

PENTAX

ILX

MOTOR DRIVE SYSTEM



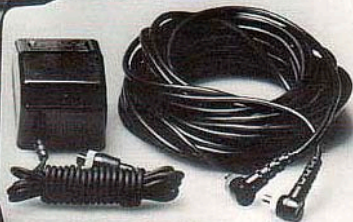
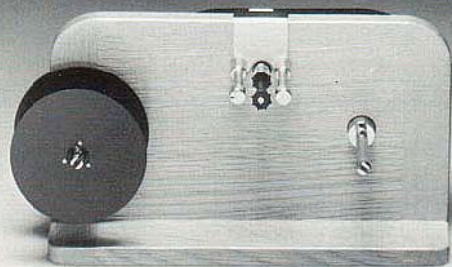
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Motor Drive LX is an extremely versatile motor drive unit which operates in conjunction with a wide range of LX system accessories, enabling it to handle the toughest professional assignments. Relatively compact and lightweight, it attaches quickly to the bottom of the camera and is designed to handle well in both horizontal and vertical shooting formats. It features both single-frame and consecutive operation with a variable film advance rate in the consecutive mode all the way from 5 frames-per-second down to 0.5 frames per second, synchronizing with all shutter speeds except "B". In addition, a choice of four power source units is available, each offering specific advantages for different types of photography. For handy shooting in the field, there's a choice of three battery powered units (one utilizes penlight batteries, the other two are rechargeable nickel-cadmium battery packs) which attach directly to the motor drive. For long hours of continuous operation or extended applications in remote control and time-lapse photography, there's Power Pack M, a portable AC power unit which features a built-in timer system and operates wherever there's a household outlet. All four power source units feature built-in shutter releases which not only permit remote control release via remote control cord, but may be set differently from the camera release button, enabling simultaneous single-frame or consecutive shutter release capability.

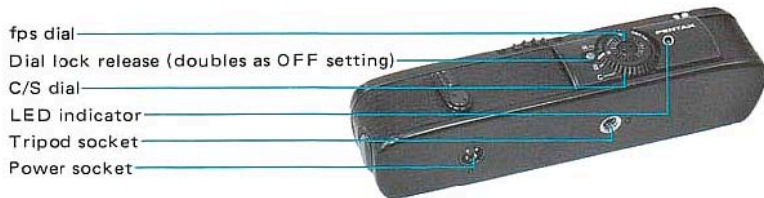
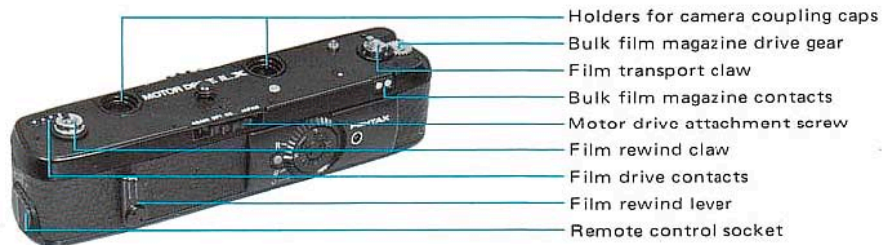
Other convenient features of Motor Drive LX include an automatic film rewind system, which lets you rewind a full 36-exposure film cartridge in just seconds, plus a built-in LED function indicator that also lets you know when you've reached the end of the film. In addition, the motor drive works in conjunction with a full range up of LX system accessories to extend applications even further. For heavy-duty professional shooting, it operates with the Bulk Film Magazine LX which holds up to 250-exposures at one time for consecutive shooting. For scientific, industrial and time-lapse photography, it may be used in conjunction with data recording equipment such as Dial Data LX and Watch Data LX to record a variety of information directly onto your negatives.

This manual provides instructions for the Motor Drive unit itself, as well as the optional accessories directly related to motor drive operation (the power sources, remote control equipment, etc.). Be sure to read the sections of the manual that apply to operation with the particular accessories used in your system. Moreover, since separate instructions are not provided for the motor drive accessories explained in this manual, keep it on hand for future reference when you add to your motor drive system. As new accessories are constantly being added to the LX camera system, also be sure to consult your Pentax dealer from time to time so as to keep abreast of the latest equipment available.



DESCRIPTION OF PARTS

MOTOR DRIVE LX

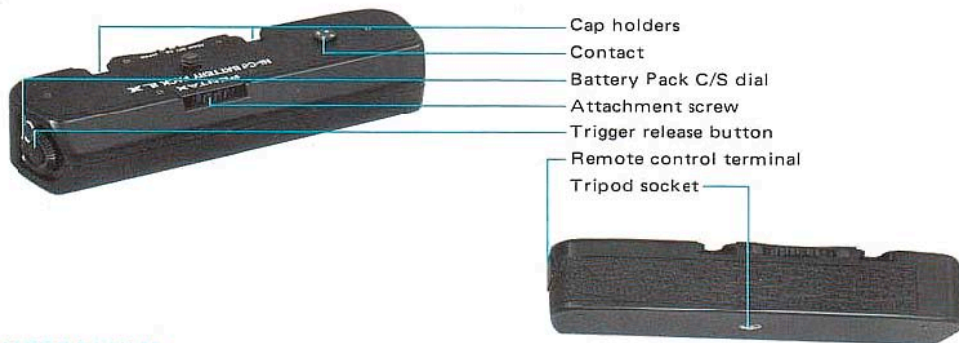


BATTERY GRIP M

NOTE: All four power source units are optional accessories.



