

Instructions
for operating the
Kodak Motor Drive Unit
for use with Ciné-Kodak

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

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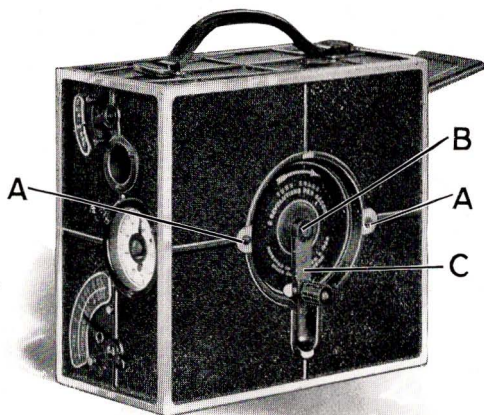


Fig. 1

Instructions for operating the Kodak Motor Drive Unit for use with Ciné-Kodak

THE KODAK MOTOR DRIVE UNIT consists of a motor which connects with the driving shaft of the Ciné-Kodak; a storage battery which is located just behind the motor; a charging outfit; and necessary connections to the various parts.

To successfully operate the Kodak Motor Drive Unit, these instructions must be carefully followed.

Attaching the Kodak Motor Drive Unit

Before the Motor Unit can be attached to the Ciné-Kodak, first remove the two screws A-A, also the screw B, Fig. 1. Then remove the hand crank C, Fig. 1, by pulling it off the end of the shaft.

In place of the hand crank C, Fig. 1, place the motor drive crank D, Fig. 2, page 4, making sure that the motor drive crank is pushed in and properly seated. Fasten it in position, using the same screw B, Fig. 1, which held the hand crank.

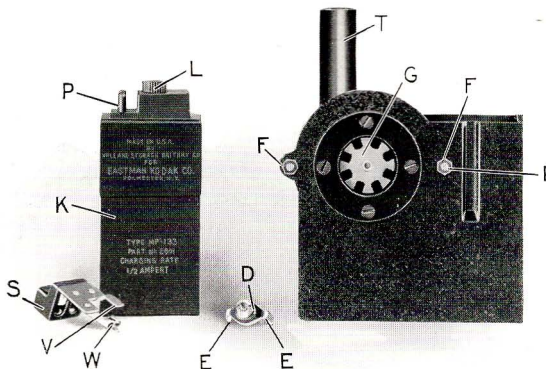


Fig. 2

Remove knurled nuts F-F, Fig. 2, from the Motor Drive Unit and place the Unit in position on the side of Ciné-Kodak, as shown in Fig. 3. The prongs E-E, Fig. 2, on the motor drive crank D must be meshed in any two opposite holes on the drive wheel G of the motor. To do this, it may be necessary to rotate the fly wheel of the Ciné-Kodak (the fly wheel is illustrated in Fig. 1, page 5, in the Ciné-Kodak manual), holding the Motor Unit against the Ciné-Kodak until the prongs E-E, Fig. 2, slip into position. Fasten the front screw H, Fig. 3, turning it to the right by hand. Insert the rear screw I, Fig. 2, and tighten it with a screw driver, inserting the screw driver through the opening J, Fig. 3. Be sure that this screw is flush with the top of the hole and that it draws the Motor Unit close to the camera, then finish tightening the screw.

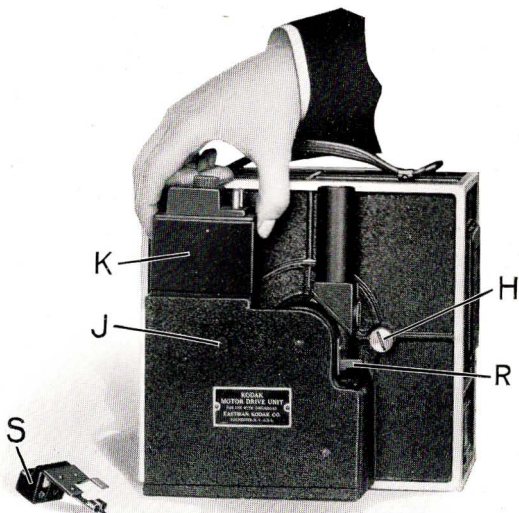


Fig. 3

Preparing the Battery

The storage battery K, Fig. 2, is furnished in a dry-charged condition. It will be necessary to fill it with battery solution before it can be used. We recommend taking the battery to a storage battery service station (preferably a Willard Station) to have it filled. Take these instructions with you to the service station. The battery *must be filled* in the following manner:

