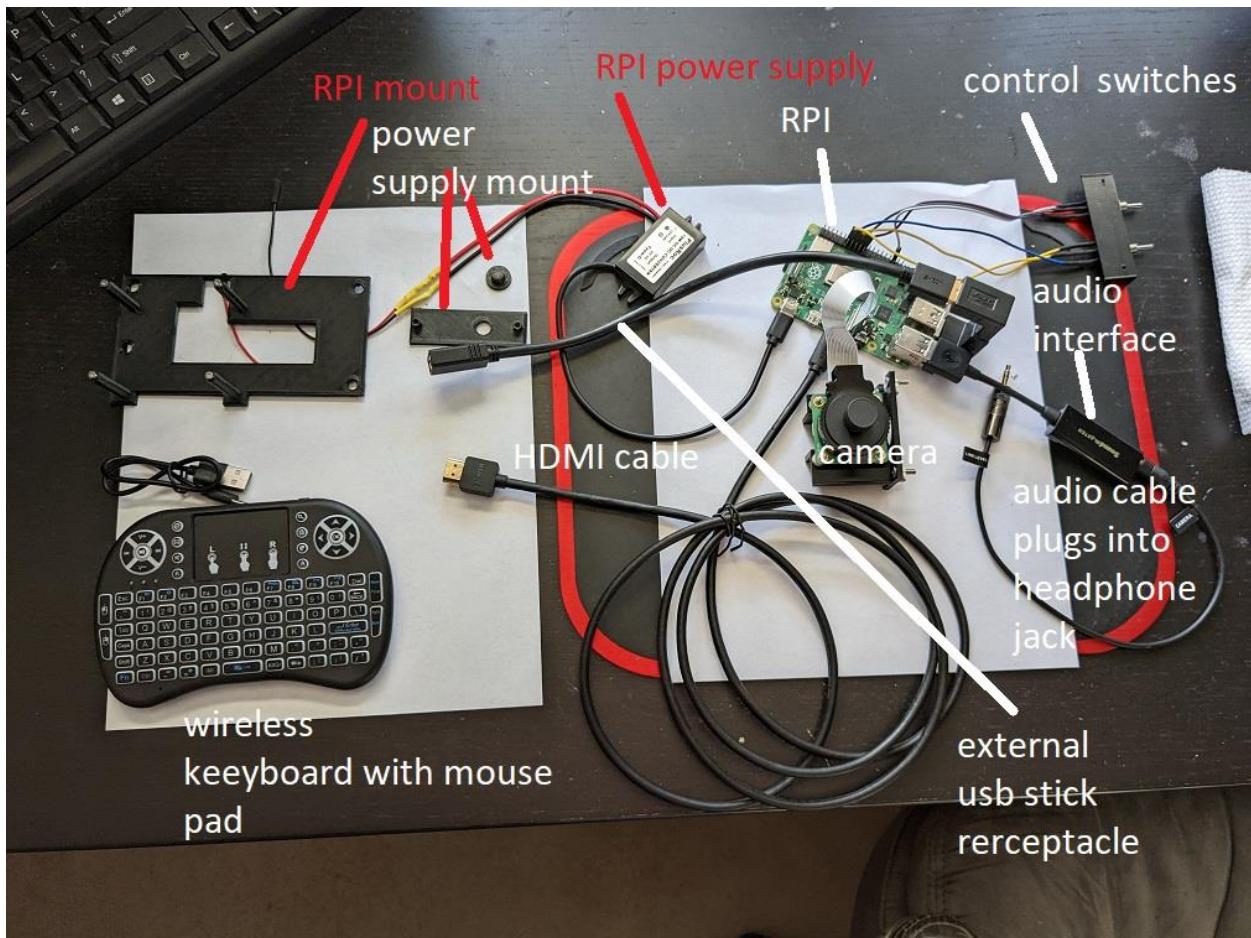


Elmo TVR16H RPI Kit Installation

Kit Contents

Check the following picture and familiarize yourself with the kit contents. This will enable you to follow the instructions faster.

