

RetroScan Universal Mark-II Instructions

updated 10-15-20

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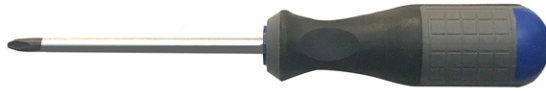
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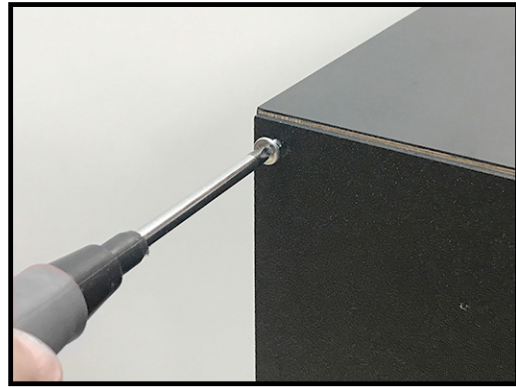
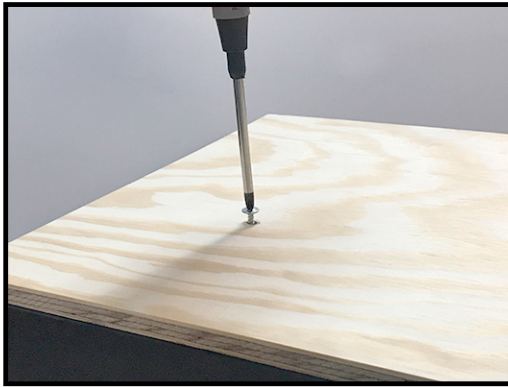
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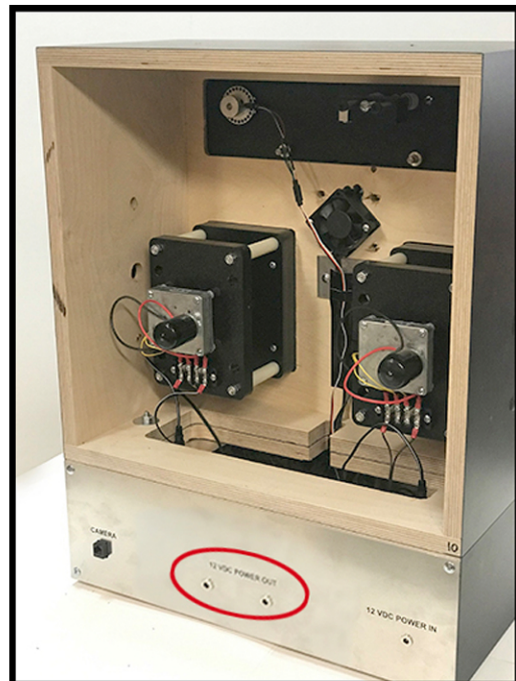
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You will need a medium
Phillips Screwdriver



Remove the topside wooden shipping panel and set aside. Also remove the back panel. Do not lose the screws as they will be required later on during assembly.



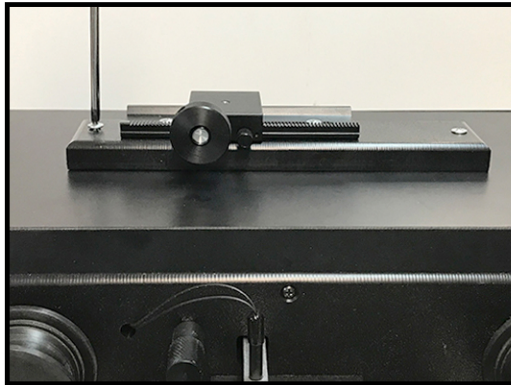
Remove the two accessory boxes from inside the unit. Please note the two power output jacks. These are for powering future accessories for the Mark-II unit. Do not plug any power supply into these center power output jacks.

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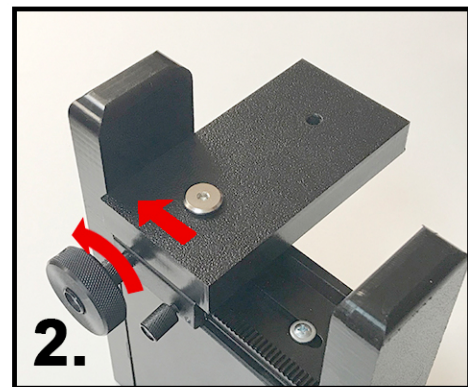
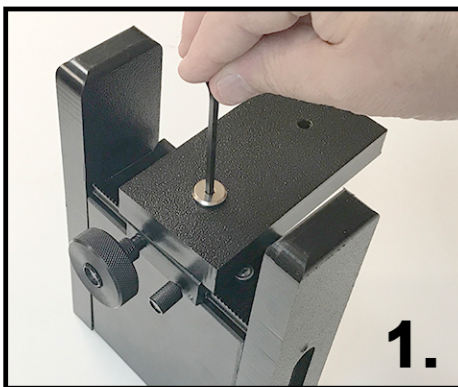
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Open both boxes and locate the above items. The Motor Test Cable is used to run the motors directly from the power supply when testing any motor issues. Please keep it and the hex wrenches in a safe, handy place for future use, if ever needed.



Locate the two screws that held the topside wooden shipping panel in place. Use those screws to attach the camera tower base to the top of the Mark-II. The tower base has holes that align with the existing holes on the top of the Mark-II. Tighten until snug. Do not overtighten or you risk stripping the threads in the cabinet wall.

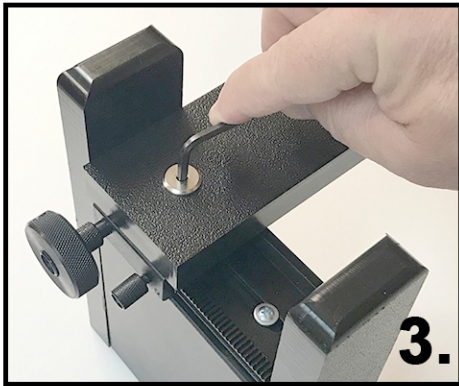


1. Attach the block to the bottom of the camera tower with one of the provided bolts but do not yet tighten the bolt completely. Leave it loose.