Ni-Cd BATTERY PACK LX



CHARGE PACK M

(Optional accessory for the Ni-Cd Battery Pack LX. M)

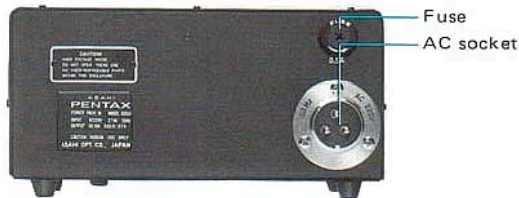
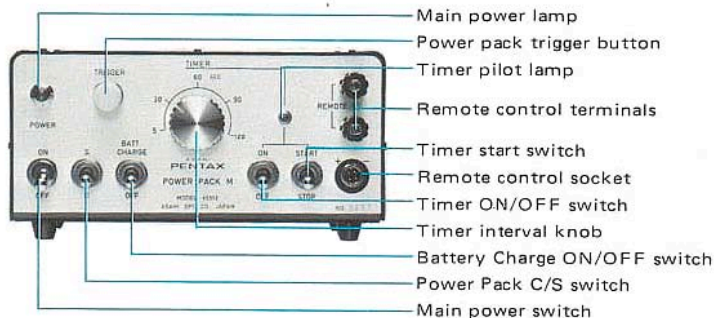


AC CORD

(Supplied with Power Pack)



POWER PACK M



REMOTE CONTROL ACCESSORIES

3m POWER CORD M
(supplied with motor drive)



10m POWER CORD M (optional)



REMOTE TRIGGER CORD M
(optional)



5m MD REMOTE CORD
(optional)



POWER SOURCE OPTIONS

The Motor Drive LX may be used in conjunction with any of three power source units, thus permitting you to tailor your motor drive system to meet individual shooting requirements. Each power source is available as a separate purchase and offers the following features.



BATTERY GRIP M ^(A)

A highly reliable power source unit that operates via disposable alkaline or manganese penlight batteries. Battery Grip M attaches directly to the base of the motor drive, and is convenient for hand-held shooting in the field. The disposable batteries used as a power source are easily obtained and may be replaced with new batteries in a few moments time (whereas a Ni-Cd Battery Pack requires 6 hours for a complete recharge). In addition, the penlight batteries allow you to shoot 2.5X longer than with a single charge of the Ni-Cd Battery Pack. Battery Grip M also operates via remote control cord, and features a convenient trigger release button on the neck of the unit. Transports and rewinds a minimum of thirty 36-exposure film cartridges with alkaline batteries.

Ni-Cd Battery Packs LX, M

The Ni-Cd Battery Packs attach quickly to the bottom of the camera. Although Ni-Cd Battery Pack LX and Ni-Cd Battery Pack M are different in design, both are functionally the same and may be used interchangeably with the LX. Both are also the smallest power source units and offer maximum maneuverability, while Ni-Cd Battery Pack LX features a trigger button at the side for added convenience in vertical format shooting. The packs can be recharged up to 300 times and have the capacity to transport 1000's of film rolls. The cost of the pack itself represents only a fraction of the cost of the batteries it replaces. Photographers who use the Ni-Cd Battery Pack a lot, even find it economical to work with two packs (one to continue shooting while the other is being recharged). Like Battery Grip M, the Ni-Cd Battery Packs may be hooked up for remote control operation via a choice of option remote control cords and feature a built-in shutter release button. The packs transport and rewind a minimum of 20 rolls of 36-exposure film per full charge (The Charge Pack M or Power Pack M is required for recharging).

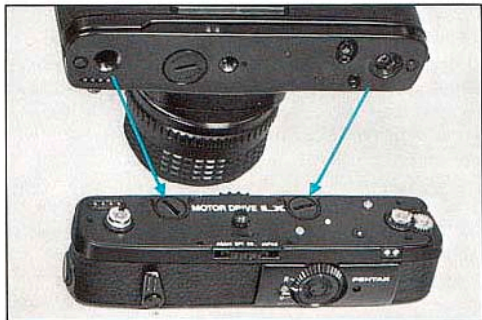
POWER PACK M

The Power Pack M unit is the most economical choice for the photographer doing a lot of studio or set work, stadium coverage of sporting and news events, work with the Bulk Film Magazine, and other types of shooting requiring prolonged operation.

As an AC power unit, it operates wherever a household electrical outlet is available, assuring stable voltage output and eliminating interruptions due to battery failure.

Additional features of the Power Pack include a built-in timer for unmanned remote control operation, and remote control terminals for remote operation at extended distances. It also serves as a recharger unit for the Ni-Cd Battery Pack M (thus eliminating the need to purchase Charge Pack M for photographers who also work with the Ni-Cd Battery Pack M).

ATTACHING/DETACHING THE MOTOR DRIVE



CAUTION: If you attach the motor drive with the film in mid-roll, always hold the base of the camera away from sunlight or other bright lighting sources. Until the unit is fully coupled with the camera, there is possibility that bright lighting seeping through the auto rewind coupling could adversely affect exposures. Likewise, when detaching the motor drive in mid-roll, avoid direct light and replace the auto rewind coupling cap on the camera immediately.

Attaching the Motor Drive

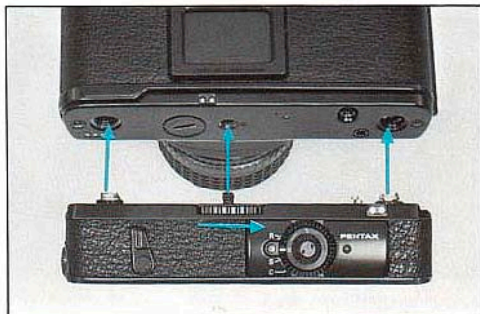
The Motor Drive attaches directly to the base of the camera via the camera tripod socket.

- Hold the base of the camera away from the light and remove the caps covering the camera film transport and auto rewind couplings. Screw both caps into the cap holders on top of the motor drive to prevent loosening them.

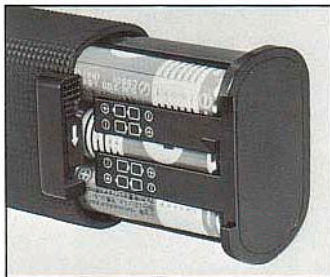
■ Set the motor drive C/S dial to OFF by aligning the index mark with the green button (see page 19). Attach the motor drive to the camera by lining up the attachment screw with the tripod socket at the base of the camera. Making sure that all contact points line up properly, secure the motor drive to the camera by turning the thumbscrew clockwise. Tighten the screw firmly to ensure proper electrical contact.

To Remove the Motor Drive

■ Loosen the screw and separate the motor drive unit from the camera. Replace the coupling caps over the couplings at the base of the camera immediately. If you do not replace the auto rewind cap there is danger of ruining future exposures when using the camera without the motor drive.