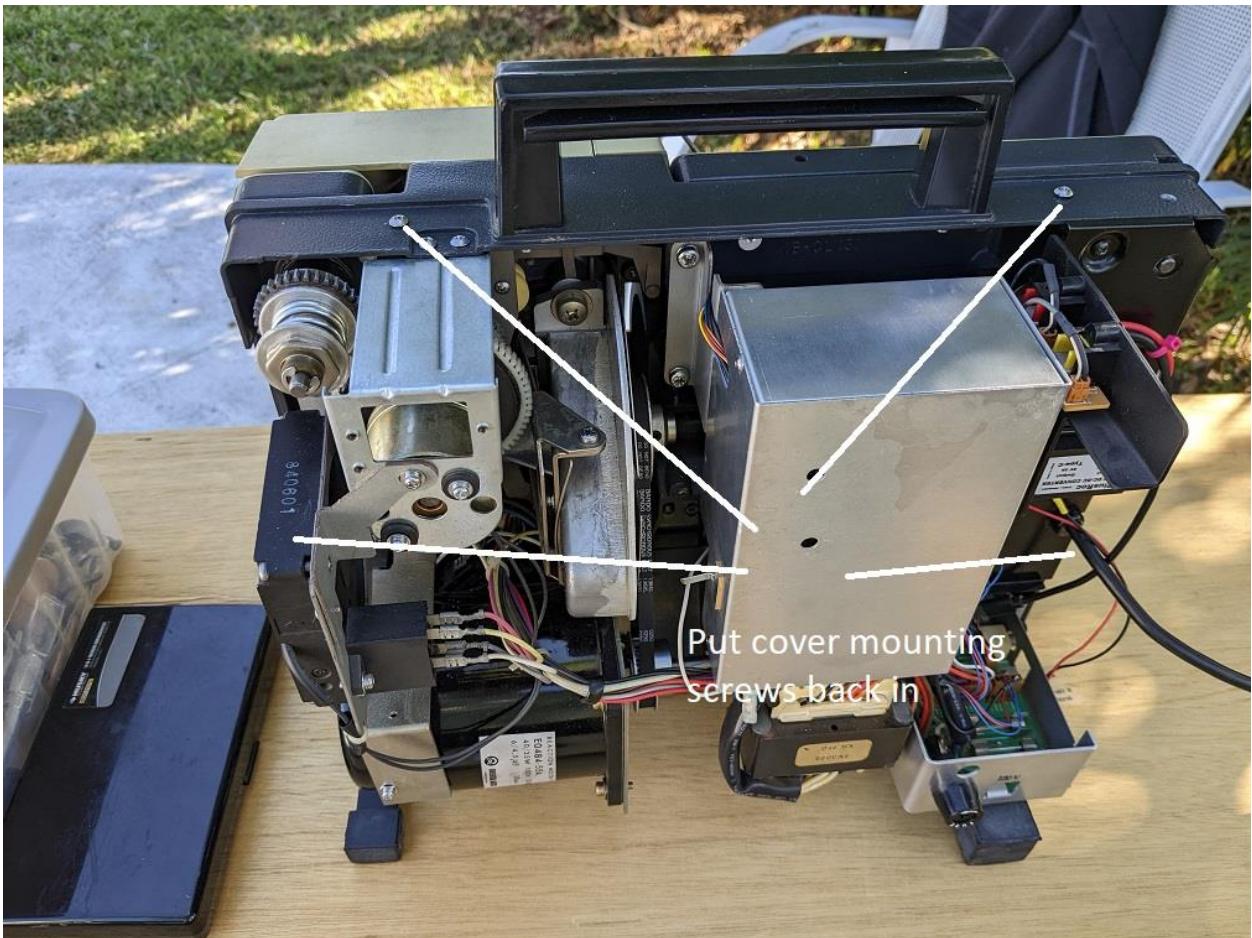


Old Camera Removal

Place the unit and the kit components on a large sturdy table. Prepare the tools including regular screwdrivers and miniature precision tool set.



Remove the back cover.