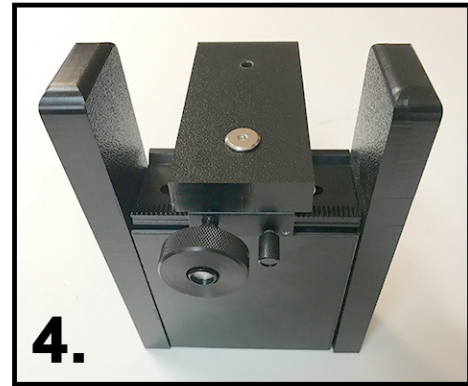
2. Turn the compound rail knob to slide the block over to the vertical support until the block touches the support. This will align the block so that it is 90 degrees to the compound rail.

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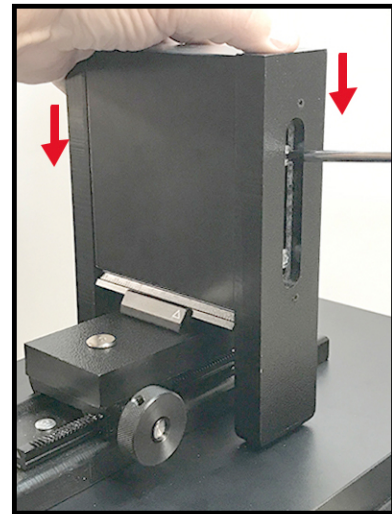
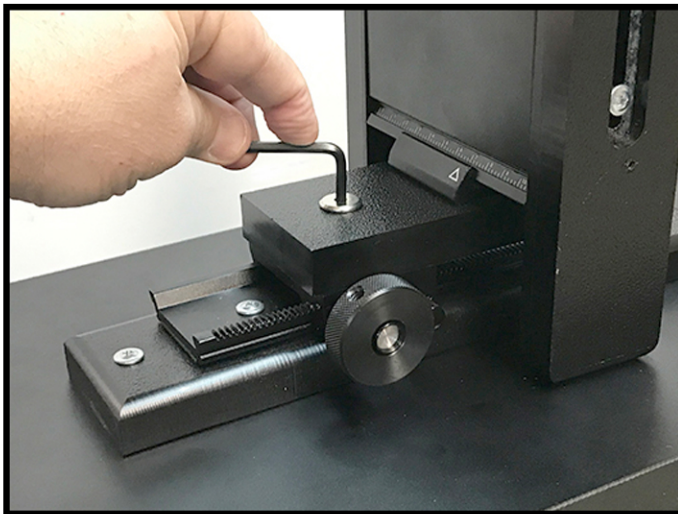
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3. With the block square against the vertical support, tighten the block securely in place using the 5/32 (4mm) hex wrench. The block should not swivel.



4. Rotate the compound knob so that the block is moved to the center position.

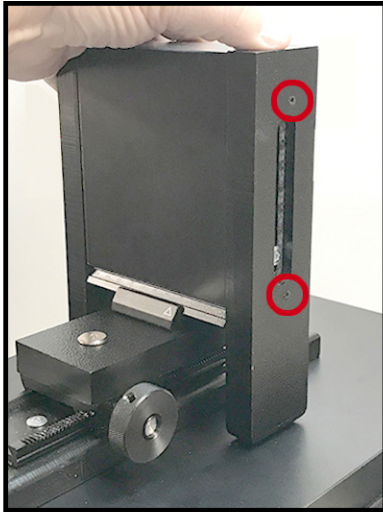


Attach the camera tower to the bottom rail as shown using the other provided bolt. This should be visually squared to the bottom rail and the bolt should be tightened securely so that the assembly does not pivot on the bolt.

Make sure the two mounting screws are loose on the back and front vertical supports. Use one hand to press down on the top of the tower while also pressing down on the back and front supports. Both the back and front vertical supports should fully contact the top surface of the Mark-II. Hold in position and firmly attach using the two provided phillips head screws. Once secure, the tower should not rock front to back. If so, then loosen the vertical supports and readjust.

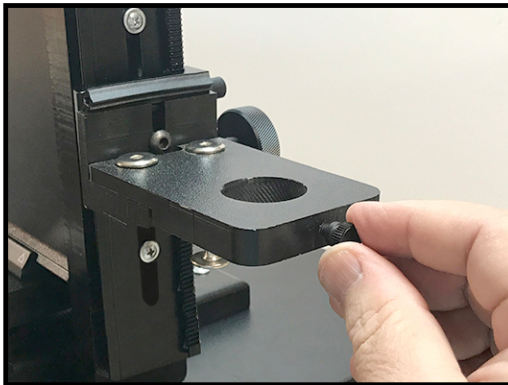
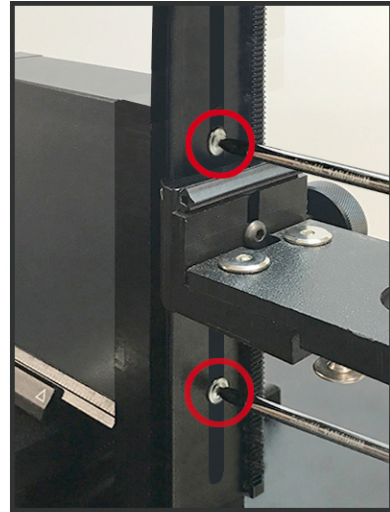
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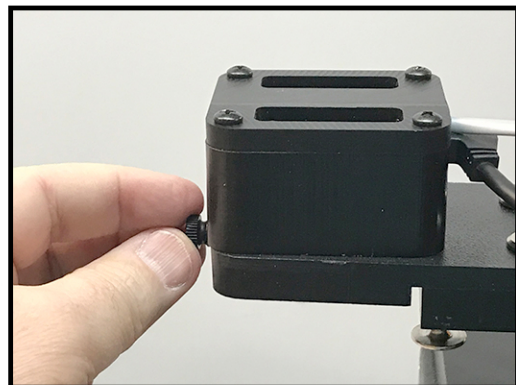
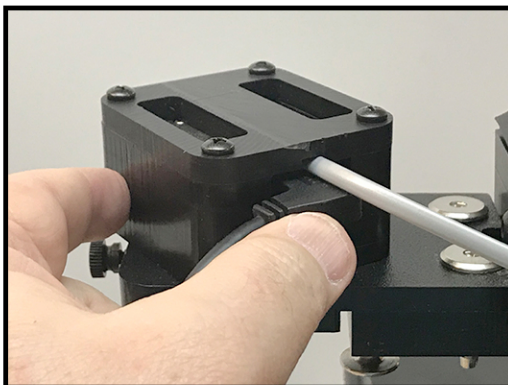