BATTERY GRIP M



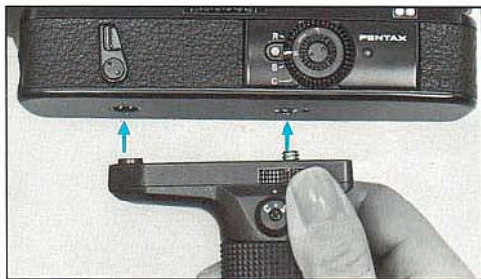
Inserting the Batteries

When using Battery Grip M as the power source, insert the batteries as follows before attaching the grip to the motor drive.

- Set the Battery Grip C/S dial to the OFF position by aligning the green dot with the white dot.
- Slide the battery cartridge release at the base of the grip in the direction of the arrow and remove the cartridge.
- Insert twelve 1.5V alkaline or manganese AA-size batteries in the battery cartridge, making sure to match up the contacts with the (+) (-) markings on the clips of the battery cartridge.

Battery Care

Battery performance tends to vary in accordance with the brand and type of batteries used. When doing a lot of shooting with the motor drive high performance alkaline batteries are recommended. Motor drive operation will become sluggish when replacement is required. Replace all twelve batteries with equivalent 1.5-volt AA-size batteries. Protect the grip housing from battery leakage by removing the batteries whenever the motor drive will not be used for long periods of time.



Attaching the Battery Grip

■ Keep the battery grip C/S dial set at the OFF position and hold the battery grip with the C/S dial facing you. Line up the power plug of the battery grip with the power socket of the motor drive and insert the attachment screw into the motor drive tripod socket. Secure the grip to the motor drive by turning the thumbscrew clockwise until firmly attached.

NOTE: The Battery Grip may be attached and removed from the Motor Drive before or after the motor drive is attached or removed from the camera. However, always set the battery grip C/S dial to the OFF position on removal. When the grip is not used for long periods of time, remove batteries. Remote control hook up is possible via a choice of optional remote control cords (See page 26).

IMPORTANT! NEVER THROW USED BATTERIES INTO FIRE OR EXCESSIVE HEAT AS PRECAUTION AGAINST EXPLOSION. ALWAYS KEEP BATTERIES OUT OF THE REACH OF CHILDREN.

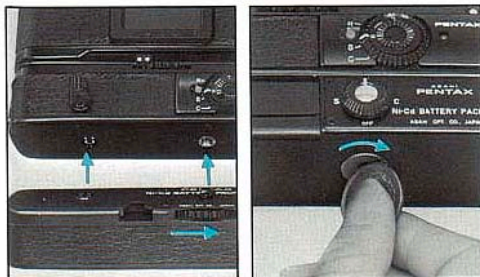
Ni-Cd BATTERY PACK LX, M

Ni-Cd Battery Pack LX/Ni-Cd Battery Pack M

The Ni-Cd Battery Packs are charged before leaving the factory and should perform sufficiently for the first rolls of film. However, your pack should be given a full charge at the earliest opportunity to ensure maximum performance and avoid inconvenience. Moreover, some packs may require charging before initial use. The standard means of charging a Ni-Cd Pack is with the Charge Pack M as described on page 15 (In addition, it can also be charged with Power Pack M, see page 35).

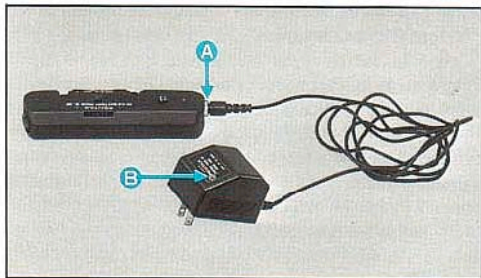
Attaching the Ni-Cd Battery Pack

- Set the battery pack C/S dial to the OFF position. With the C/S dial facing you, line the Battery Pack up with the base of the motor drive.
- Fit the power plug of the battery pack into the power socket of the motor drive and insert the attachment screw into the motor drive tripod socket. Secure the Battery Pack to the motor drive by turning the attachment screw in the direction of the arrow (for Ni-Cd Battery Pack M, use a coin).
- * The Ni-Cd Battery Pack may be attached and removed from the motor drive before or after the motor drive is attached or removed from the camera. Always set the battery pack C/S dial to OFF on removal.



Recharging with Charge Pack M

- Set the Battery Pack C/S dial to either C or S.
- Insert the small connector plug of the Charge Pack into the Battery Pack's remote control socket with the groove facing upward. Secure the plug in place by tightening the collar ring **A**.
- Insert the A/C plug of the Charge Pack into a household outlet. The red charge lamp **B** on the back of the charger unit will illuminate to indicate that the Battery Pack is being charged. A minimum of 6 hours is required to recharge a fully discharged Ni-Cd Battery Pack. Do not recharge the pack for more than eight hours (overcharging shortens battery life).



Ni-Cd Battery Pack Precautions

* Whether used or not, the life of a Ni-Cd Battery Pack is three years, or approximately 300 charges within this period. When not used for long periods of time, even a fully charged pack will discharge of its own accord; consequently, test the pack after prolonged periods of non-use. Make it a point to charge and discharge the pack at least once every other month and always use the pack as soon as possible after recharging to ensure maximum battery life and performance (battery life tends to shorten if the pack is not used regularly).

* Only use Charge Pack M or Power Pack M for recharging the Ni-Cd Battery Packs. Best results are obtained when recharging at temperatures between $0^{\circ}\sim 40^{\circ}\text{C}$ ($32^{\circ}\sim 104^{\circ}\text{F}$), with room temperatures being the ideal. Performance will falter if charged at excessively high temperatures; charging at temperatures below or above those specified above will also shorten battery life.

* Avoid high temperatures and humidity when storing the Battery Pack. Best results are obtained when stored at temperatures between $10^{\circ}\sim 25^{\circ}\text{C}$ ($50^{\circ}\sim 77^{\circ}\text{F}$).

* When the pack no longer recharges adequately, it is exhausted. In certain countries, however, environmental protection laws place restrictions on the disposal of cadmium containing products. Check with the proper procedure for disposal in your country or bring to an authorized Pentax Service Center or dealer for disposal.

Never disassemble a Ni-Cd Battery Pack and never throw a used pack into fire or excessive heat, keep out of the reach of children.