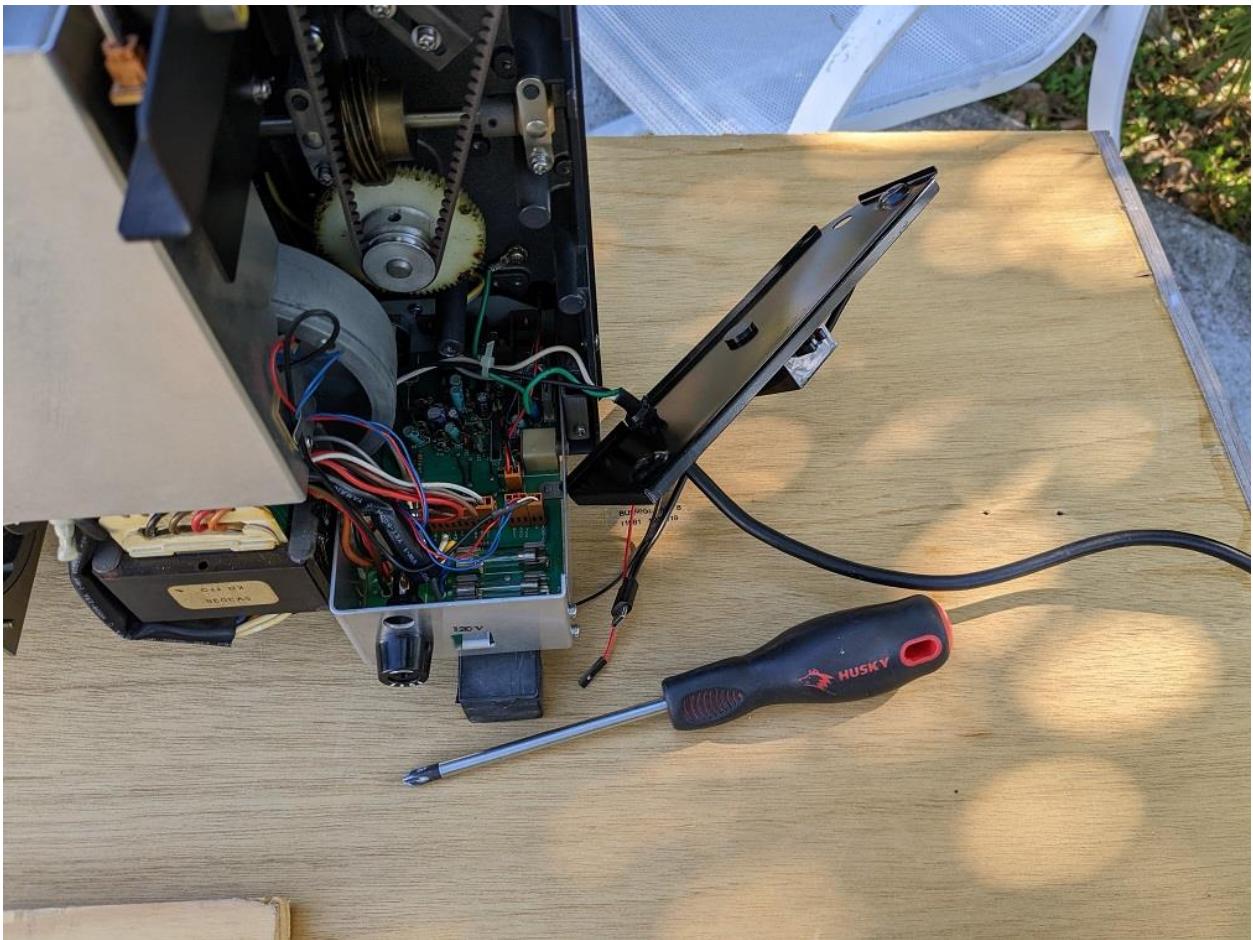


Put the mounting screws back in so that they do not get lost.