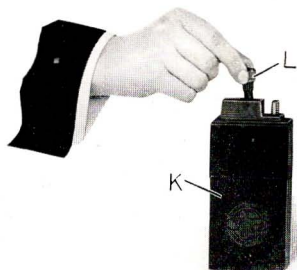


Fig. 4

have this solution made up at a drug store, using pure oil of vitriol (sulphuric acid) and distilled water. It will be necessary to have six ounces of the solution.

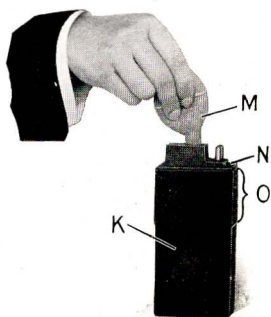


Fig. 5

1. Place the battery in a porcelain or glass dish. Unscrew and remove the vent plug L, Fig. 4, and with the rubber syringe M, Figs. 5 and 6, fill the battery to within one-half inch of the inside of the top cover N, Figs. 5 and 6, to the level as indicated in diagram, Fig. 6, with a sulphuric acid solution having a specific gravity of 1.290. Only in case a battery station is not available,

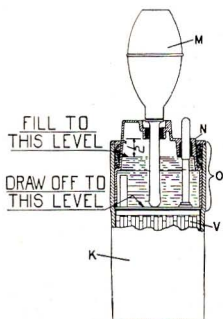


Fig. 6

Caution: The sulphuric acid solution is poisonous and will attack all fabrics with which it comes in contact. Any excess solution may be poured slowly into a sink, and the water should be turned on so that a generous supply goes down with the solution. This solution may be kept in a glass bottle with a glass or rubber stopper. If the solution is spilled in any manner, immediately pour on it some household ammonia.

2. After the battery is filled it should stand for one hour, during which time it should be frequently tilted to one side or the other to release any air bubbles which may be held in the battery.

3. At the end of one hour insert the rubber syringe M, Figs. 5 and 6, and draw off all solution possible from the expansion chamber O above the plates V, Fig. 6. The level of the solution in the battery K should now be at the point indicated in the diagram, Fig. 6.

4. Wipe off any solution which may be on the battery with a cloth dampened with a weak solution of ammonia.

5. Insert and screw the vent plug L, Fig. 4, firmly in position and the battery is ready for use.

Assembling the Unit and Operating

Place the battery K, Fig. 3, page 5, in the case with the terminals P, Fig. 7, next to the motor or towards the front of camera, in the manner as shown in Fig. 3, page 5. Be sure that the push button R, Fig. 8, is *out*. Insert the connecting block S, Fig. 7, between the battery and motor, pushing it down over the terminals P of the battery, as shown in illustration (Fig. 7).

When the Ciné-Kodak is not to be used for a day or more, it is advisable to remove the connecting block S to prevent a slight corrosion of the metal parts.