SHOOTING PREPARATIONS

Film Loading/Blank Exposures (with unloaded cameras): Load the film in the normal manner by setting the camera shutter dial to a manual shutter speed. Extending the film leader and insert it between the needles of the take-up spool. At this point, you may continue to make blank exposures with the rapid wind lever, which is probably the most convenient way the first time you use the motor drive. To release the shutter in this instance, however, set the motor drive C/S dial to OFF. (see page 19)

Blank exposures with the motor drive: You can also make the blank exposures using the motor drive. The procedure is basically the same as for single-frame film advance (see page 18). After inserting the film leader into the needles of the take-up spool, set both the motor drive and the power source C/S dial to S, then, press the shutter button once so that the film wraps around the take-up spool. Press the shutter button again if necessary until the film perforations engage both sides of the sprocket. Close the back cover and take up film slack with the film rewind crank. Continue pressing the shutter button successively until the dot representing "1" registers in the exposure counter window. To make

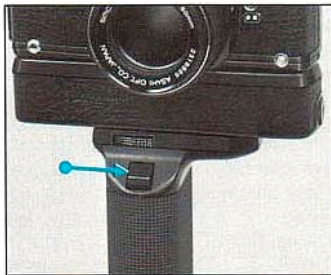
your exposures, follow the instructions given in "Motor Drive Operation" on the next page.

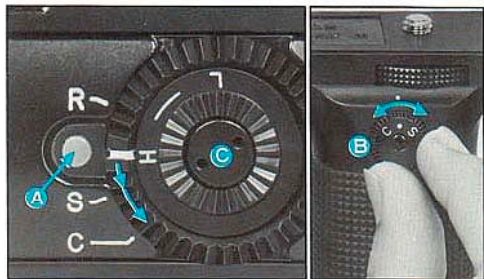
Preparation with Loaded Cameras: If the shutter is uncocked when you attach the motor drive with the film in mid-roll, temporarily set both the motor drive and power source C/S dials to S and press the shutter button once to cock the shutter (the shutter cocked indicator will turn red). Proceed as described in "Basic Shooting" on page 18.

MOTOR DRIVE OPERATION

Motor Drive LX offers both single-frame film advance and consecutive or sequential film-advance featuring a variable film advance rate for the utmost versatility in film speed control. In the single-frame (S) mode, the motor drive advances the film immediately after the exposure and cocks the shutter for the next exposure. In the consecutive (C) mode, the film advances continuously until you let go of the shutter release button or it reaches the end of the roll.

The film advance rate may be varied from 5 frames-per-second down to 0.5 frames-per-second via the special "fps dial" on the back of the motor drive. In addition to shooting with the camera shutter release button, auxiliary shutter release buttons built into the respective power source units facilitate remote control operation and give added convenience for a wide variety of shooting situations.





Basic Shooting

The film advance mode for Motor Drive LX is controlled by the respective settings of the motor drive and power source C/S dials. The motor drive C/S dial controls the film advance mode with the camera shutter release button, the C/S dial of the power source controls the mode for the power source shutter release button. By setting the dials differently—one to C and the other to S—the film advance mode for shooting with the motor drive may be varied merely by switching shutter release buttons, instead of resetting the controls each time.

- Press the green button of the motor drive C/S dial **A** and rotate the dial to either C or S,

depending upon the mode of film advance desired for the camera shutter release button.

- Set the C/S dial of the power source **B** to either C or S, depending upon how you wish the auxiliary shutter release built into the power source to operate. Note: Although both the motor drive and power source C/S dial may be used at either C or S in any combination, both dials must be set to either C or S for the motor drive to operate.

- If you set one of the dials to operate in the C mode, also set the fps dial **C** at the hub of the C/S dial for the desired film advance rate.
- Compose the picture, focus and check the exposure if required. Take the photo with the shutter release that proves most convenient for the situation.

IMPORTANT: When the shutter isn't cocked beforehand (such as when attaching the motor drive in mid-roll), it will be necessary to press the shutter button twice to take the picture; once to cock the shutter and again to release it. If the dial is set to "C" while the shutter is uncocked, there will be a delay when you press the shutter release button for the film to advance and the shutter to cock. To avoid this delay, press the shutter button once quickly and let go (the shutter cocked indicator turns red when the shutter cocks).

CONTROL DIALS

Motor Drive C/S Dial

This is the outer dial of the cluster on the back of the motor drive and features four lockable click-stop settings (only the lockable settings may be used).

GREEN BUTTON: This button serves as a dial lock release and also indices the OFF position. When the white index line is aligned with the green dot, the automatic film advance system disengages from the camera. To set the dial, press the button and rotate the dial until the white index mark aligns with the desired setting.

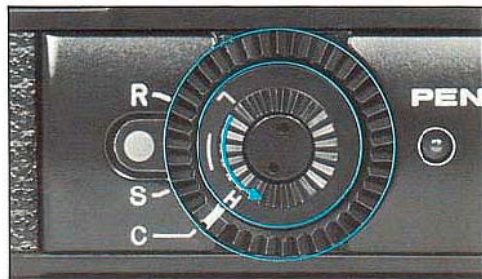
R: This setting gears the camera for film rewind and engages the motor drive's automatic film rewind system. Only set the dial to R for film rewind.

S: Sets the camera shutter release for single-frame operation

C: Sets the camera shutter release for consecutive film advance at the rate indexed with the fps dial.

fps Dial

This is the inner dial of the cluster on the back of the motor drive, it controls the film advance rate. The film advance speeds outlined below are possible at the respective dial settings, depending upon the shutter speed used and battery condition. Provided shutter speeds in excess of 1/60 second are used,



a maximum operating speed of 5 fps is possible at H (High) setting and 0.5 fps at L (Low). Intermittent speeds are obtained at the in-between settings.

H ←————→ L
5 fps 3 fps 1 fps 0.5 fps

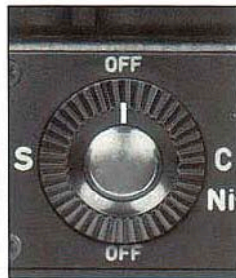
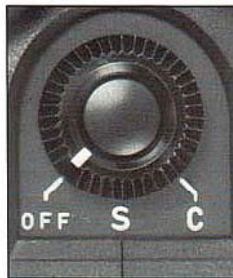
To set the dial: Place your thumb or finger on the hub and rotate the dial until the desired setting aligns with the white index mark.