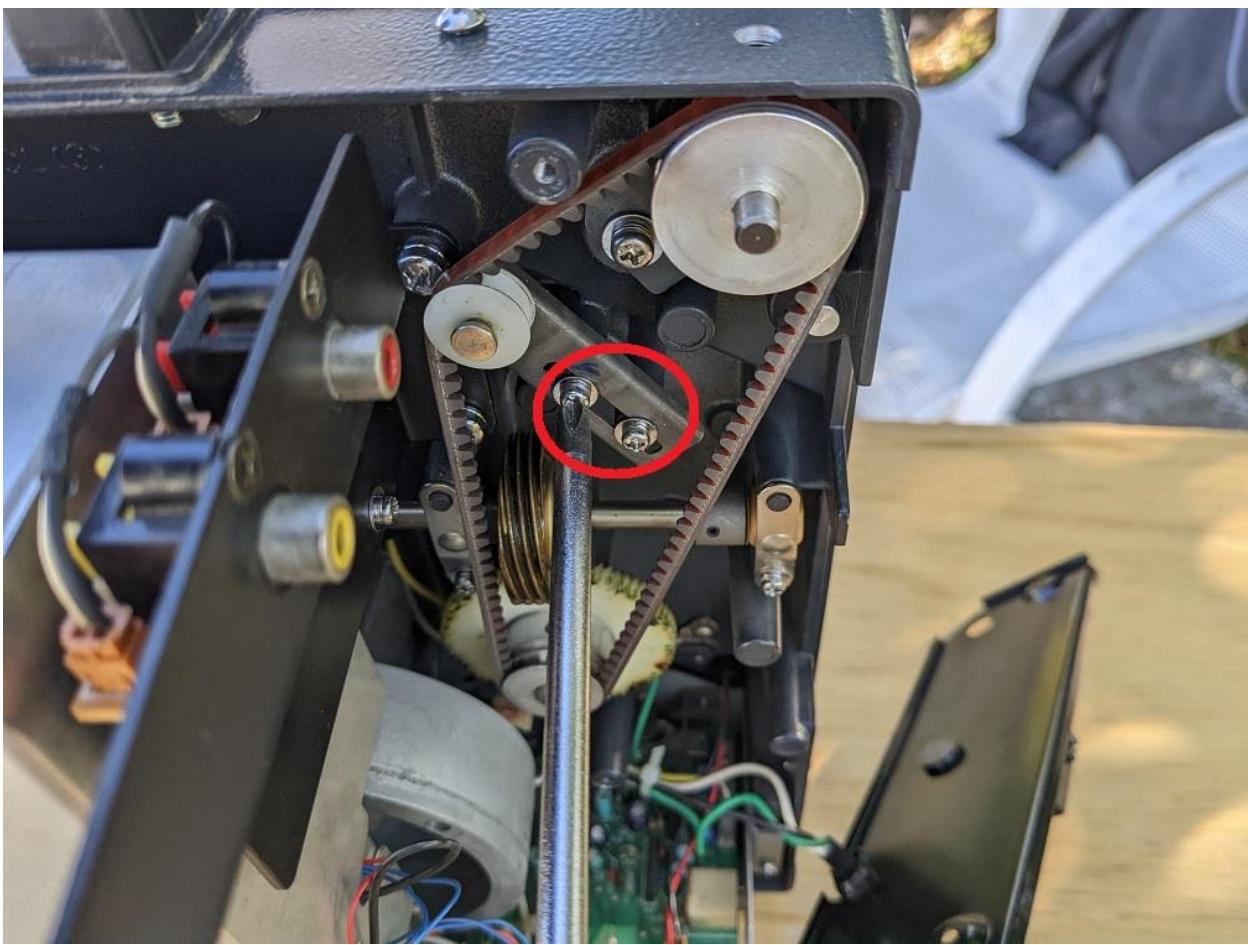
Remove front camera cover



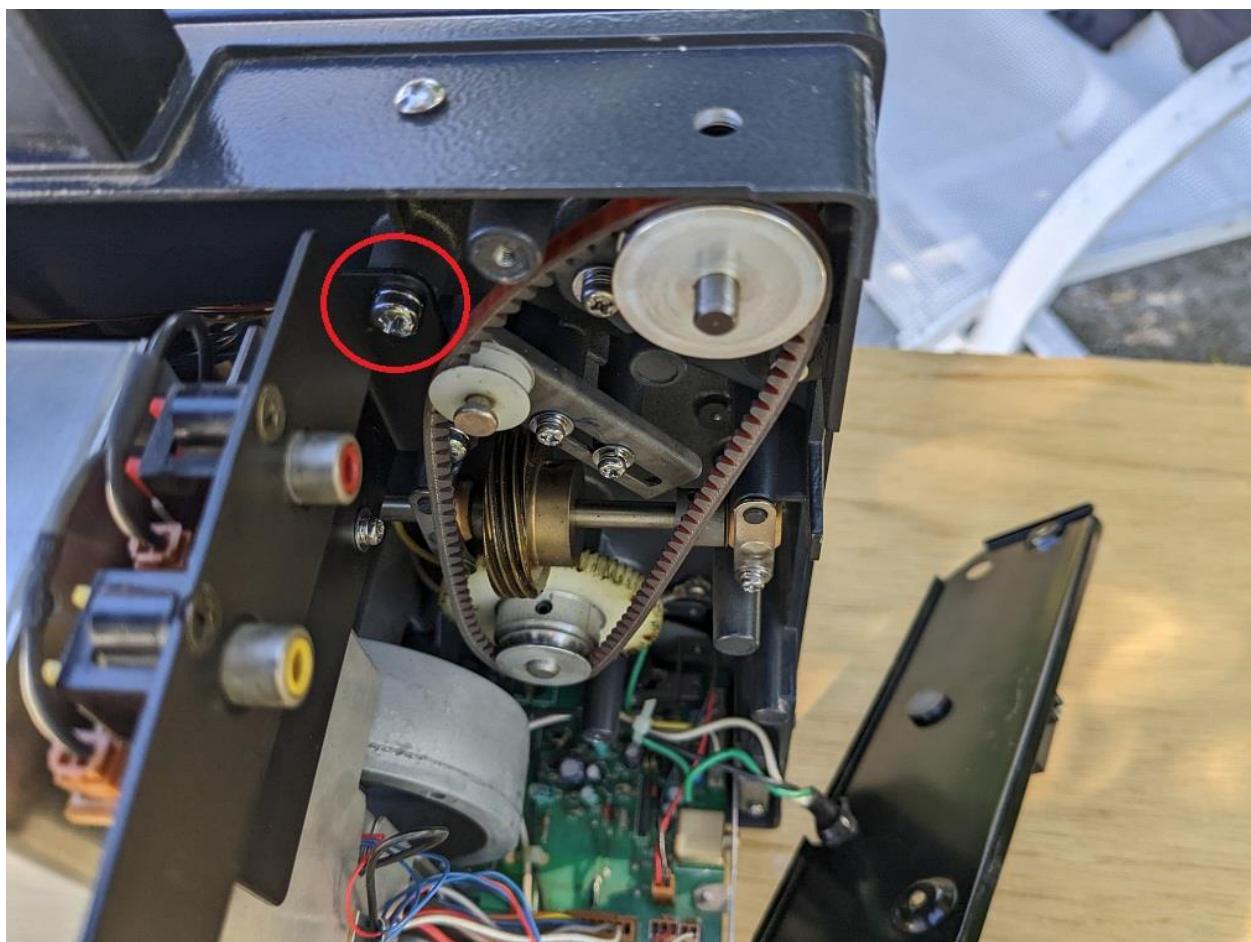
Remove 2 power supply cover screws and swing the cover to the side. It may be possible to detach the power cord from the cover by squeezing the strain relief grommet with a pair of pliers.



Loosen the takeup reel pulley screw.