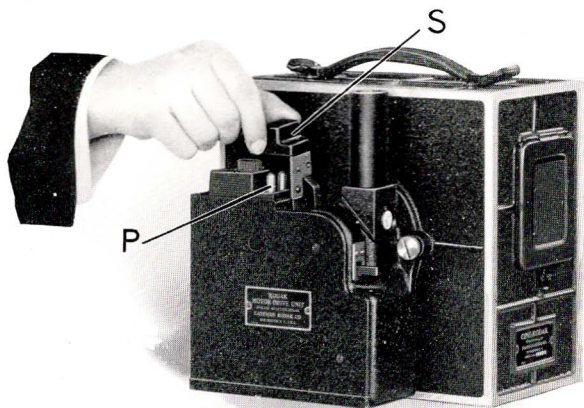


Fig. 7

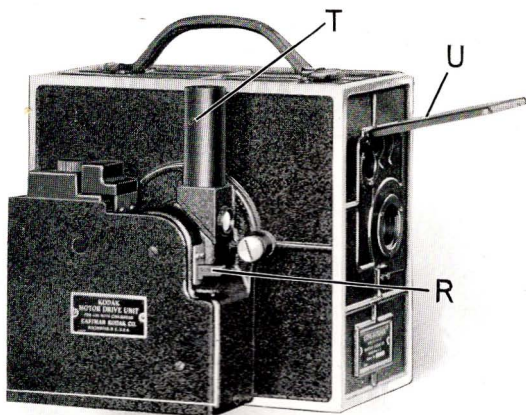


Fig. 8

The two contacts V-W of the connecting block S, Fig. 2, page 4, should be polished with sandpaper occasionally, so that they will remain bright and insure perfect contact between the battery and motor. Be careful not to bend the contacts V-W, or they will not connect the battery and motor properly.

The Ciné-Kodak, with the Kodak Motor Drive Unit attached, is shown in Fig. 8.

To operate the Ciné-Kodak with the motor, first locate the subject in the finder, then press in the push button R. The motor will run as long as the push button is pressed in.

Should the motor fail to start, when the push button R is pressed in, then turn the knurled head, which is located on the bottom of the Motor Unit, to the right. This will start the motor.



Fig. 9

If it is desired to operate the Ciné-Kodak for any length of time, the push button R, Fig. 8, page 9, may be locked into position by pressing it in and pushing it down. The notch underneath the button will lock and hold it back in position. To stop the motor, lift up the push button and let go.

The Ciné-Kodak may be held in the hands when operating it with the Kodak Motor Drive Unit. It is essential, however, to hold the camera *steadily*. When the Ciné-Kodak is held down low and the top finder is used (see page 12), hold the Ciné-Kodak firmly against the body. If the rear finder is used, then hold the camera between the arms with the arms rigid.

Illustration Fig. 9 shows the proper method of operating the Ciné-Kodak with the Kodak Motor Drive Unit attached and using the Unipod, described on page 12.

With the Kodak Motor Drive Unit the exposures are sometimes cut too short. Each scene should be given an exposure of at least ten seconds, whether it includes action or not.

Important: When using the Ciné-Kodak with the Kodak Motor Drive Unit, be sure to wait until the *motor stops running* after the push button R is released before moving the Ciné-Kodak, or a blur in the picture will result.

The hand crank C, Fig. 1, page 2, and a suitable screw driver for removing the Kodak Motor Drive Unit, should be carried, so that in case the motor refuses to work, or the battery becomes discharged, the Ciné-Kodak can then be operated by hand.

The Kodak Motor Drive Unit and the Ciné-Kodak should be taken to a Kodak dealer every six months to be oiled. The shaft which projects through the bottom of the motor case should be oiled, using a light sewing machine oil, every time the battery is changed or recharged.

The Unipod

The Unipod, which can be obtained as an accessory, is made in the form of a walking cane. It provides a convenient means to steady the Ciné-Kodak when operating it with the Kodak Motor Drive Unit, instead of using the regular tripod. To use the Unipod, detach the head by first grasping the staff of the cane with one hand and then unscrew the hook by turning it to the left with the other hand. The screw at the top of the staff is intended to fit into the tripod socket of the Ciné-Kodak.