The Power Source C/S Dials

Except for the method of designating the OFF position (a GREEN DOT for the Battery Grip M, "OFF" for the Ni-Cd Battery Packs), the C/S dials for the direct-mount type power sources are identical and function in the exact same manner.

The OFF Position: When the Battery Grip M C/S dial is set to the GREEN DOT (in the case of the Ni-Cd Battery Packs, to either of the OFF settings), power to the motor drive is cut off and the automatic film advance system does not function. In this instance, the camera does not operate manually either, unless the motor drive C/S dial is also set to OFF.



S: Sets the power source release button for single-frame operation.

C: Sets the power source release button for consecutive film advance in accordance with the rate indexed at C with the motor drive's fps dial.

SHOOTING PRECAUTIONS

The C/S Dials

Both the power source and motor drive C/S dials should be set at either C or S while shooting with the motor drive so as not to miss the opportunity for a good shot. Be sure to set the dials to OFF, however, in the following situations.

Set the power source C/S dial to OFF:

- 1 When not using the motor drive for long periods of time (in the case of Battery Grip M, also remove the battery cartridge to guard against leakage).
- 2 When not rewinding the film immediately at the end of the film, promptly set the dial to OFF. (batteries will deplete with the power source C/S dial set at C or S while the LED indicator is continuously lit at the end of the film)

Set the motor drive C/S dial to OFF:

When it becomes necessary to operate the camera manually with the motor drive attached, such as using the self-timer to release the shutter during multiple exposures, etc. (the shutter does not release manually unless the motor drive C/S dial is at OFF).

Using the Self-Timer

The self-timer will not function while the automatic film advance system is engaged. To use the self-timer with the motor drive attached, set the motor drive C/S dial to the OFF position and use it in the normal manner.

Multiple Exposures

To make a multiple exposure on the frame in use:

Set the motor drive C/S dial to OFF and make the first exposure. Then, set the dial temporarily to R (to disengage the film advance system) and cock the shutter with the rapid wind lever. Set the dial back to OFF to release the shutter (if no additional exposures are desired on the same frame, it may also be set to S or C).

For a multiple exposure on a previous frame: Do not use the automatic film rewind system. If you are on frame 15 and wish to make a multiple exposure on frame 10, for example:

- 1 Set the C/S dial to R and wind the film back to frame 9 with the film rewind crank.
- 2 Cover the lens with the lens cap, set the C/S dial to OFF, and trip the shutter. Keeping the lens cap on, wind the film on to frame 10 with the rapid wind lever and trip the shutter again.
- 3 Remove the lens cap, set the C/S dial to R, and cock the shutter with the rapid wind lever. When ready to release the shutter, set the C/S dial back to OFF. Repeat this step for all additional exposures on the same frame.
- 4 To return to the original frame without exposing the images already on the film, cover the lens with the lens cap, set the C/S dials to S or C, and advance the film with the shutter release until the 15 index appears in the exposure counter window.
- 5 If you wish to make double exposures on any of the remaining frames, replace the lens cap and advance the film with the rapid wind lever to the frame desired; repeat step 3 above.

NOTE: You may find it easier to remove the motor drive for multiple exposures, especially random access multiple exposures. If so, be sure to hold the base of the camera away from bright light and replace the film rewind coupling cap.

Shooting in Cold Climates

Battery performance tends to deteriorate when temperatures drop to near or below freezing. Although performance returns to normal when batteries are subjected to warm temperatures again for some time, the following will help you avoid inconvenience when shooting in cold climates.

* When using the Battery Grip M or a Ni-Cd Battery Pack, connect the power source via Remote Control Cord (see page 26). Keep it in your coat pocket or wrapped warmly to protect the batteries from the cold. If using the Battery Grip unit, best result are obtained when new batteries are used. Likewise, if using a Ni-Cd Battery Pack, the pack should be fully charged.

* If you do not have a remote control cord, you can minimize inconvenience by carrying a spare set of batteries (kept warm) if working with the Battery Grip, or a back-up battery pack if working with a Ni-C Battery Pack.

Low Batteries

Batteries are low when the film advance rate becomes sluggish. When battery voltage drops while working with the Battery Grip M, promptly replace all twelve batteries. (Do not mix old and new batteries as this may result in leakage and is more costly in the long run). When voltage drops while working with a Ni-Cd Battery Pack, its timer for a full recharge. Follow the instructions on page 14 (if recharging with the Charge Pack M Unit, on page 33 if recharging with Power Pack M). Because several hours are required to recharge a Ni-Cd Battery Pack, it is helpful to have a spare fully charged Ni-Cd Battery Pack or other power source on hand if you wish to continue shooting without interruption.

CAUTION: When batteries become too weak to advance the film, the motor drive will stop in-between frames and the LED indicator will glow continuously. Normal operation will resume when you change the batteries, (or recharge the battery

pack). If film advance should cease and you are caught without spares, set the motor drive and power source C/S dials to OFF and wind the film with the camera's rapid wind lever for the rest of the frames.

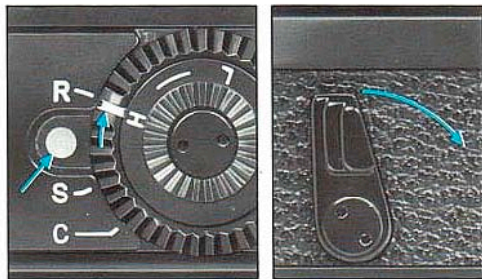
AUTOMATIC FILM REWIND

The convenient automatic film rewind feature of Motor Drive LX allows you to rewind a complete 36-exposure film roll in just seconds. When you reach the end of the film, the motor drive will cease to operate and the LED indicator on the back of the unit will glow continuously. (NOTE: The indicator also glows continuously when batteries are exhausted, so before attempting to rewind the film, also glance at the exposure counter to make sure you are on the last frame).

- Press the motor drive C/S dial lock button and set the dial to the R setting.
- Slide the film rewind lever clockwise. The LED indicator will go out and the film will begin to rewind. When the film is fully rewound, the motor will stop and the film rewind lever will disengage of its own accord.
- Glance at the exposure counter once again to make sure the film is rewound all the way; then open the camera back and remove the cartridge. Set the motor drive and power source C/S dials back to OFF.