Locate the two pilot holes on the vertical support.

Attach the long camera rail as shown.



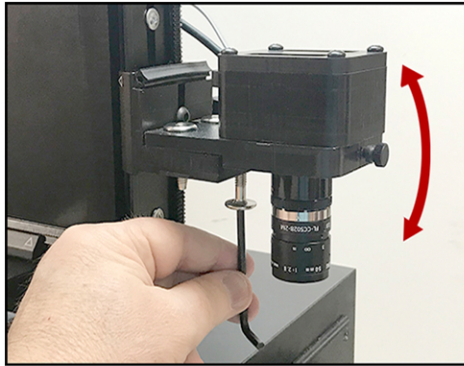
Loosen the black plastic thumb screw on the front of the camera platform. Locate the camera and remove the plastic cover by unscrewing it from the tube. Please note that this tube is permanently attached to the camera and can not be removed.



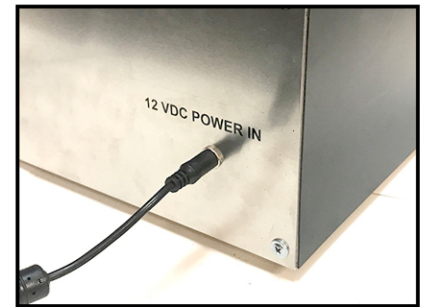
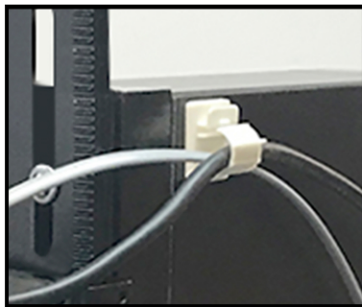
Insert the camera into the camera platform. Insert USB3 cable and press firmly into place. **Camera cable must be connected to PC USB3 port. USB2 will not work.** Rotate camera and gently tighten the thumb screw. Please note that this camera rotation is how you level the frame lines or horizon lines of the film frame.

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To ensure the film frame is in focus side to side, the camera must be parallel with the film. Use the hex wrench to make minor adjustments to the level of the camera by turning the bottom screw while viewing the image in the software. Using R8 or S8 film works best for this as focus is more critical in small formats but any format will do. This typically needs to be done only once during initial set up.



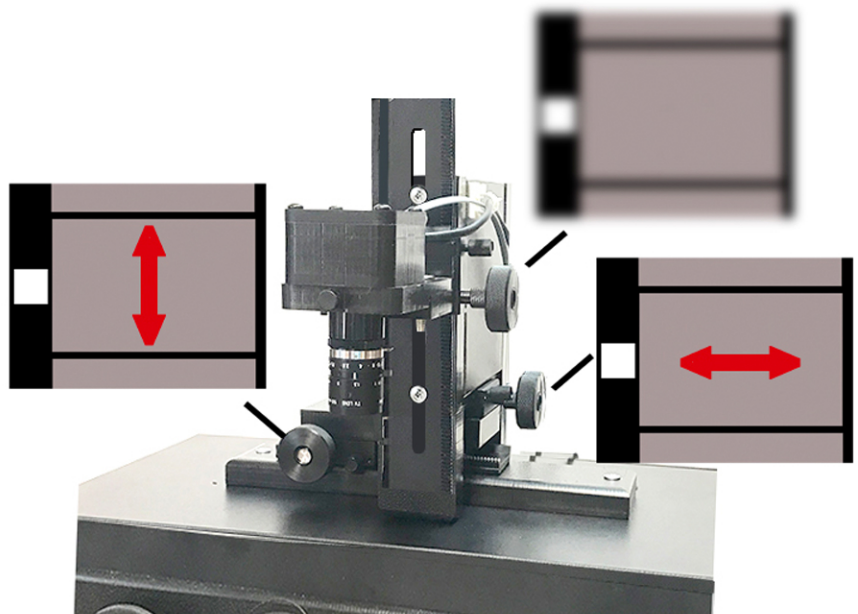
Attach adhesive cable restraint to the camera tower just behind the front vertical support. Do NOT attach to the vertical support as the adhesive will not stick. As shown in the picture, connect both the camera trigger cable and the power cable.

NOTE: Camera cable MUST be connected to a PC USB3 port. USB2 will not work.

Note the functions of the three knobs on the camera tower:

- Frame FOCUS**
- Framing VERTICAL**
- Framing HORIZONTAL.**

Each knob has a small thumb screw to lock its rail into position or to provide tension.



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Locate the green dome that covers the sync tally light on the Mark-II control panel. This light will flash when each sprocket hole is detected. Insert the green dome into the hole and push into place. Though the dome has threads on it, the dome is held in position by friction only.



The Universal Mark-II can transfer a wide variety of film, ranging from regular 8mm through 35mm film. To accommodate these formats, the Mark-II comes with a variety of extension tubes and rings. Because the Mark-II can scan in a variety of resolutions, it is impractical to list all the various tube and ring combinations here. Conceptually, the longer the tube, the more it will crop into a frame. The shorter the tube, the less it will crop into a frame. If scanning 35mm to full 2K, then you use just a single 5mm Lens ring. If you were scanning Regular 8mm to full 2K, then you would use all of the above rings and tubes together with the adjustable lens tube almost fully extended. Resolutions lower than 2K would then need something in between those two extremes. Experimentation is the best way to learn.