Additional Finder

There is an additional finder T, Fig. 8, page 9, on the Kodak Motor Drive Unit. This is to enable the operator to locate the subject from above the Ciné-Kodak instead of from the rear, which will be found very convenient when taking pictures where the subject is down low, like a small child, or a dog, or when the Ciné-Kodak is used on the Unipod. This finder shows the subject accurately centered when it is at a distance of twelve feet or farther from the Ciné-Kodak. It will not show the exact scope of view when taking close-ups; a slight allowance must be made when the subject is nearer than twelve feet, turning the Ciné-Kodak a little to the right.

Caution: *Be sure that the lens cover U, Fig. 8, page 9, is open before operating the Ciné-Kodak.*

After having become accustomed to using the rear finder on the Ciné-Kodak, through which the subject is not visible until the lens cover is opened, one is liable to operate the Ciné-Kodak with Kodak Motor Drive Unit attached, without first opening the lens cover, as the subject may be viewed in the finder T, with the lens cover closed. There is a warning placed over the lens of the finder which reads: "OPEN LENS COVER."

How to Recharge the Battery

Due to the dry-charged condition in which the battery is furnished, it will not run the Ciné-Kodak for as many feet of film as will be the case when it is recharged. However, it will run at least 300 feet of film before it needs recharging; then the battery should be recharged in the following manner:

To recharge the battery, first remove the connecting block (S, Fig. 7, page 8) and then the battery (K, Fig. 3, page 5). Unscrew and remove the vent plug (L, Fig. 4, page 6).

Place in the battery one syringe full of pure water, using syringe N, Fig. 11, page 15. This water should be distilled or rain water which is caught directly in a porcelain dish and kept in a glass bottle may be used. After adding the water, tilt the battery from one side to the other, and let it stand for about five minutes. Insert the syringe at the end of this time and withdraw all solution possible, as shown in Fig. 5, page 6. The same precaution should be followed with this solution as with the original filling solution (see page 7).

Replace the vent plug (L, Fig. 10, page 14) in position, but *do not screw it down*. The battery is now ready for recharging.

The most convenient method of recharging the battery is by means of ordinary dry cells.

There are three wires included with the charging outfit, two of which are fitted with spring clips. These are to be used when recharging the battery with dry cells.

It will be necessary to procure two fresh dry cells of standard size; the size used for door bells. With some makes this size is known as No. 6.

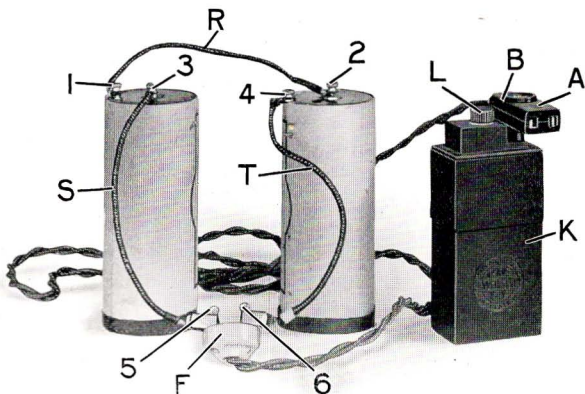


Fig. 10

This illustration shows the battery and charging outfit assembled for recharging when dry cells are used.

Connect the cells to each other by means of wire R, Fig. 10, attaching the wire at points 1 and 2. Attach wires S and T to the dry cells at points 3 and 4, as shown in Fig. 10.

Place the charging unit A over the terminals of the battery K in the manner as indicated in Fig. 10. Attach the wires S and T to the prongs 5 and 6 of the plug F. If the compass needle G, Fig. 11, page 15, points away from the white arrow B, Fig. 10, then detach the spring clips from the prongs 5 and 6, and reverse the position of the plug F, attaching clip on wire S to prong 6, and clip on wire T to prong 5.

Important: Clean the prongs 5 and 6 of the plug F, with sandpaper, occasionally, to insure perfect contact with the spring clips on the ends of wires S and T.

After the two dry cells are properly connected, with the compass needle G pointing to the arrow B, charge the battery for twenty-four (24) hours. After this time, remove the charging unit A from the battery, screw the vent plug L firmly into position, and the battery is ready for use. It should now run the motor of the Ciné-Kodak for 600 feet of film, after which the battery must be again recharged.