Film Rewind Precautions

- The automatic film rewind system can be stopped before the film is completely rewound by sliding the film rewind lever back to its original position. However, avoid using the automatic film rewind



system for random access multiple exposures as described in the LX instruction manual, as the exposure counter doesn't synchronize precisely during automatic film rewind. (Use the procedure described on page 22.)

- * The film may be rewound manually during emergencies such as battery failure and you are caught without spares. After completing the remaining exposures manually with the C/S dial set to OFF, if necessary, set the dial to R and rewind the film with the film rewind crank. Set both the motor drive C/S and Power Source dials back to OFF and replace or recharge batteries (whichever applies) as soon as possible.

USING A TRIPOD OR COPY STAND



With Battery Grip M: When shooting with the camera mounted on a tripod or copy stand with battery grip M, the power source can only be used off-camera in conjunction with either the 3m (or 10m) Remote Control Cord.

- Attach the plug of the remote control cord to the remote control sockets of both the motor drive and battery grip units in the same manner as for remote control hook up (see page 26). One plug of the cord is a conventional type and the other a Right Angle type (attach in the manner which is most convenient).

- Attach the motor drive to the tripod via the motor drive tripod socket.

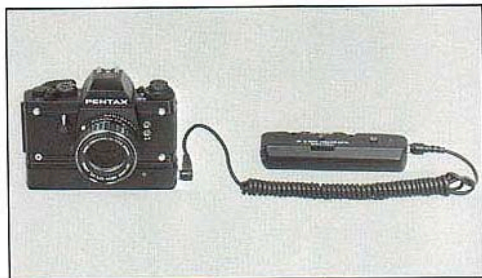


With Ni-Cd Battery Packs LX/M: Ni-Cd Battery Packs are very convenient in that they can be attached directly to a tripod or copy stand via the tripod socket at the base of the battery pack. In addition, it can also be connected by Remote Control Cord, convenient when operating in cold climates. When using the cord, connect in the same manner as with Battery Grip M.

CAUTION: When attaching the power source on a tripod make sure that the screw does not exceed the depth of the tripod socket (if tightened too tightly it could damage the motor drive).

REMOTE CONTROL PHOTOGRAPHY

A wide range of remote control applications are possible with the LX motor drive in conjunction with the various optional remote control cords. For Battery Grip M and both Ni-Cd Battery Packs LX/M, the 3m and 10m Remote Control Cords permit remote release with the power source held separately from the motor drive, while with both Ni-Cd Battery Packs mainly, the 5m Remote Control with built-in remote release button permits remote release while the power source remains attached to the motor drive. In addition, for all three power sources, Trigger Cord M may be used in conjunction with commercially available electrical cord to extend remote control capacity up to several hundred meters. Additional remote control applications are possible with Power Pack M. See page 30.



3m, 10m Remote Control Cords

(for Battery Grip M, Ni-Cd Battery Packs LX, M)
Remove caps covering the remote control sockets for the motor drive and power source unit and attach one end of the Remote Control Cord to the motor drive remote control socket and the other end to the power source remote control socket. Tighten collar screws at both ends of the cord to secure in place. Both cords may be used for full off-camera remote control or simply to store the power source in a pocket, etc., to shield batteries from cold; they also permit greater maneuverability. (NOTE: The caps for the motor drive and Ni-Cd Battery Pack LX remote control sockets may



be stored in the cap holders on Ni-Cd Battery Pack LX.)

5m MD Remote Control Cord

(for Ni-Cd Battery Packs LX, M)

Remove the cap covering the Battery Pack remote socket and place it over the remote release button of the cord to prevent loss). Connect the cord to the battery pack and tighten collar screw to secure in place. Set the C/S dial for the desired operating mode and release the shutter with the remote release button (Note: Only single frame operation is offered if the cord is plugged into the motor drive remote socket. The 5m MD Remote Control

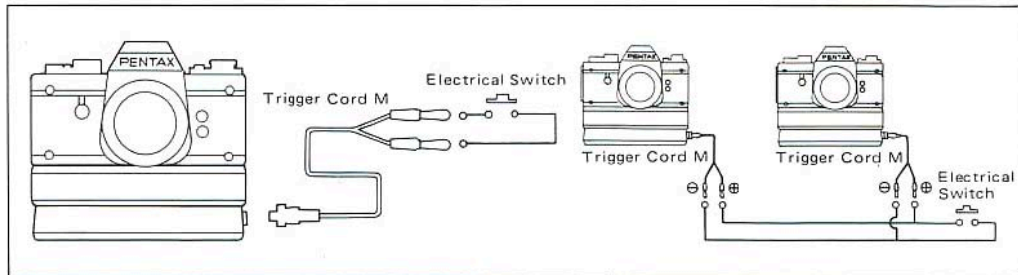


Cord may also be used with Battery Grip M in the above manner, however, usage is limited as the Battery Grip doesn't attach to a tripod. The Winder Remote Control Cord cannot be used with the Motor Drive.

(Extended Remote Release with Trigger Cord M)

When used in conjunction with 2-ply electrical cord and an electrical switch (from an electrical supply store) Trigger Cord M enables extended remote control up to several hundred meters in conjunction with the motor drive and all four power source units.

- Connect the plug of the Trigger Cord to the motor drive power source remote socket. Then affix the



two wire leads of a 2-ply electrical cord (cut to the desired length) to the two open contacts of the Trigger Cord as shown in the illustration above.

- To the other end of the cord, connect an electrical switch (the push button type is most convenient).