HD ZOOM MODE

If you are a shop that has little to no need for 2K and mainly output HD or SD files for customers, then you can simplify your workflow by using the HD ZOOM modes of the software. Set the adjustable tube to a length where a 16mm frame fills the 2K sensor of the camera in the full 2K mode. Then, in the HD ZOOM mode, any 16mm film is captured in 2K but stored as 1080p. The software will then allow you to zoom in on smaller formats like S8 and R8, which are captured using a true HD area of the camera sensor. These files are also stored as 1080p but can export as anything. (For more info, see page 5 of the software instructions)

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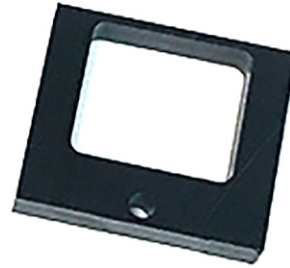
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**Small
Format**

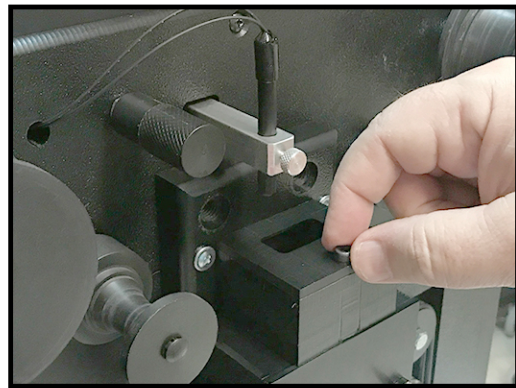
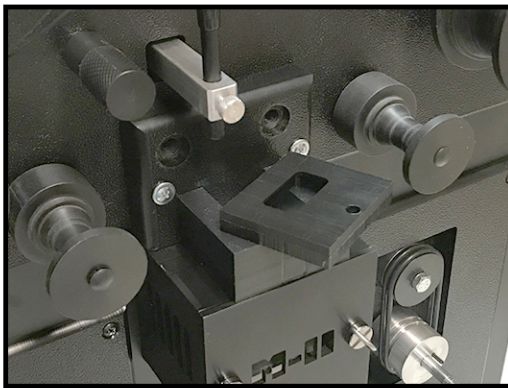


**Medium
Format**



**Large
Format**

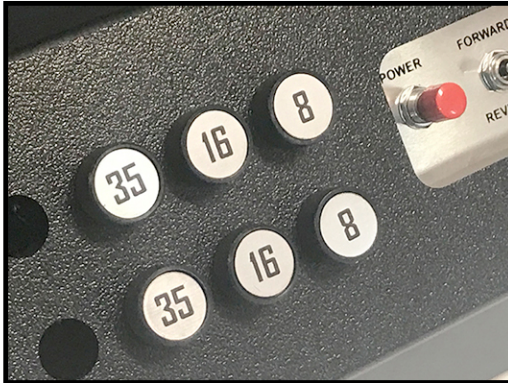
The light in the Mark-II is very, very bright. To cut down on flare, both to the camera and to your eyes, the Mark-II has available three different masks. Which you get depends on the guides you ordered. Small formats would be 8mm and 9.5mm, medium formats would be 16mm and 17.5mm, and larger formats would be 28mm and 35mm. Extra masks are available for purchase if you want to tape off areas to create custom masking that can be put into place easily during format changes.



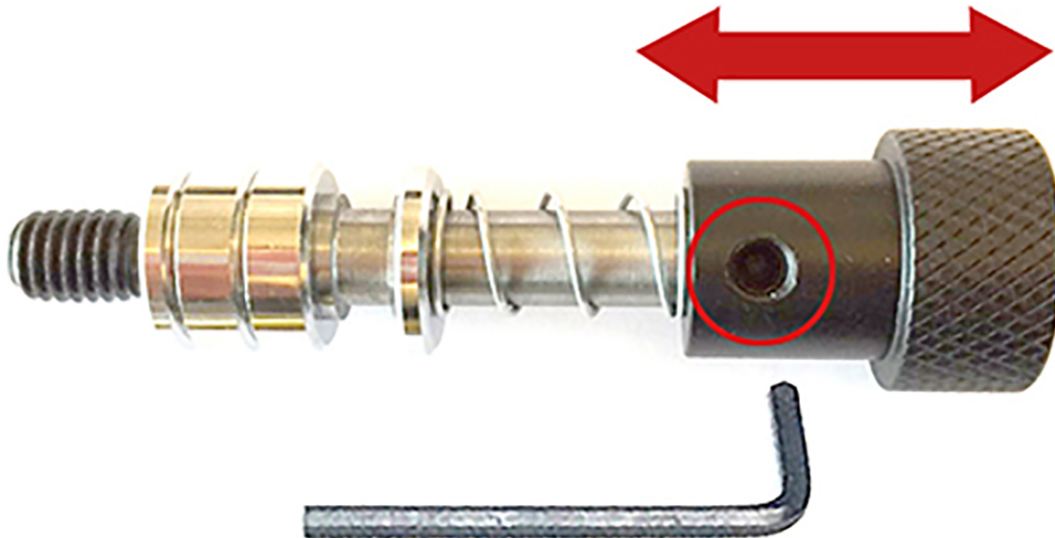
Select the desired mask and place on top of the light housing. There are two sides to the mask. Usually, the flat side goes up with the hollow part face down. This puts the edge of the mask closest to the film and also allows the user to employ tape to create custom masking. However, the mask will also work with the flat side down but the edge of the mask will be more out of focus and the light source more visible to the naked eye. Secure the mask in place using the provided thumbscrew. To prevent unwanted changes to the mask, the screw can be firmly tightened using the 1/8 inch (3mm) hex wrench.

