or the nicad pack recharged (see p. 25).

When you are not taking pictures, the power switch should be kept in the "OFF" position with batteries as a power source or the AC adapter disconnected from the power source.

### Dial illumination

With the Auto Electroflash 32, a green dial illuminator will come on before the monitor lamp lights to facilitate using the unit in dark places. The dial will glow as long as the power switch is left on with serviceable power supply, going out briefly when the flash is fired. When the switch is moved to "OFF", the dial will continue to glow for several minutes before going out.

### NOTE

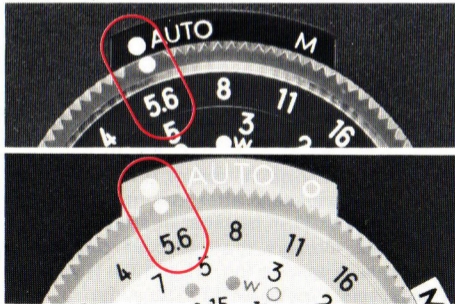
When recycling time is long with batteries that are partially discharged or if the flash is to be fired immediately after the monitor lamp comes on with fresh batteries or a fully charged nicad pack, observe the respective cautionary notes in each section (pp. 14 and 19) if you are using reversal-type color film (for slides).

## DIRECT FLASH

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### Auto operation

1. With the Auto Electroflash 28, make sure the dot on the control ring is set all the way to its left-hand click-stop at the "AUTO" index; with the 32 model, at the "AUTO" index click-stop for the f-number to be used. *Do not set the dot between indexes.*



2. Set the aperture of the camera lens to the same f-number that appears opposite the flash computer dial.
3. Move the power switch to "ON" (except with the AC adapter, see p. 29), and wait for the monitor lamp to light.

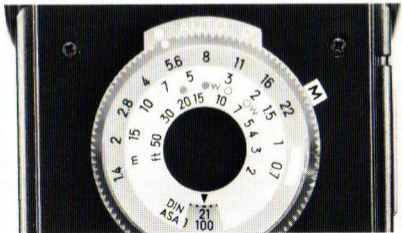
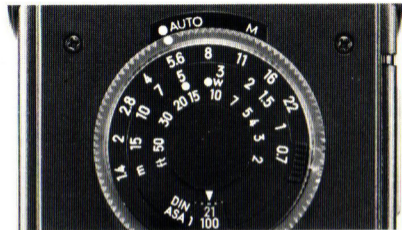


4. With the monitor lamp glowing, release the camera shutter to take the picture. The unit will automatically vary flash duration from 1/40,000 to 1/1,000 sec. for proper exposure with average conditions and subjects between maximum and minimum flash-to-subject distances.

#### Auto flash range

Marks on the distance scale (● on 28, ● and ○ on 32) indicate the maximum subject distance for usual correct auto exposure; subjects farther than this from the flash will normally be underexposed. (Marks with a "w" besides them are used with the wideangle diffuser; see p. 18).

On both units, the minimum subject distance for auto exposure is 0.7m (2.3 ft.); subjects closer than this to the flash will normally be overexposed.





**NOTE**

The following apply if you are using reversal-type color film (for slides):

- If your subject does not fill enough of the center part of the frame against a dark background (such as outdoors at night), it may be necessary to close the lens down a half stop more than the aperture set on the flash dial (e.g., if the dial is set at  $f/5.6$ , lens would be set between  $f/5.6$  and  $f/8$ ). For similar subjects against very light-colored backgrounds (such as a white wall), on the other hand, it may be desirable to open the camera lens a half stop more than the aperture set on the dial (e.g., if the flash dial is set at  $f/5.6$ , lens would be between  $f/4$  and  $f/5.6$ ). The exact setting will be determined by individual conditions in either case.