If the motor is not used for two months, the battery should be recharged before using it.

After recharging the battery, the two dry cells should be discarded, as they will be exhausted and will be of no further use.

NOTE: When the battery is completely charged, from whatever source of electricity is used, the bubbling of the solution should be distinctly audible by listening close to the battery.

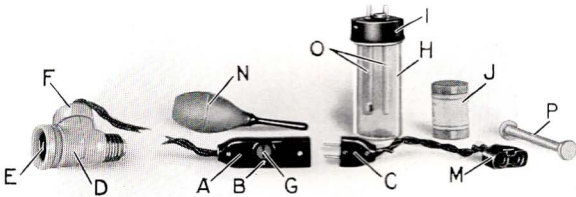


Fig. 11

If desired, the battery may be recharged using the electric current from a house circuit. This must be done in the following manner:

Prepare the battery by placing pure water in it, in the manner as described on page 13. After removing the solution as directed, replace the vent plug L, Figs. 12 and 13, pages 16 and 17, in position, but *do not screw it down*.

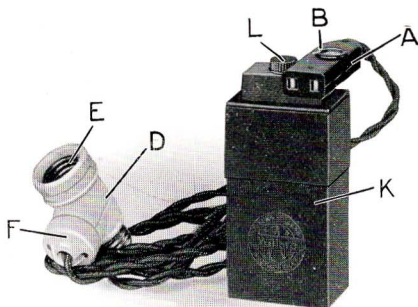


Fig. 12

This illustration shows the battery and charging outfit assembled for recharging when a *direct* current is used.

Place the charging unit A, Fig. 11, page 15, over the terminals (P, Fig. 2, page 4) on the battery in the position as shown in Fig. 12, with the white arrow B on the charging unit A, pointing to the west. The compass needle will then point the long way of the unit. Remove the plug C, Fig. 11, from the charging unit.

Connect the attachment plug socket D, Fig. 12, in any electric outlet; place a lamp of at least 60 watts in socket E, and turn on the current. Insert the plug F, which is attached to the charging unit A, into the attachment plug socket D, and the lamp will burn.

Notice the compass needle G, Fig. 11, page 15, on the charging unit A. If it continues to point due north the current with which the outfit is connected is *alternating* current, and the rectifier H, Fig. 11, will have to be used. If the needle G points toward or away from the white arrow B, the current is *direct* and the battery may be charged without the use of the rectifier H. If the needle G points

away from the arrow, remove the plug F, Fig. 12, and insert it in the reverse position. The needle G should now point towards the white arrow B. Charge the battery in this manner for the length of time as given in the table on page 19, using a lamp of one of the sizes recommended.

If, as indicated by the compass needle G, Fig. 11, page 15, remaining in a due north position, the current is *alternating*; it will then be necessary to use the rectifier H, Fig. 13, which should be prepared in the following manner:

Unscrew top I, and open the rectifier H, pour into it the chemicals contained in the box J, Fig. 11, page 15, that is included in the charging outfit. Fill the rectifier to within one-half an inch of the top with pure water and stir the solution with the stirring rod P, Fig. 11, page 15, until the chemicals are dissolved. After the chemicals have been thoroughly dissolved, replace the cover I and the rectifier is ready for use.