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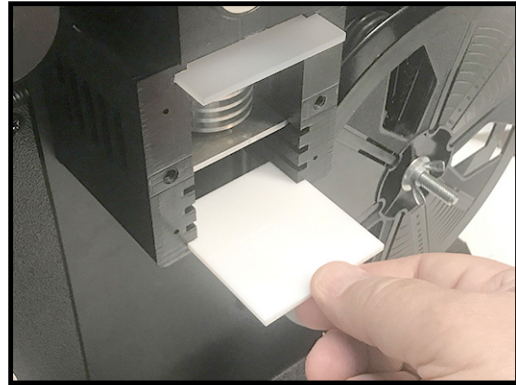
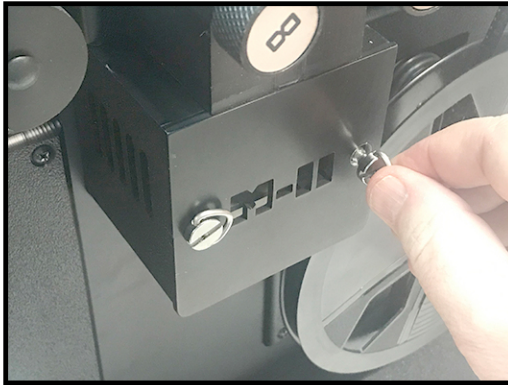
The Mark-II has a variety of film guides available and we are working on specialty guides all the time. Currently, the guides we offer are Dual-8 (R8/S8), 9.5mm, 16mm, 17.5mm, 22mm, 28mm as well as 35mm. These guides are polished and handle film only by the edges for maximum film safety. Your selection of Mark-II guides can be stored in the front panel for convenience and protection of the guides.



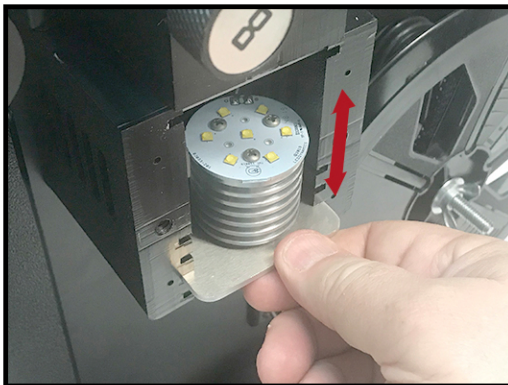
The Mark-II guides are designed to press all film against the sprocket hole edge of the film (factory edge). If necessary, it is possible to adjust the tension of the side springs by loosening the set screw in the handle using a 1/8 inch (3mm) hex wrench and then slide the handle in and out. For greater tension, remove the spring, stretch it a bit, then reassemble. **Guides should be routinely cleaned. Use liquid spray silicone lubricant and a soft cotton cloth. Apply and wipe down film contact surfaces twice. Once to remove any build up of debris and again to leave a thin layer of silicone lubricant, which will not hurt the film.**

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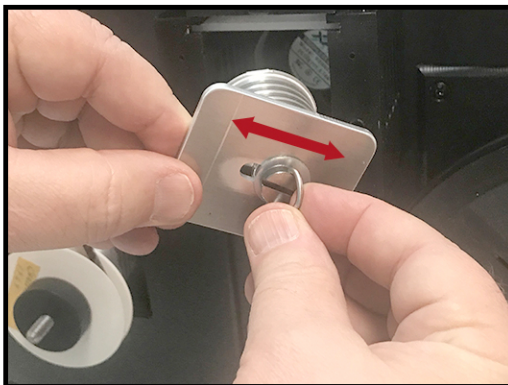
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The Mark-II has a unique lamp house. Remove the the two thumb screws. Inside are two different diffusers; one above the light source and one stored in the bottom slot. One diffuser is slightly grey but offers the brightest light. The other diffuser is is more like opal glass and offers lower contrast but is not as bright.



The LED can be easily repositioned. The closer to the top diffuser, the brighter the light but the higher the contrast, the further from the diffuser, the lower the contast but less light. For very dark film, the BriteLens can be placed over the LED.



The LED can also be repositioned side to side by loosening the screw on the bottom. If the LED needs to be removed, unplug just it below the lamphouse. 9

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Included with the Mark-II is a simple leader clip. This clip can be used to firmly secure the film to the take up reel as shown. The leader clip should always be removed before rewinding the film.



Source

Take Up



R8/S8



**9.5mm
16mm
17.5mm**



The Mark-II comes with hub adaptors for the source side and take up side. Regular 8 and Super 8 use the black adaptors. Medium formats like 9.5mm, 16mm and 17.5mm would use the silver adaptors. Large formats like 28mm and 35mm do not require adaptors. Please note that the source adaptors have no pin in them like the take up adaptors do. Do not lose or misplace these adaptors. You cannot use the unit without them and they are expensive to replace.



Source

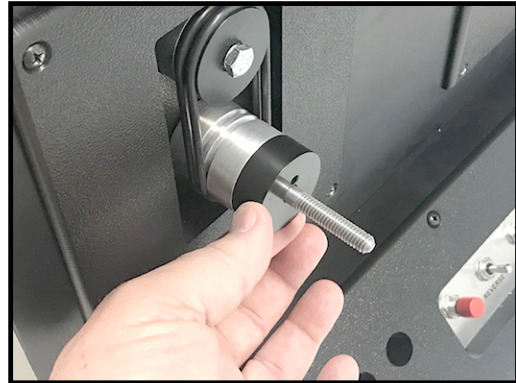


Take Up

The Mark-II comes with threaded reel retainers for the Source and Take Up sides. Please note that the Source retainer has reverse threads while the Take Up wing nut has normal threads (both are 5/16th, 1/4-20 American)

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To mount a small format reel (S8/R8) on the source (left) side of the Mark-II, note the alignment hole in the chosen adaptor and make sure it lines up with the pin on the aluminum hub. Once aligned, slide the adaptor into position. This is the same procedure you would use for medium format film adaptors, as well.