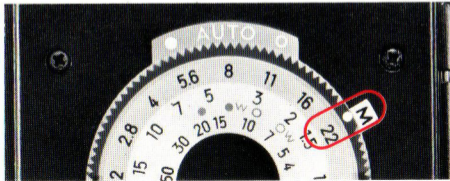
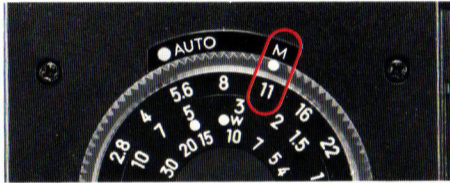
- Further, when recycling time is long with partially discharged batteries or if the flash is to be fired immediately after the monitor lamp comes on with fresh batteries or a fully charged nicad pack, the maximum subject distance should be considered to be the distance-scale indication opposite the first aperture to right of the one at which the index dot is set (e.g., if the dot is set at  $f/5.6$  with a film-speed of ASA 100, maximum subject distance to assure adequate exposure should be about 3.6m or 12 ft. on model 28, as indicated opposite  $f/8$ ).

**CAUTION**

Make sure the sensor window is kept clean and is not obstructed by anything while you are taking pictures.

## Manual operation

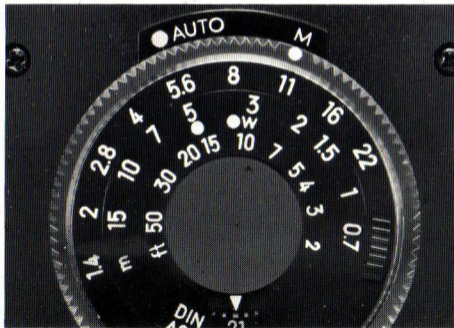
1. Make sure the index of the control ring on the Auto Electroflash is set at the click-stop designated "M".



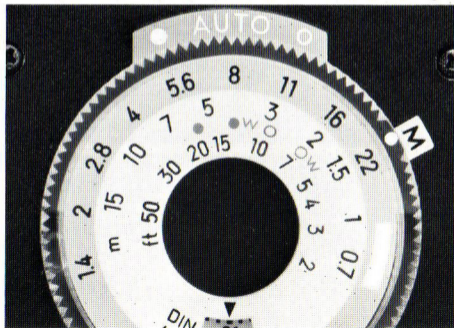
2. Move the power switch to "ON" (except with the AC adapter; see p. 28).

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3. For proper exposure with normal subjects and conditions, set the lens aperture on the camera to the f-number that appears opposite the flash-to-subject distance on the computer dial (e.g., with a film-speed of ASA 100 or DIN 21 set, the aperture would



be f/2.8 for 10m or 33 ft., between f/8 and f/11 for 3m or 10 ft., or between f/16 and f/22 for 1.5m or 5 ft. on the Auto Electro-flash 28; f/2 for 15m or 50 ft., f/5.6 for 6m or 19 ft., or f/16 for 2m or 7 ft. on the 32 model). For proper exposure with wideangle



diffuser, see p. 19.

4. With the monitor lamp glowing, release the camera shutter to take the picture. Flash duration remains fixed at 1/1,000 sec.

#### NOTE

The following apply if you are using reversal-type color film (for slides):

- For dark subjects or in poor reflecting conditions (such as outdoors at night or in dark surroundings indoors) on manual mode, it is generally recommended that the lens be opened a half stop more than indicated by the dial (e.g., if the aperture indicated is between f/8 and f/11, set the camera lens at f/8).

The exact setting will be determined by individual conditions.