With *alternating* current, place in socket E, Fig. 13, a lamp of one of the sizes as recommended in the table on

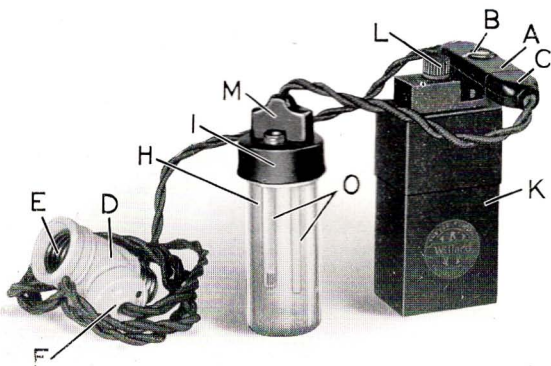


Fig. 13

This illustration shows the battery and charging outfit assembled for recharging when an *alternating* current is used.

page 19. Attach the plug M, Fig. 13, page 17, over the terminals of the rectifier H, as shown in Fig. 13, and insert plug C, Fig. 11, page 15, in the charging unit A; then allow the outfit to stand for ten minutes. During this time the lamp will grow dim and the compass needle G will assume a position towards or away from the white arrow B. In case the needle points away from the arrow, remove plug C, Fig. 13, page 17, and insert it in the reverse position. This will bring the needle G pointing towards the white arrow B. Now charge the battery for the length of time as given in the table on page 19.

When recharging the battery, place it on a porcelain or glass plate to catch whatever solutions may come out of it. It is advisable to keep the rectifier cool. To do this, place it in a cup of water, so that the water will come to about one inch from the bottom of the rubber cap or top I, Fig. 13, page 17.

After the proper charging time has elapsed, as given in the table on page 19, detach the charging outfit, screw the vent plug (L, Figs. 12 and 13) firmly into position, and the battery is again ready for use. It should now run the motor of the Ciné-Kodak for 600 feet of film, after which the battery must be recharged.

In case the motor is not used for two months, the battery should be recharged before using it, charging it for about half the time as stated in the table on page 19.

Prepare a fresh chemical solution in the rectifier each time it is used. New chemicals may be obtained from your Kodak dealer. Clean the electrodes O, Fig. 13, page 17, and the prongs on plugs C and F with sandpaper.

Caution: Be careful not to get any of the acid solution into the rectifier, or the chemicals in the rectifier will be ruined.

CHARGING TIME IN HOURS

Watts of Lamp used	Alternating Current Using Rectifier	Direct Current Without Rectifier
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110 Volt Circuit*

150	18 Hours	Do not use
100	27 "	Do not use
75	32 "	Do not use
60	40 "	18 Hours
50	45 "	20 "
40	Do not use	26 "
25	Do not use	42 "

220 Volt Circuit*

100	To use 220 Volt A. C. write for special instructions	20 Hours
75		30 "
60		40 "

*To determine the voltage of the circuit, refer to the sticker on a lamp taken from the circuit.

If the battery is emptied for any reason and then the electrolyte is replaced, it must be recharged before it can be used again.

EASTMAN KODAK COMPANY,
ROCHESTER, NEW YORK.

IMPORTANT

WHEN using the Ciné-Kodak with the Motor Drive Unit, it is essential that the camera be held steadily. Any movement of the camera, while making an exposure, is greatly magnified when the picture is projected on the screen, with the result that an excellent picture may be spoiled by an unpleasant effect when it is projected.

When no support is used it is best to hold the camera firmly against the body, so that the fixed objects which appear in the finder show as little movement as possible. The Unipod is an excellent device for steadying the Ciné-Kodak. It is an attractive cane, the curved handle of which can be removed so the top of the stick can be attached to the bottom of the camera.

The tendency when using the Motor Drive Unit is to cut the exposures too short. At least ten seconds should be given to each scene, whether it contains action or not. An easy way to determine approximately the number of seconds which elapse during the taking of a scene is to count at conversational rate, "one thousand one, one thousand two, one thousand three," etc., the last count indicating approximately the number of elapsed seconds.

After taking a picture *do not move the camera until the motor stops running*. The momentum of the motor will cause it to run for a short time after the contact button has been released, and if the camera is moved during this period a portion of the film will be badly blurred.

EASTMAN KODAK COMPANY,
ROCHESTER, NEW YORK.



CHARGED BONE-DRY TYPE MP BATTERY.

This Bone Dry Battery is shipped with the plates in a charged condition. This battery may be placed in service in approximately one hour's time after filling with electrolyte, or storage battery acid.