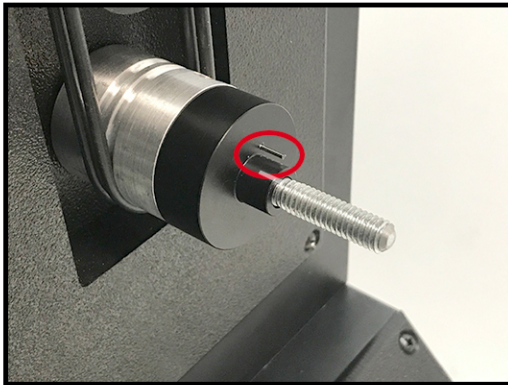


When mounting a small format reel on the source (left) side of the unit, be sure to note that the reel retainer has a Super 8 reel adaptor built into it. This is required because the center mounting hole on Regular 8 reels is small (around 5/16 of an inch) while the center mounting hole on Super 8 reels is larger (around 1/2 inch). To secure a Super 8 reel, turn the retainer so that the adaptor is facing in towards the Super 8 reel. For Regular 8 or any other reels that fit the bare spindle of the Mark-II, just turn the retainer so the Super 8 adaptor is facing out.

NOTE: The source retainer has reverse threads. To tighten, you must turn the black retainer knob to the left (counter clockwise). Make sure the knob is on tight as the source side has no pins to transfer the rotation of the spindle to the reel.

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Note that the take up hub adaptors for both small and medium formats have a pin in them. To place the reel on the hub adaptor, simply align the pin with one of the three slots on the center hole of the take up reel then screw the wingnut into place. The wingnut does not have to be super tight. Its only purpose is to keep the reel on the spindle. Please note that the wingnut turns to the right to tighten.



The controls are simple. POWER is turned on by pushing the power button. FORWARD and REVERSE have a center stop position. Please note that this unit has SoftStart. When you start the motor, you may not see immediate movement as it will slowly ramp up to speed to protect the film from over tension. AUTO STOP will stop the unit immediately in the event of a film jam, breakage or end of reel. To reset, switch the FORWARD/REVERSE to center stop. AUTO STOP must be turned off if you are bypassing the upper gate rollers and just rewinding directly between the reels. EXPOSURE manually controls the light level illuminating the film. For Auto Exposure, see pages 3, 4 and 9 of the software instructions. **NOTE:** This unit has "AutoLive" which automatically provides a live view from the camera when the unit is stopped, either in preview or record. "LIVE" on the software is never required for this unit and should not be used to avoid confusion.

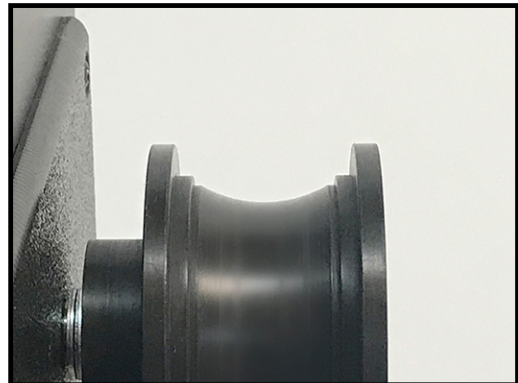
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With AutoStop ON or OFF, you can run the film forward or backwards safely though the upper rollers. You can also rewind directly between the rollers but only with AutoStop turned off. The unit rewinds faster with AutoStop turned off.

All rollers are designed to minimize image area contact. Large formats like 28mm and 35mm have flat support on the sprocket hole areas of the film. Smaller formats ride the curved center of the roller which restricts contact to only the outer edges.



The Auto Stop function is monitored by the large, upper right roller of the unit. If that roller stops or lags for greater than 950ms, the unit will stop immediately. To test Auto Stop, start the unit running with film loaded and simply grab the roller with your hand.



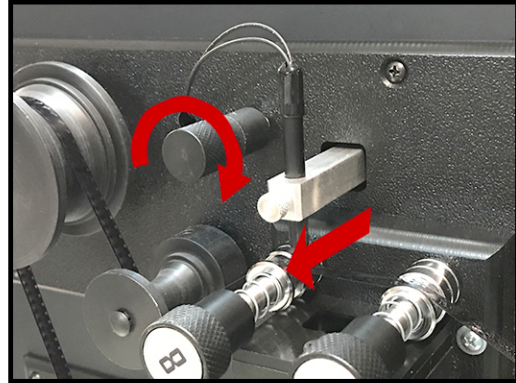
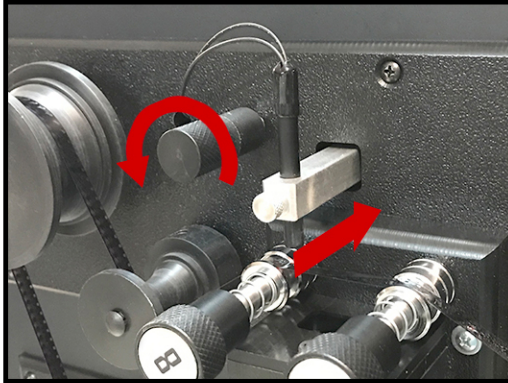
All rollers have precision ball bearings but it is a good idea to occasionally check to make sure that the rollers spin freely. If needed, use the 1/8" (3mm) hex wrench to loosen and gently slide out on the shaft a tiny bit. If a sticky roller persists, contact us.