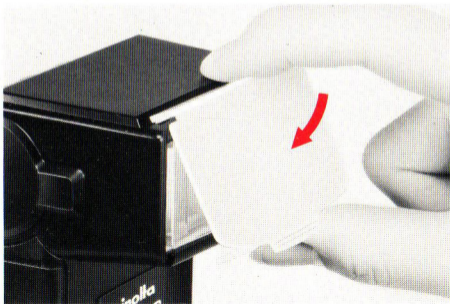
- Further, if the flash is to be fired immediately after the monitor lamp comes on with

fresh batteries or a fully charged nicad pack, or when recycling time is long with batteries that are partially discharged, the lens should be opened a further half to one stop more than indicated above (e.g., if the indicated aperture is f/8, set the camera aperture between f/5.6 and f/8 or at f/5.6)

## WIDEANGLE DIFFUSER

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Just as it is, your Auto Electroflash 28 or 32 provides sufficient coverage for 35mm or greater focal length lenses with the full-frame 35mm format. To extend coverage for lenses down to 28mm wideangle, snap the wideangle diffuser supplied with the flash unit securely on over the flash-tube guard window as shown.



The diffuser decreases light reaching the subject by one half. The electronic circuit will of course increase flash duration as much as possible to compensate for this so that no special exposure setting is necessary in auto operation, but the maximum subject range for correct exposure will decrease. Thus, on the model 28, instead of appearing opposite the plain yellow dot on the distance scale opposite the "AUTO" setting, the maximum subject distance for auto direct flash is at the dot to the right of it marked with a "W," viz., 3.5m or 11.7 ft. Similarly, with the model 32, the maximum subject distances for direct flash for either "AUTO" setting appear opposite the respective distance-scale dots marked with a "W," viz., 4m or 13 ft. for the left-hand setting and 2m or 6.7 ft. for the right.



## AUTO BOUNCE FLASH

Instead of using the direct light of the flash, it is often possible to reflect it from some nearby surface to illuminate the subject. This is called "bounce" flash and not only provides softer and often more pleasing light but may improve saturation in color work as well. To employ this technique with the automatic exposure control of your Auto Electroflash 28 or 32:



1. With the Auto Electroflash 28, make sure that the unit is set for automatic mode. With the model 32, set the computer dial for the larger of the apertures available (with the camera lens set to the same f-number), this is advisable since the comparative strength of light falling on the subject is considerably reduced with bounce flash, the exact amount varying widely with bounce conditions. Maximum subject distance for correct exposure also decreases considerably; though individual conditions determine just how much, it may be convenient to consider it about one half that indicated by the flash dial (e.g., if the dial indication is 5m or about 16 ft., estimate maximum range at 2.5m or about 8 ft.). With a bounce surface of good reflectivity.
2. With the unit mounted as usual on the camera, turn the flash head away from its forward position so that it points toward the surface you wish to bounce the light from, such as the ceiling with the camera

held horizontally or a wall with the camera in position for vertical pictures.

The flash head can be set by friction at any point up to  $90^\circ$  from straight ahead and has click-stops at  $50^\circ$  and  $65^\circ$  as well as at the extremes.

To avoid uneven exposure from direct-flash light also falling in the picture area, the head should be set at the second click-stop or farther from straight ahead with lenses down to 28mm wideangle on full-frame 35mm. With 50mm or longer telephoto lenses, the head may be set at the click-stop nearer straight ahead or any point between there and  $90^\circ$ . These ranges are indicated on the flash-unit body above the computer dial. Surfaces from which flash is bounced should generally be as light and as neutral in color as possible (e.g., mat white), since dark ones will not reflect enough and colored ones will affect the balance of the light falling on the subject. This is particularly important with color film.

3. Fire the flash to take the picture in the

usual way.

#### NOTE

Wideangle diffuser should not be used in bounce-flash operation, since it reduces light of the flash and is not necessary even with 28mm wideangle lenses.





## FILL-IN FLASH

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Though primarily intended for use as the sole or main light source in flash pictures, your Auto Electroflash 28 or 32 can be used to balance or fill in shadows with such bright light sources as daylight under appropriate conditions. Suitable ones to start with on either auto or manual mode are those in which ambient and flash indications call for the same exposure settings. Then the indicated shutter speed is used but the lens is closed down one half to one stop from that indicated (e.g., for 1/60 sec. at f/11, the shutter is left at 1/60, but the lens is set at between f/11 and f/16 or at f/16. From this starting point, settings may be further adjusted toward obtaining effects desired under various conditions.