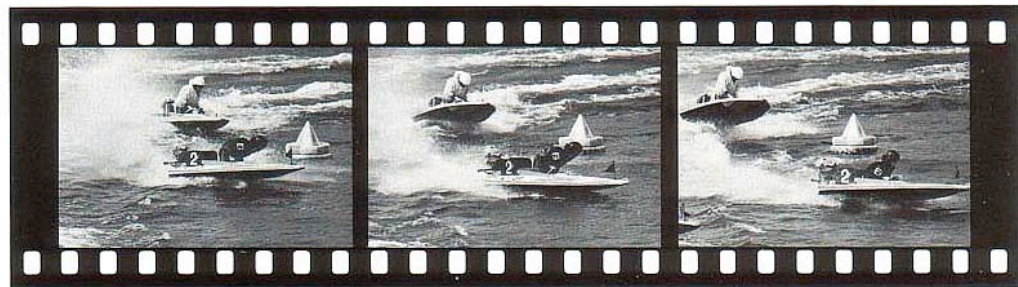
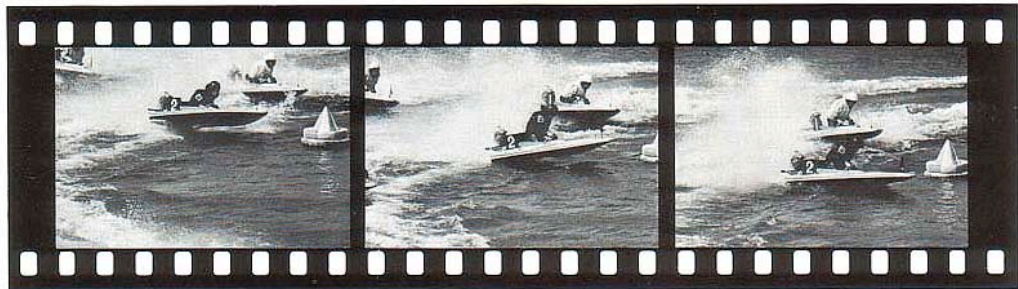
NOTE: The cord may also be connected to the motor drive remote socket but, in this instance, operation is in the single-frame mode only.

Simultaneous Operation of two Cameras

When two Trigger Cords and two motor drive units are used along with household electrical cord and an electrical switch, two cameras may be operated

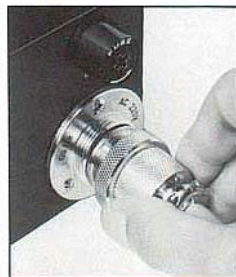
simultaneously. This enables photographing the same subject simultaneously from different angles or perspectives, such as with a wide-angle and a telephoto lens.

- Connect the plugs of both Trigger Release cords to the cameras and the wire leads of electrical cord to the open contacts of the trigger cord as illustrated. Affix the electrical switch to the open end of the household cord. Take care that the plus/minus contacts are attached exactly as illustrated to ensure proper operation.



POWER PACK M APPLICATIONS

Power Pack M is a highly versatile power source unit with multiple applications. Relatively portable, it is easily carried along with other photo equipment, yet serves as a ready power supply for hours on end, wherever an AC outlet is available. A convenient interval timer built into the unit enables unmanned shooting at preset intervals, and it proves highly useful as a stable remote control power source. It also serves as a recharger unit for the Ni-Cd Battery Pack, eliminating the need to purchase the separate Charger Pack M for photographers working with the Ni-Cd Battery Pack.



Connecting for AC Operation

- Remove the cap covering the AC socket on the back of the power pack unit and insert the screw-on plug of the AC cord into the socket. Tighten the collar screw to secure the plug in place, then, insert the AC plug into an AC outlet.
- Set the power switch of the power pack to the ON position. If the unit is functioning properly, the LED indicator on the front will light.



Operation

Remove the caps covering the remote control sockets of the Power Pack M and Motor Drive Unit, and connect the 3m (or 10m) Remote Control Cord to the remote control sockets of the respective units. Be sure to tighten the collars over both plugs to secure in place. (NOTE: Use of the remote control terminals above the power pack remote socket is explained in "Auxiliary Remote Release" on page 33).

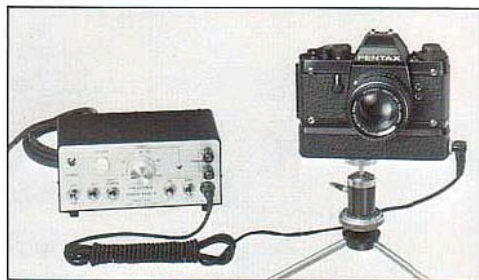
Hand-held Operation: When shooting with the camera held in your hand, the shutter is released directly with the camera shutter release button (the power pack functions solely as a remote power source).

- After connecting the power source for AC operation as explained above, set the power switch to the ON position as required. Then, set the motor drive C/S dial to the desired C or S film advance mode. Release the shutter when ready to take the picture (in this instance, motor drive operation is not affected by the setting of the Power Pack C/S switch.)

Off-Camera Remote Control: Shutter release for off-camera remote control with Power Pack M is controlled by the Power Pack shutter release button; the film advance mode is regulated by the Power Pack C/S switch.

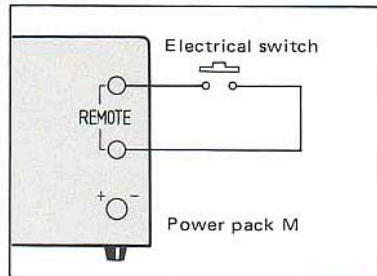
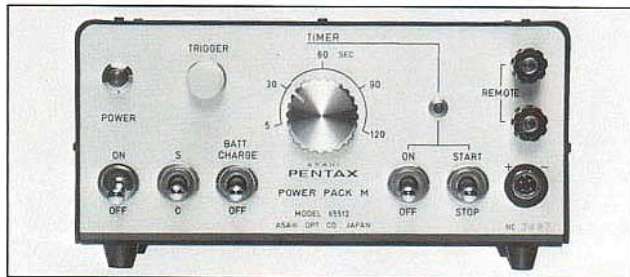
- Hook the unit up for AC operation as explained above and set the Power Pack C/S switch to the desired C or S setting (in this instance, also be sure to set the motor drive C/S dial to either C or S).

- Release the shutter by pressing the Power Pack shutter release button. In the continuous mode, keep the button depressed until you have completed the desired sequence. Other instructions for motor drive operation with the Power Pack M are the same as explained in "Basic Shooting," See page 18. (For remote release in excess of 10 meters, see "Auxiliary Remote Release" on next page).



Shooting Precautions

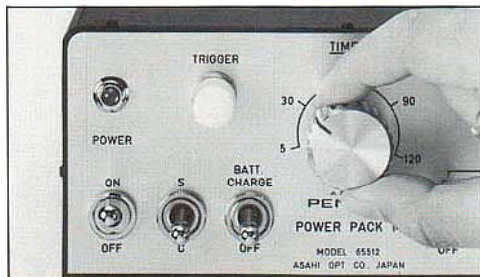
- * When not using the power pack for long intervals, set the Power switch to the OFF position.
- * When using the power pack solely as a power source unit, keep both the battery charge (BATT. CHARGE), and timer switches (ON/START) to the OFF/STOP positions.