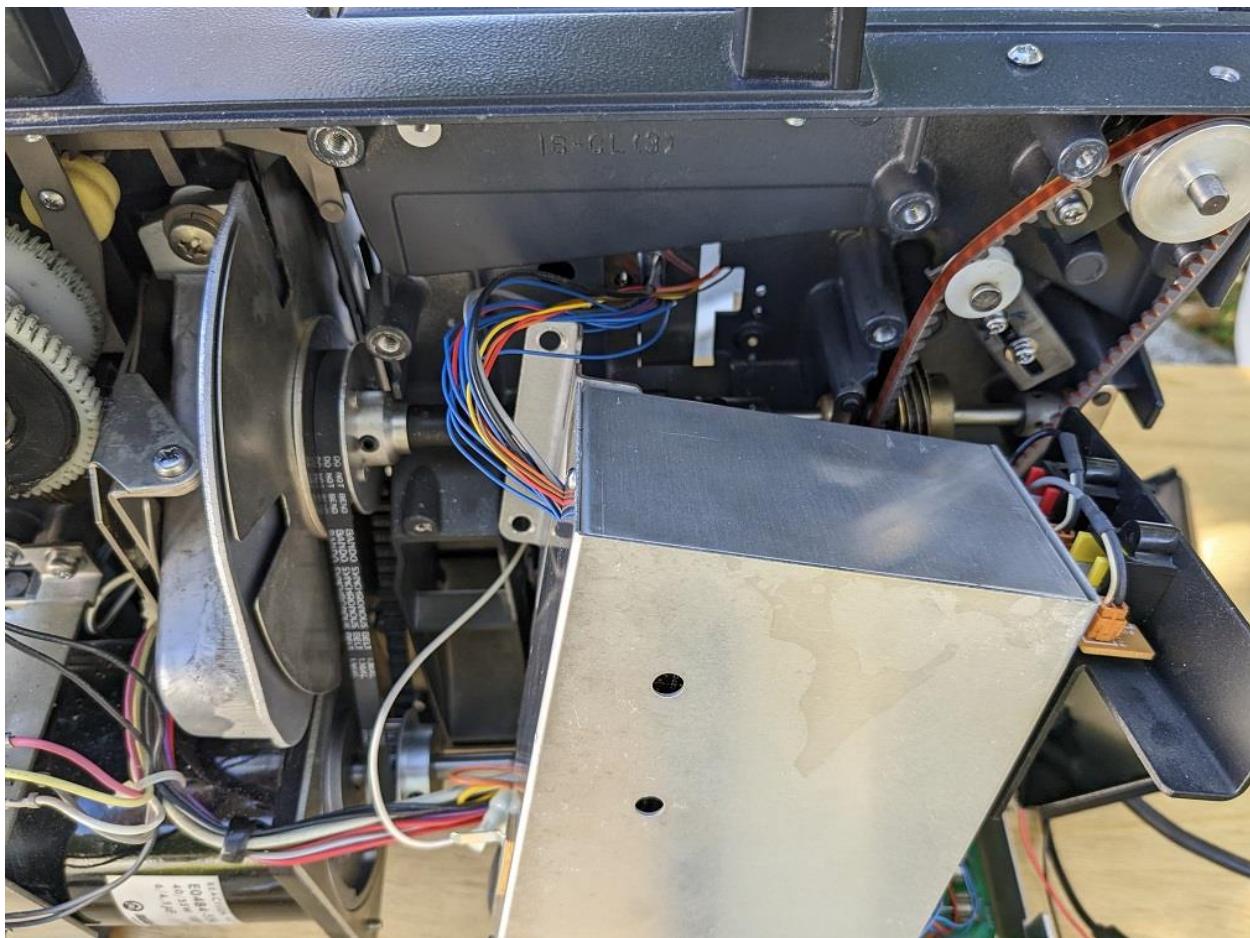


Slide the pulley down to clear the old camera electronics mounting screw.



Remove camera electronics mounting screws.

Set the electronics box to the side making sure not to put the strain on the camera cables in case you want to reinstall the old hardware for whatever reason.

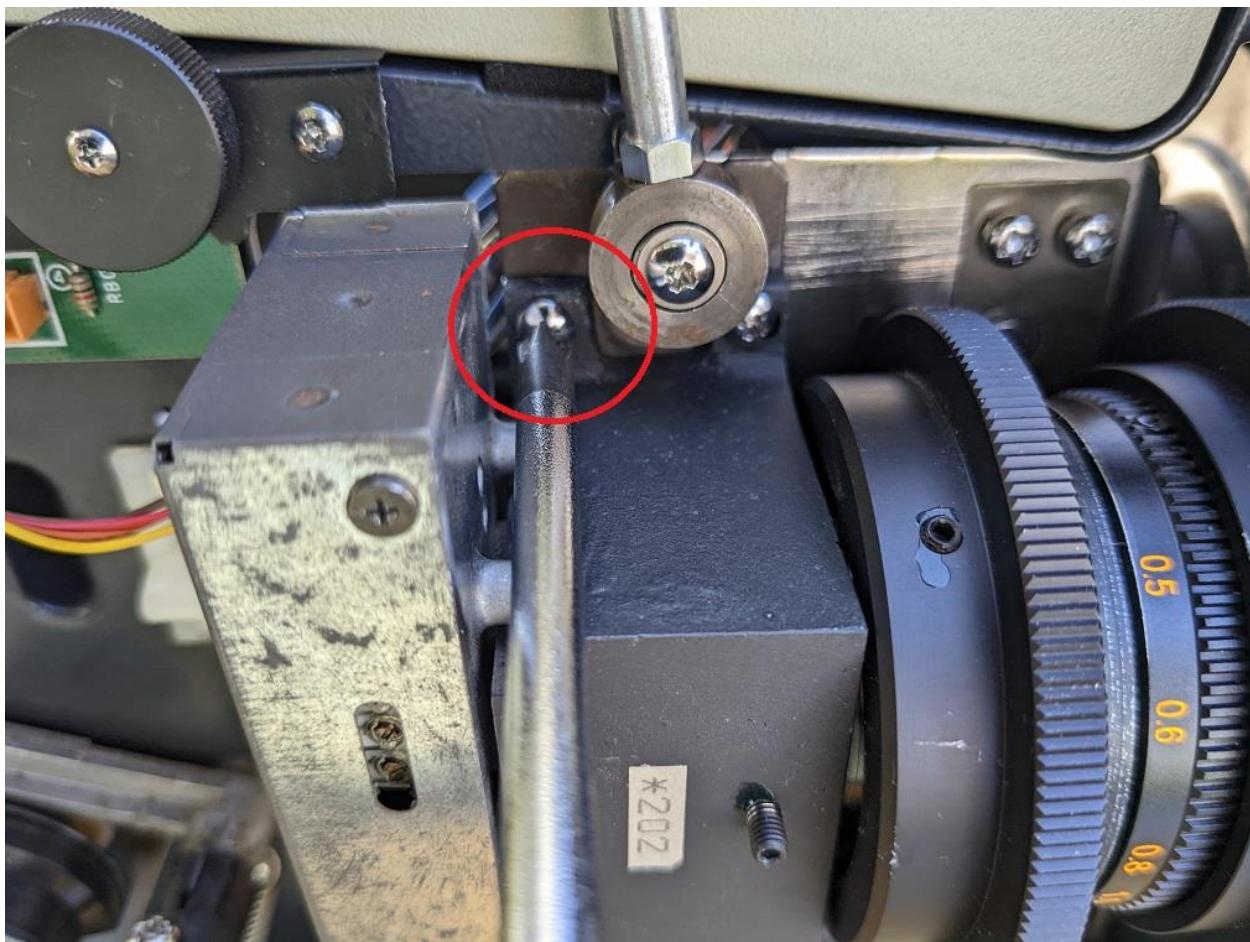


Remove the tint control cable located towards the top of the unit.