The electrolyte is dilute sulphuric acid having a specific gravity of 1.290. The acid must be pure and suitable for storage battery use.

Electrolyte of proper density (1.290 specific gravity or 32.6° Baume) can be obtained from any authorized Willard Service Station. If desirable, it can be prepared from pure concentrated sulphuric acid (1.835 specific gravity or 66° Baume) by mixing 1 part by volume of acid to $2\frac{2}{3}$ parts by volume of distilled water.

CAUTION: In mixing this electrolyte always pour the acid into the water. NEVER POUR THE WATER INTO THE ACID AS THIS IS DANGEROUS. Use only glass, hard rubber or lead containers for mixing electrolyte.

Electrolyte of proper density (1.290 specific gravity or 32.6° Baume) can also be prepared by mixing 10 parts by volume of sulphuric acid of 1.400 specific gravity (41.4° Baume) with $4\frac{1}{2}$ parts by volume of distilled water.

DO NOT ADD ELECTROLYTE TO BATTERY DIRECTLY AFTER MIXING. IT MUST BE ALLOWED TO COOL BELOW 90° FAHRENHEIT (32° CENTIGRADE) BEFORE PLACING IN CELLS.

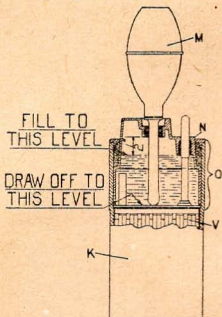
WILLARD STORAGE BATTERY CO.,
Cleveland, Ohio, U. S. A.



See directions on other side of tag for proper electrolyte which should be used for filling this battery.

AFTER ELECTROLYTE HAS BEEN MIXED AND COOLED, THIS BATTERY MUST BE PREPARED FOR SERVICE AS FOLLOWS:

1. Place the battery in a porcelain or glass dish. Unscrew and remove the vent plug and with the rubber syringe M, fill the battery to within one-half inch ($\frac{1}{2}$ ") of the inside of the top cover N, with electrolyte (sulphuric acid solution) having a specific gravity of 1.290. See illustration.



2. After the battery is filled it should stand for one hour; tilt it frequently during this time to release any air bubbles which may be held in the battery.

3. At the end of one hour insert the

rubber syringe M, and draw off all solution possible from the expansion chamber O above the plates V. The level of the solution in the battery K should now be at the point indicated in the illustration.

4. Wipe off any electrolyte that may have been spilled on the battery by means of a cloth dampened with a weak solution of ammonia.
5. Insert and screw the vent plug firmly in position and the battery is ready for use.

Kodak Motor Drive Unit

The instructions in the accompanying manual are to be carefully followed except for the few changes which are detailed below. These are made necessary because of recent improvements in the battery.

Preparing the Battery

Remove the semi-soft rubber cover from the top of the battery.

Unscrew the black caps and disconnect the terminals at the front of the battery and lift it out as shown in Fig. 3 of the manual.

Follow the instructions as given on pages 5, 6 and 7.

Replace the battery as shown in Fig. 7, except that the terminals P will be at the back instead of at the front, and there is no loose connecting block S. The two wire terminals on the battery are to be connected to the fixed terminals on the motor, and the two black caps screwed on.

Replace the rubber cap over the top of battery. The rubber cap is provided as a protection to prevent contact of any metal substance with the charging posts, which would cause a short circuit.

How to Recharge the Battery

Remove the rubber cap from the top of the battery and disconnect the wire terminals as above. Follow instructions on pages 13, 14 and 15, except when connecting the wire terminals of the battery to the dry cells. The wire A from the outside terminal (1, Fig. 10) of one of the dry cells connects with the negative wire of the battery, and the wire B from the center terminal (2, Fig. 10) of the other dry cell connects with the positive wire of the battery. The charging posts are plainly marked: "NEG." and "POS."

EASTMAN KODAK COMPANY

Rochester, N. Y.