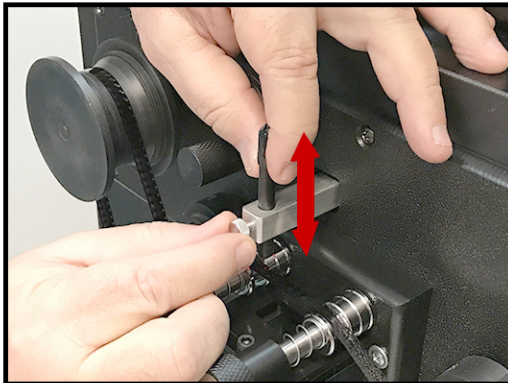
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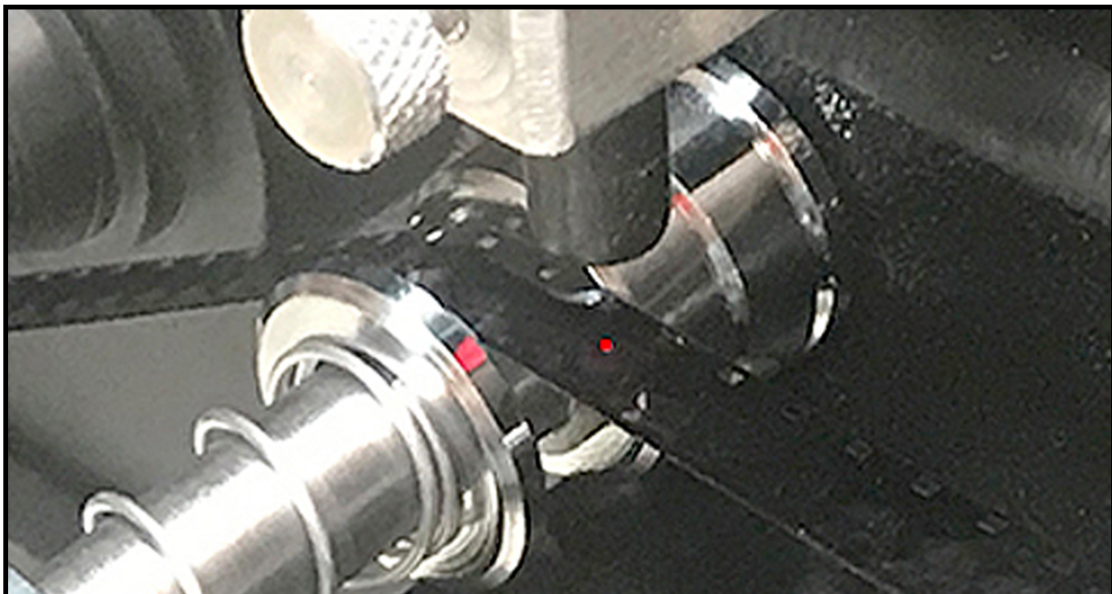
Power on. Load film with sprocket holes towards the inside edge. Move the film past the leader to imagery (not clear). Turn the exposure down to allow positioning the LightPin sprocket hole sensor. (Turn the exposure back up after sensor is set.)



The LightPin sensor initially needs to be moved to the center of the film so that the sensor can be focused. To move the LightPin sensor in towards the unit, turn the sensor knob to the left. To move the sensor out, turn the sensor knob to the right.

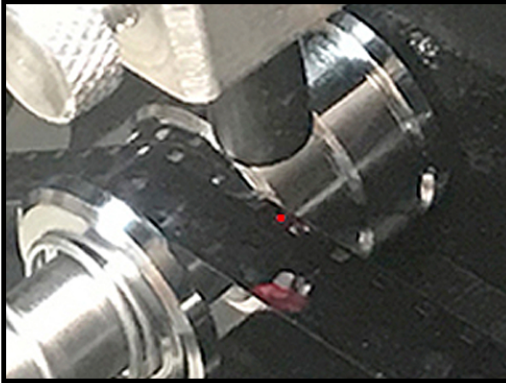


To focus the LightPin sensor, loosen the thumbscrew and slide the sensor up and down until a fine dot is formed on the surface of the film as illustrated below and then gently tighten the thumbscrew. Film should be fairly tight while focusing the LightPin sensor.



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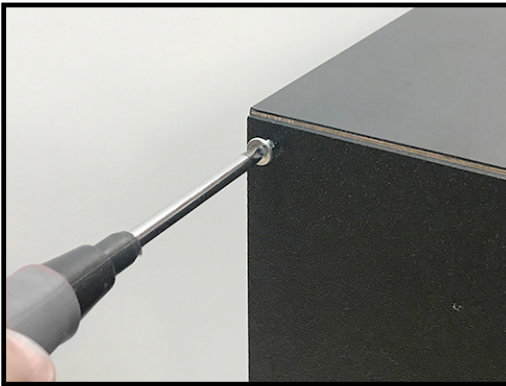
After focusing the LightPin sensor, move the sensor so the red dot is in the middle of the sprocket hole path. As the film passes, the red dot will be interrupted and that will trigger the camera to capture each frame. Though it is easiest to focus the sensor on dark film during set up, the LightPin sensor will actually respond to any kind of film while scanning, whether the film is clear or solid. As the film is running, you will see the green tally light blink. If the green light is not blinking, then it is likely the LightPin sensor is not aligned with the sprocket hole path - or - the Light-Pin sensor is not focused properly.

Please note that, while Super 8 and Regular 8 are both 8mm wide, the centers of their sprocket holes are in different places relative to the film frame. While you must initially align the LightPin sensor with the sprocket holes of different fomats, it typically is not necessary to refocus the LightPin sensor between rolls of the same format. However, rechecking sensor focus is easy to do if required and is recommended to ensure optimum performance from batch to batch of film.

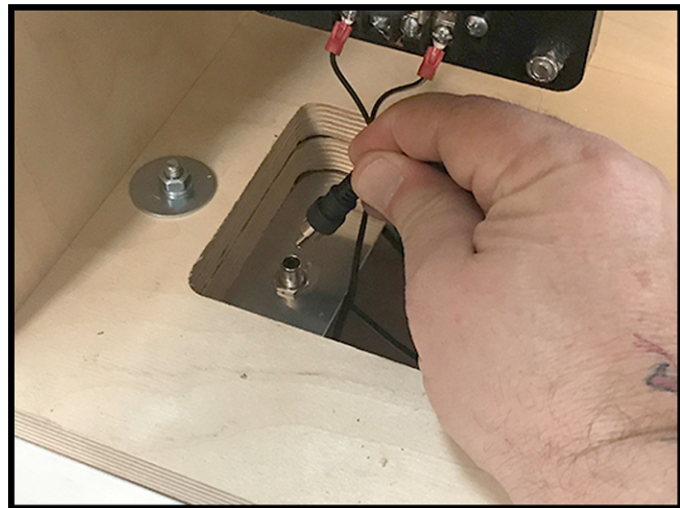
Helpful hints: The sensor arm is long enough that, if you have double perf film that is bad on the factory edge, you can move the sensor out to use the sprocket holes on the opposite film edge. Also, if you have single perf film with bad holes, the LightPin sensor will typically ignore tears as it uses the opposite end of the sprocket hole to trigger. However, the targeting of the LightPin sensor is very fine so, on really bad single perf film, the sensor knob can be used to place the red dot on an area of the sprocket hole edge that shows the least amount of wear. For any questions, please call 830-966-4664 or email us at retrofix@swtexas.net