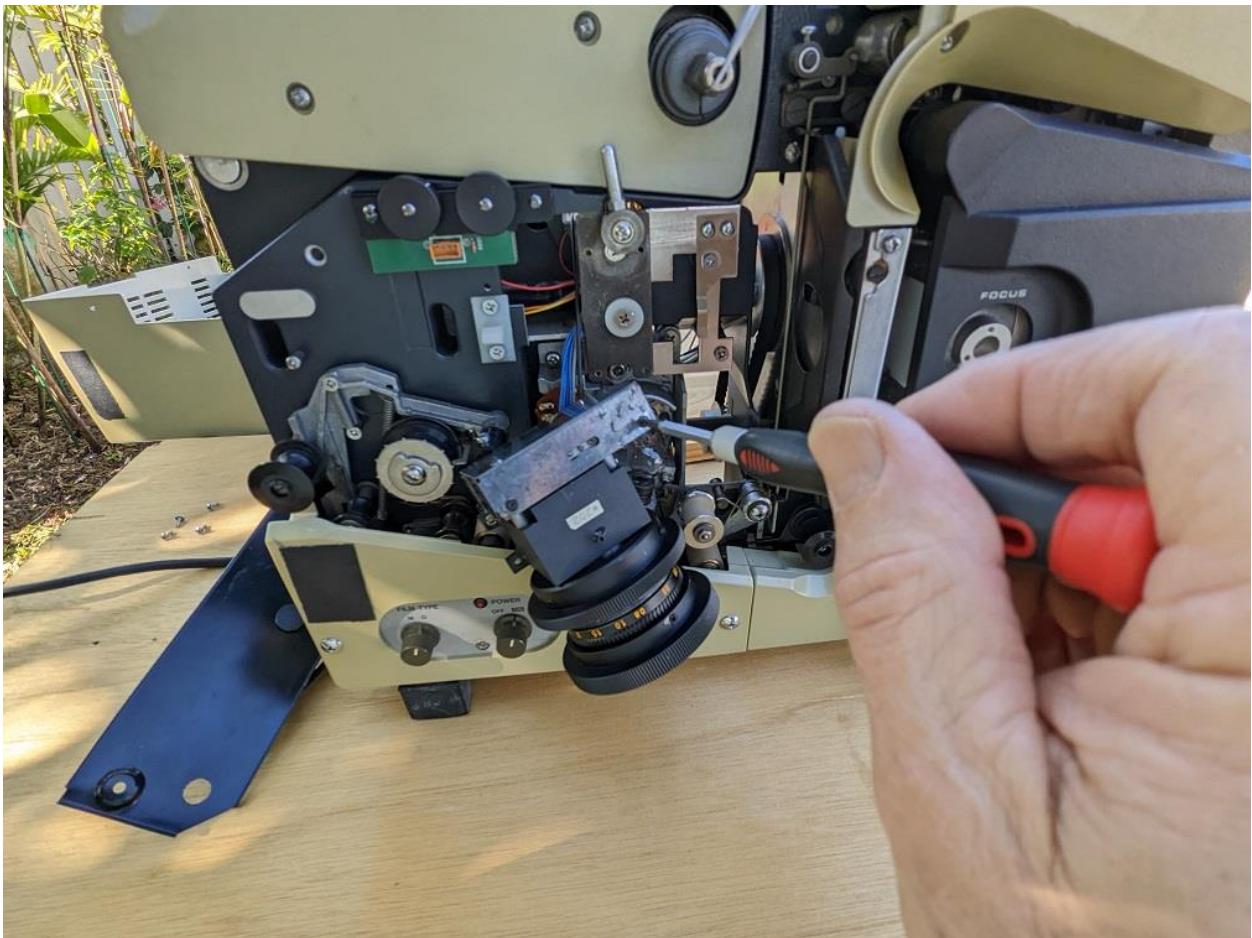
Be careful with the next steps. The sound recording bulb is right underneath the camera and the camera metal components could break the bulb glass. Temporarily remove the bulb or put something over it to protect it or just be extra careful.

Remove the 4 screws holding the camera to the frame adjustment plate.