### CAUTION

Make sure the subject to be filled in is not outside the applicable flash distance range.



## OPEN FLASH

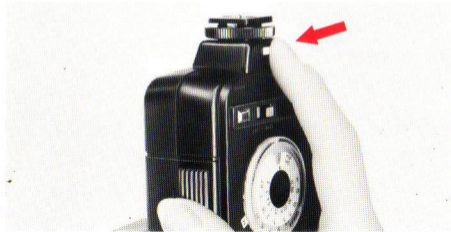
Actuating a flashgun one or more times while the camera shutter remains open on "B" (bulb) or "T" (time) is called "open flash."

Firing the flash a number of times with this technique may be useful to illuminate large, dark, stationary subjects (such as a house exterior at night) or to produce "stroboscopic"-type effects with a moving subject. It can of course be used with a short bulb exposure under dark or dim conditions to make single exposures with non-synchronized cameras.

For open flash, disconnect the flash from the camera and use the two independently: With the camera stationary on a tripod or other firm support, open the shutter and fire the flash as many times as desired by means of the open-flash/test button.

This button merely acts to trigger the flash in place of the camera shutter's sync. switch. Flash duration is still controlled by the sensor

in automatic operation and remains fixed at maximum power on manual. Flash-dial settings and indications and exposure produced will thus be the same with open flash as in usual auto or manual operation. That is, auto dial settings will generally produce correct one-shot exposure with the camera lens set as indicated on pp. 12 through 14 while the manual setting will yield proper exposure as indicated on pp. 15 through 17.



## NI-CD BATTERY PACK

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The optional Minolta Ni-Cd Battery Pack NP-1 can be used indefinitely to power your Auto Electroflash 28 or 32 by recharging with the Minolta Ni-Cd Charger NC-1 sold with the pack. It provides shorter recycling time and is virtually unaffected by usual low temperatures.

*Do not attempt to use nicad batteries, packs, or chargers other than those above with the Auto Electroflash 28 or 32; it may be dangerous.*

### Installing

Remove the battery-chamber cover as indicated on p. 6 and insert the Ni-Cd Battery Pack NP-1 into the chamber with the plain end out. (There is a T-shaped stop in the chamber that must fit into a corresponding hole in the other end of pack, so that it cannot be fully inserted wrong.) Then slide the chamber cover back on while pushing the pack into the chamber slightly.



## Charging

The Ni-Cd Charger NC-1 is available with Edison (American-type) plug or Siemens (European-type) plug and has a switch to set it for either 115-volt or 230-volt alternating current of 50 or 60 Hz (cycles) only.

It is best to charge the Ni-Cd Battery Pack before each use. This is accomplished with the pack installed in the flash unit (with the power switch either on or off) as follows:

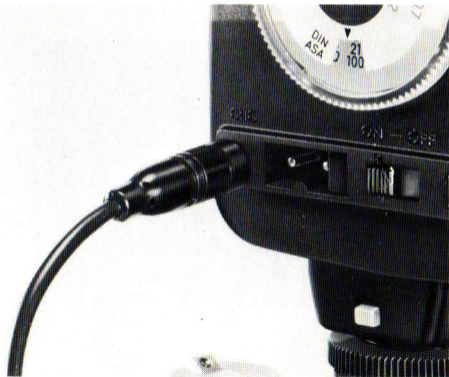
1. Make sure that the charger switch is properly set for your power source, i.e., at "115" for power of approx. 105 to 127 volts or at "230" for power of approx. 210 to 250 volts.

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2. Insert the single-prong plug of the charger cord as far as it will go into the socket marked "CHG." at the lower left of the flash unit's computer dial.



3. Insert the charger plug into an electric outlet and allow the batteries to charge for the time required.

Full charge is reached in 3-1/2 hours. When charging is complete, disconnect both the charger's AC plug and the input to the flashgun.