Motor Extension Kit Installation Instructions

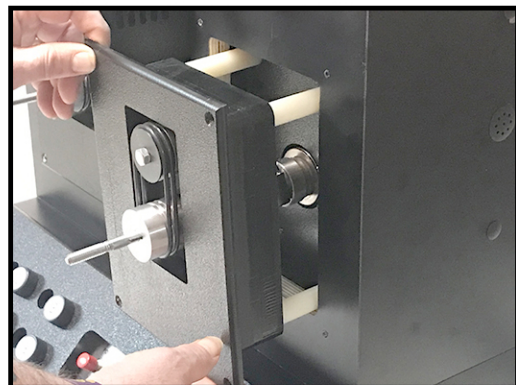
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Use a Phillips screwdriver to remove both the front and back panels of the motor boxes and the back panel of the unit. Use a 5/32 or 4mm hex wrench to remove the side bolts and washers from the boxes. Do not lose the bolts for use later.



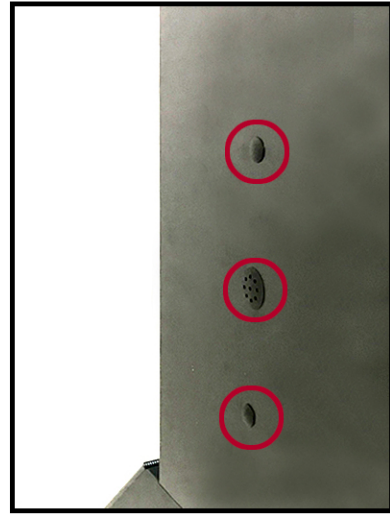
Locate the power cables for both motors and disconnect.



Remove the screws and carefully pull both motors from the unit. Please note that the motors are different and not interchangeable. So do not get them confused.

Motor Extension Kit Installation Instructions

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Install the cover panels over the motor openings. Next, locate the three plastic plugs on each side of the Universal Mark-II unit as circled in red on the photo.



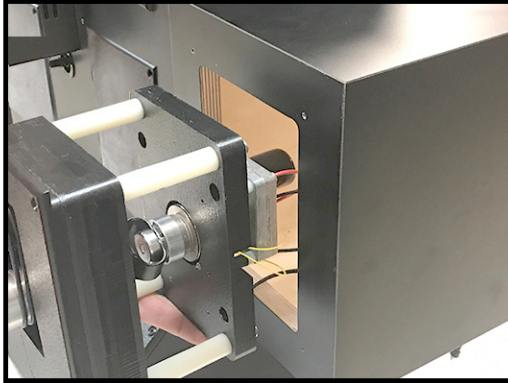
Use one of the tools to gently push the plastic plugs from their openings.



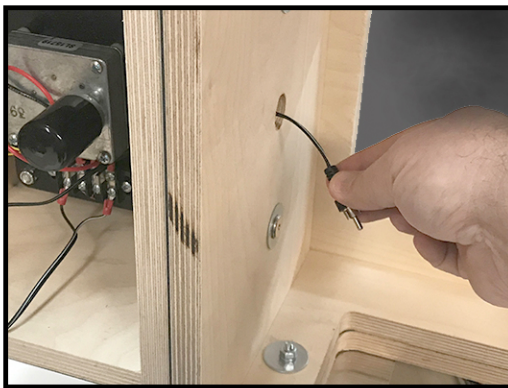
Carefully align the boxes so they are flush with the front of the unit. Use the provided bolts and washers to attach the boxes. Use the hex wrench to securely tighten the bolts so that the motor boxes are firmly attached to the side of the unit.

Motor Extension Kit Installation Instructions

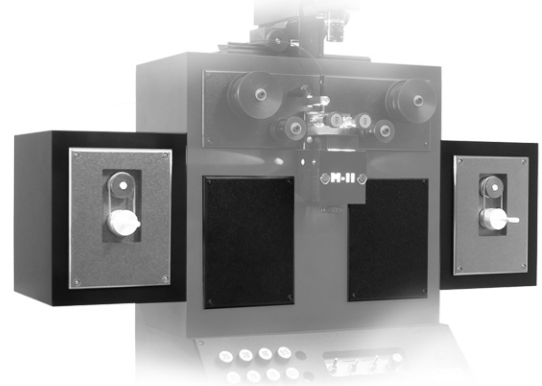
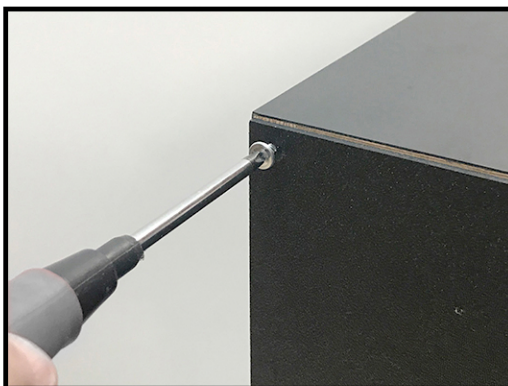
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Carefully slide the motors into place in each box and then secure with screws.



Thread motor power cable through the center opening and plug into power jack.



Test all motor functions and then replace back panels on both motor boxes as well as the back of the Mark-II. For any questions, please call 830-966-4664 or email us at retrofix@swtexas.net