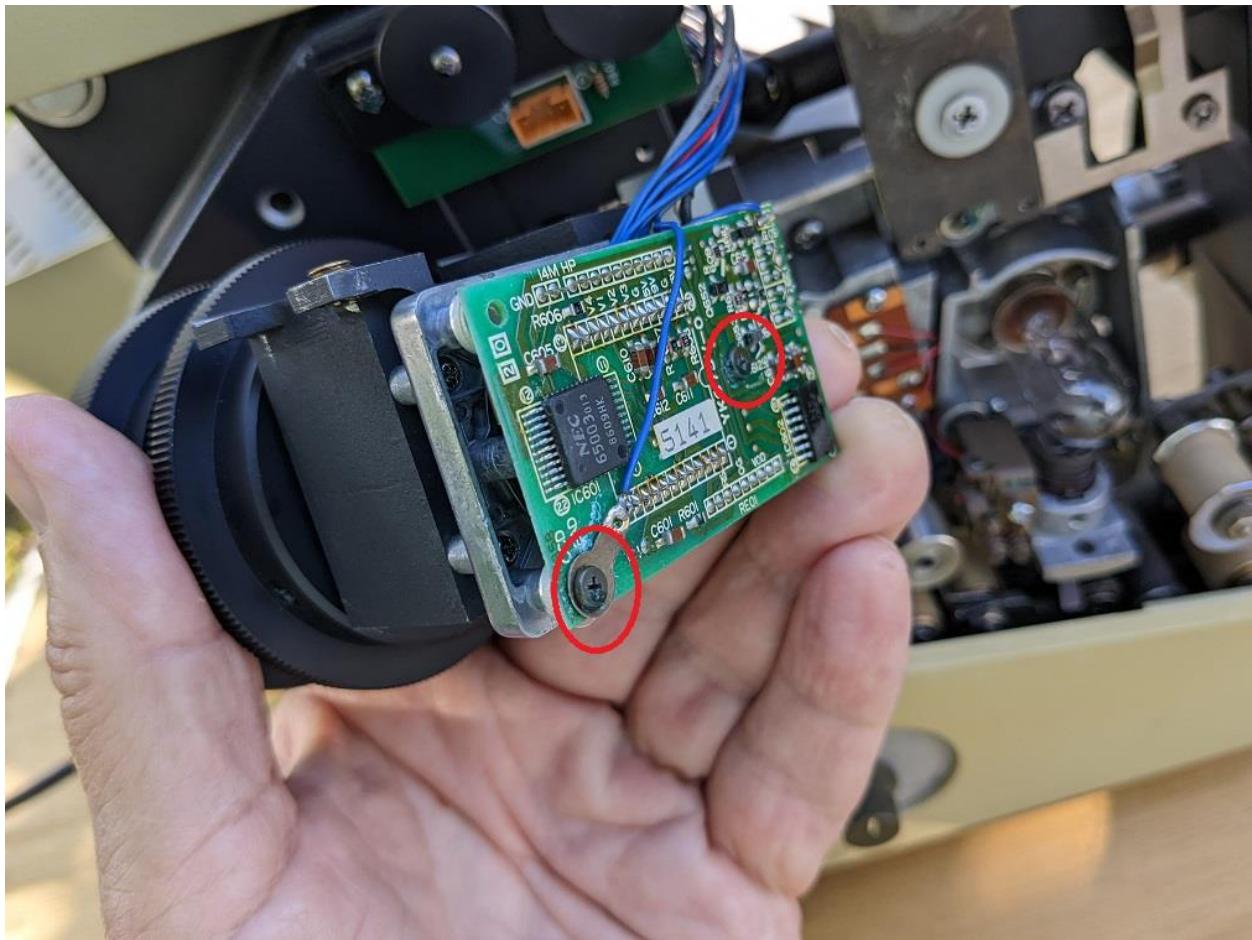


Screw the camera mounting screws back onto the plate because they will be needed in the later steps.

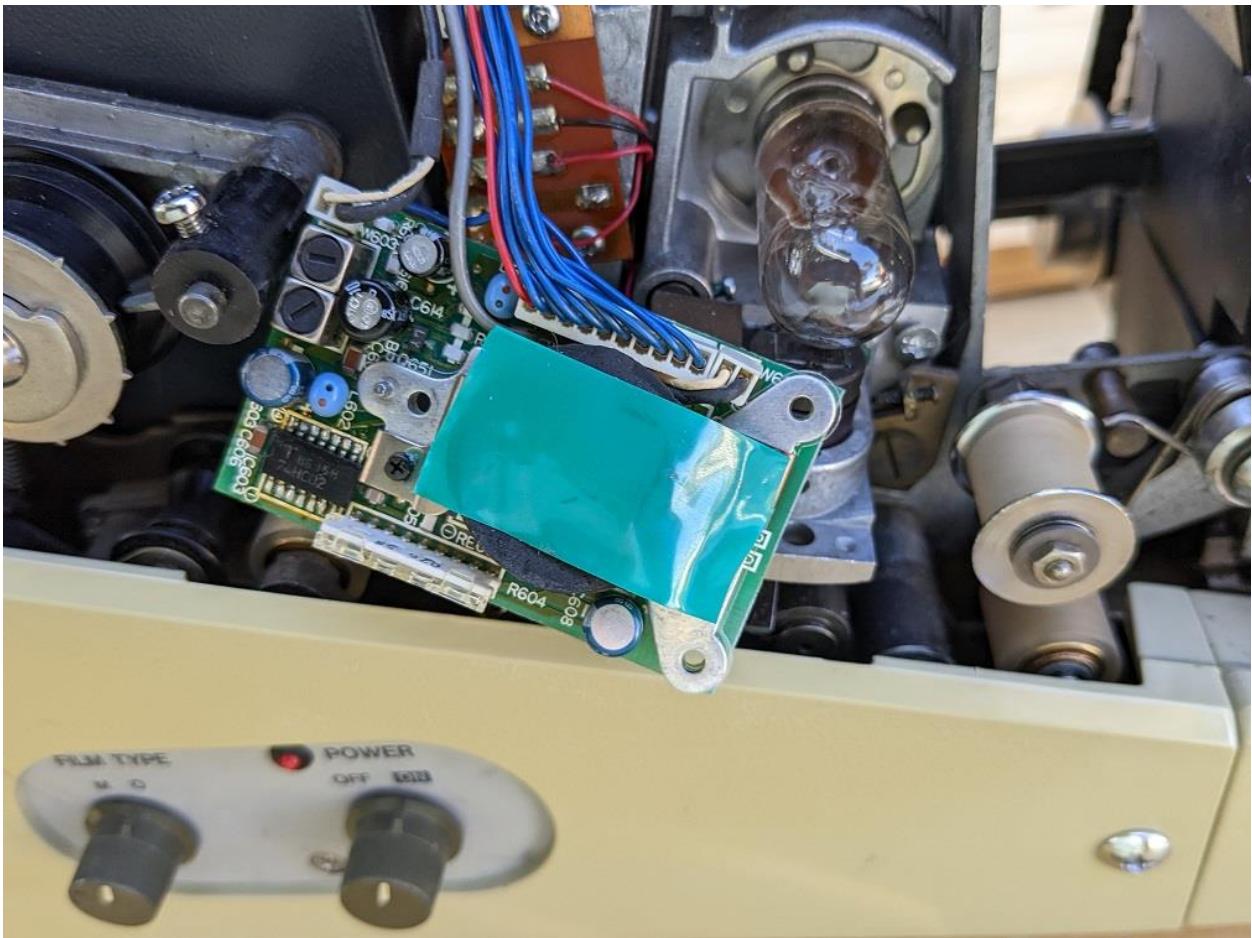
Remove the camera back cover.