Auxiliary Remote Release

In addition to remote control operation up to 10 meters with either the 3m or 10m Remote Control Cords, remote operation with Power Pack M can be extended up to several hundred meters when an auxiliary shutter release system consisting of household cord and an electrical switch (purchased at a local electrical supply store) is attached to the remote control terminals just above the remote control socket.

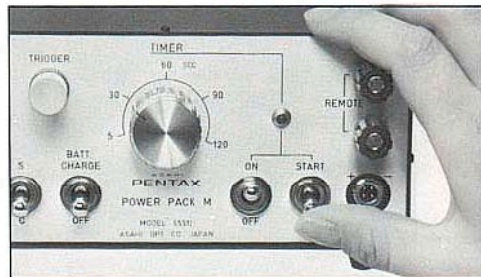
- Attach the two wire leads at one end of a standard 2-ply electrical cord (cut to the desired length) to the remote control terminals as illustrated. Attach an electrical switch to the other end of the cord.
- Connect the Power Pack unit for AC operation as indicated on page 28. Connect the 3m (or 10m) Remote Control Cord between the motor drive and the Power Pack in the normal manner and set the power switch to the ON position.
- After preparing the motor drive and camera for basic operation as explained on page 18, release the shutter using the auxiliary remote release button.



Operating the Interval Timer

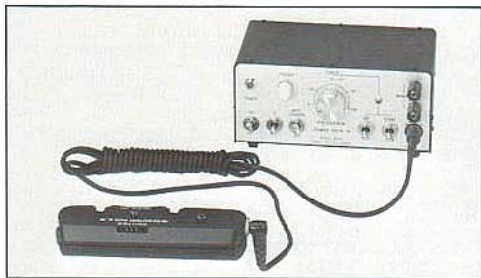
The built-in timer of the Power Pack M unit is especially handy for situations requiring unmanned operation of the camera at preset intervals. Used in conjunction with the motor drive, the shutter can be released at intervals from 5 seconds to 120 seconds.

- Connect the Power Pack for AC operation as described on page 28. Hook up the motor drive with the remote release cords. Set the power pack's power switch to the ON position.
- Set the timer switch to ON (the red lamp above the timer switch will illuminate).
- Set the timer to the desired interval setting.



- Set the timer start switch to START; the shutter will trip automatically after the predetermined interval elapses, the cycle repeating itself until the timer start switch is set to STOP, or to the end of the film.

NOTE: When it is desired that the timer start on the initial interval, be sure the camera shutter is cocked before operating the timer. Otherwise, when the initial interval is reached only the shutter will cock and the film will advance; normal operation will not take place until the second interval. During timer operation, the shutter releases only at the preset interval, regardless of whether the motor



drive C/S dial or the power pack C/S switch is set to C or S.

- * When using the timer, always keep the battery charge switch to OFF.
- * Set the timer switch to OFF when rewinding the film.

Recharging the Ni-Cd Battery Pack

The Power Pack M unit also serves as a recharger for both the Ni-Cd Battery Packs LX and M.

- Hook up the power pack for AC operation as described on page 28.
- Connect the plugs of the 3m (or 10m) Remote Control Cord to the Power Pack remote control

socket and the other end to the Battery Pack remote control socket.

- Set the Ni-Cd battery pack C/S dial to either C or S.
- Set the power pack's power switch to the AC ON position and set the battery charge switch to BATT CHARGE. It takes 10 to 15 hours to fully recharge a Ni-Cd Battery Pack using Power Pack M.

SPECIFICATIONS

MOTOR DRIVE LX

Operating Modes: Single-frame (S) and Consecutive (C) via C/S dials of motor drive and power source unit. Speeds variable in consecutive mode from 0.5fps at low to 5fps at high. Synchronizes with camera shutter operation at all shutter speeds except B.

Shutter Releases: (Two) Camera shutter release button, built-in shutter release button of respective power source unit.

Film Rewind: Automatic via film rewind lever on motor drive with C/S dial at "R". Rewinds 36-exposure film cartridge in 8 seconds.

Function Check: LED indicator flickers on film advance and when shutter releases; glows continuously at end of film.

Other Features: Tripod socket, cap holders for camera film advance and auto rewind coupling caps; remote control socket.

Standard Accessories: 3m Remote Control Cord

Optional Accessories (in addition to power source units): 10m Remote Control Cord, 5m MD Remote Control Cord, Trigger Cord M (for remote control in excess of 10 meters), Bulk Film Magazine LX (250 exposures), Dial Data LX, Watch Data LX, Accessory Grips A and B (attach directly to camera), Charge Pack M (for Ni-Cd Battery Pack M).

Dimensions and Weight:

Motor Drive LX: 146mm(L) x 31mm(H) x 36mm(D), 240 grams

Battery Grip M: 78mm(L) x 143mm(H) x 53mm(D), 203 grams

Ni-Cd Battery Pack M: 139mm(L) x 21.5mm(H) x 40mm(D), 187 grams

Ni-Cd Battery Pack LX: 146mm(L) x 26.5mm(H) x 40mm(D), 225 grams

POWER SOURCES

Battery Grip M: Attaches directly to the motor drive, powered by twelve AA-size alkaline or manganese batteries (18V); transports and rewinds minimum of 30 rolls of 36-exposure film on alkaline batteries (20 with manganese batteries). Features tripod socket, remote control socket, built-in trigger release button.

Ni-Cd Battery Packs LX, M: Attach directly to the motor drive, supplies 14.4V via rechargeable Ni-Cd battery unit inside. Transports and rewinds minimum of 20 rolls of 36-exposure film on a full charge. Features tripod socket, remote control socket, built-in shutter release button. (Charge Pack M unit or Power Pack M necessary to recharge).

Power Pack M: AC Off-camera power supply unit. Connects to camera via cord. (operates on AC current). Features built-in timer unit, remote control socket and terminals, socket for recharging Ni-Cd Battery Pack M.



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