A full charge with the pack in normal-capacity condition should provide 70-80 flashes with model 28, 55-65 with the 32, over a relatively short period of time. If time does not permit charging the nicad pack fully, it can be charged for shorter periods to yield approximate numbers of flashes as follows:

| Auto Electroflash | 1/2 hr. | 1 hr. | 2 hrs. | 3 hrs. | 3-1/2 hrs. |
|-------------------|---------|-------|--------|--------|------------|
| Model 28          | 12      | 25    | 50     | 60-70  | 70-80      |
| Model 32          | 10      | 20    | 40     | 50-60  | 55-65      |

Nicad batteries in general tend to discharge themselves if left unused for a period of time. The discharge rate depends upon temperature and humidity, but at levels for usual living, the Ni-Cd Battery Pack NP-1 should be recharged for about an hour once a month even when not used at all.

Further, if left unused for a long time (e.g., several months), nicads will not reach full capacity even if charged for the full recommended time or more. Repeated partial charging of nicads also may reduce their capacity to hold a charge at least temporarily. In either case, discharging and recharging them a number of times will generally restore their maximum charge-holding capacity.

## CAUTION

- The Minolta Ni-Cd Charger NC-1 and Ni-Cd Battery Pack NP-1 are designed to be used only together with the Minolta Auto Electroflash 28 or 32 units. *Do not use any other units in conjunction with these. Specifically, the Ni-Cd Charger 280, designed for the Minolta Auto Electroflash 280 cannot be used as a substitute for the NC-1.*
- The Ni-Cd Battery Pack should not be charged at temperatures below 5°C (41°F).
- Charging the pack longer than 3-1/2 hours is not recommended, though a slight overcharge should have no adverse effect.
- Be careful that the nicad pack is never short-circuited (i.e., its terminals directly connected) as it will overheat.
- Do not attempt to disassemble the nicad battery pack.
- Do not dispose of the nicad pack in a fire.

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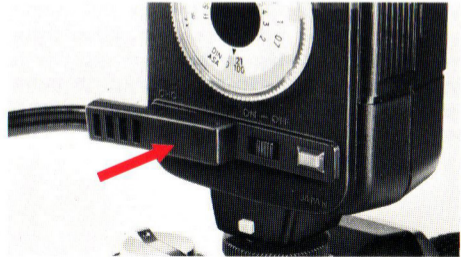
- If the flash unit is not to be used for more than a month, the nicad pack should be removed to avoid the possibility of corrosion.

## AC ADAPTER

The optional Minolta AC Adapter-1 can be used to power your Auto Electroflash 28 or 32 from household alternating current of 50 or 60 Hz (cycles) and 115 or 230 volts.

To use this unit:

1. With the flash-unit power switch at "OFF", insert the small rectangular plug on the adapter's cord as far as it will go into the AC adapter input socket on the flash unit.



2. Make sure that the switch on the adapter is properly set for your power source, i.e., at "115V" for 107 – 127v or "230" for 215 – 250v.
3. Plug the adapter into an electric outlet.

Though with the adapter plug inserted into the input socket the power switch on the flash unit cannot be moved to "ON", connecting the unit to the AC power source will start the



capacitor charging. Otherwise, operation of either the Auto Electroflash 28 or 32 is the same as indicated for non-rechargeable or rechargeable batteries.

### CAUTION

- Never connect the adapter with a power source of voltage higher than the range indicated (such as 230 volts) with the switch set for 115 volts, as this will damage both adapter and flash unit.
- Using a lower-voltage power source (such as of 115 volts) with the adapter switch set for 230 volts will not supply enough power to the flash unit.
- The AC Adapter-1 can be used over a temperature range of -10 to +40°C (14 to 104°F).



## SPECIFICATIONS

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Type: Clip-on type automatic/manual with movable head for bounce-flash operation

|                 |                 |                 |
|-----------------|-----------------|-----------------|
| Guide number:   | <u>Model 28</u> | <u>Model 32</u> |
| Meters, ASA 100 | Up to 28        | Up to 32        |
| Feet, ASA 25:   | Up to 46        | Up to 52        |
| Meters, DIN18   | Up to 20        | Up to 22        |

|                           |          |     |    |     |     |     |                          |
|---------------------------|----------|-----|----|-----|-----|-----|--------------------------|
| Aperture/distance ranges: | ASA      | 25  | 50 | 100 | 200 | 400 | Distance range           |
|                           | Model 28 | 2.8 | 4  | 5.6 | 8   | 11  | 0.7 – 5m (2.3 – 16.4')   |
|                           | Model 32 | 2.8 | 4  | 5.6 | 8   | 11  | 0.7 – 5.7m (2.3 – 18.7') |
|                           |          | 5.6 | 8  | 11  | 16  | 22  | 0.7 – 2.9m (2.3 – 9.5')  |

Flash duration: 1/40,000 to 1/1,000 sec. in auto operation, 1/1000 sec. in manual (non-automatic) operation

Color temperature: Balanced for daylight-type color film

Coverage: Covers field of lenses down to 35mm focal length on full-frame 35mm cameras, down to 28mm focal length with wideangle diffuser

Power sources: Four self-contained 1.5v AA (penlight)-size alkali-manganese (Mallory Mn 1500 or equivalent) or sealed carbon-zinc cells, the self-contained Minolta Ni-Cd Battery Pack NP-1, or 115v ( $\pm 10\%$ ) or 230v ( $\pm 10\%$ ) 50/60Hz (cycle) alternating current with the optional Minolta AC Adapter-1

|                                       | <u>Model 28</u>  | <u>Model 32</u> |
|---------------------------------------|--|-----------------|
| Number of flashes/<br>recycling time: | Sealed C-Zn cells  | 50 / 7-11 sec.  |
|                                       | AM cells:  | 160 / 7-10 sec. |
|                                       | Ni-Cd Pack:  | 70-80 / 3 sec.  |
|                                       | AC Adapter:  | 5-8 sec.        |
| Sensor angle of<br>acceptance:        | 20°  |                 |
| Flash-head<br>movement:               | 90° upward from horizontal, with click-stops at 50°, 65°, 90°, and both extremes   |                 |
| Sync. contacts:                       | Direct contacts for hot shoe, jack for attaching separate sync. cord   |                 |
| Controls and other:                   | Grip for setting film speed ASA 25-400 (DIN 15-27); control ring around computer dial to set auto/manual mode, also one of two selectable apertures on Model 32, which also has illuminated dial; power switch; monitor lamp; open-flash/test button; bracket clamp; socket for Ni-Cd charger input (inserting plug automatically prevents condenser charging) |                 |
| Optional accessories:                 | Minolta Ni-Cd Battery Pack NP-1 with Ni-Cd Charger NC-1 that charges it without removing from unit in 3-1/2 hrs. from 115/230v 50/60Hz AC current; Minolta AC Adapter-1 that power flash unit from 115/230v 50/60Hz AC current   |                 |
| Dimensions:                           | 45 x 74 x 130mm (1-3/4 x 3 x 5-1/8 in.) overall with flash head forward  |                 |
| Weight:                               | 250g (8-1/4 oz.) without batteries   |                 |

## CARE AND STORAGE

- Your Auto Electroflash may be wiped with a silicone-treated cloth to clean it. Do not allow alcohol or chemicals of any other kind to touch its surface.
- Avoid keeping the unit in places subject to high temperature, high humidity, dust or dirt. Store it in a cool, well ventilated place.
- Remove batteries whenever the flashgun is not to be used for more than a month.
- Never attempt to disassemble the flash unit. Any repairs necessary should be undertaken only by an authorized Minolta service facility.

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