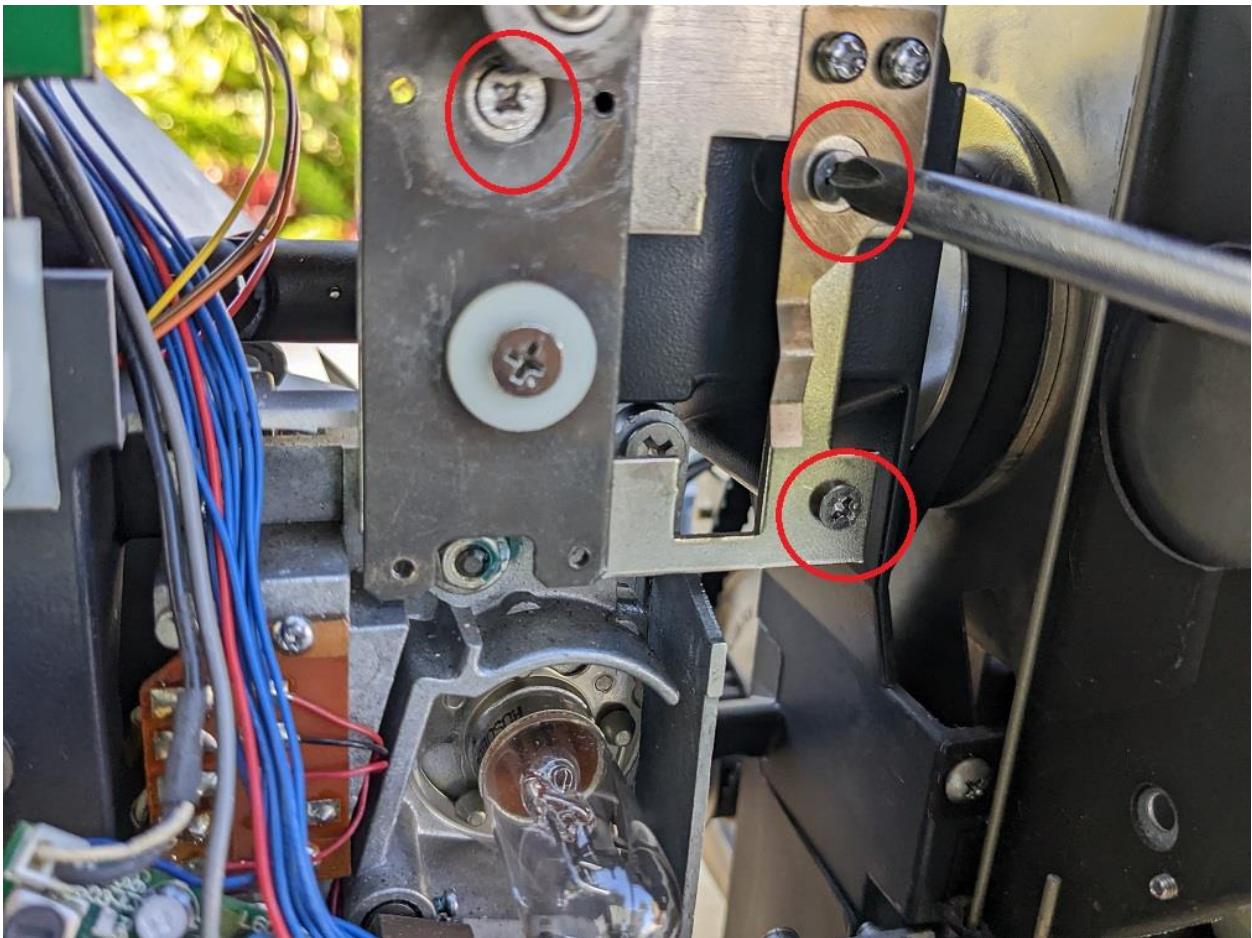
Remove the sensor board mounting screws.

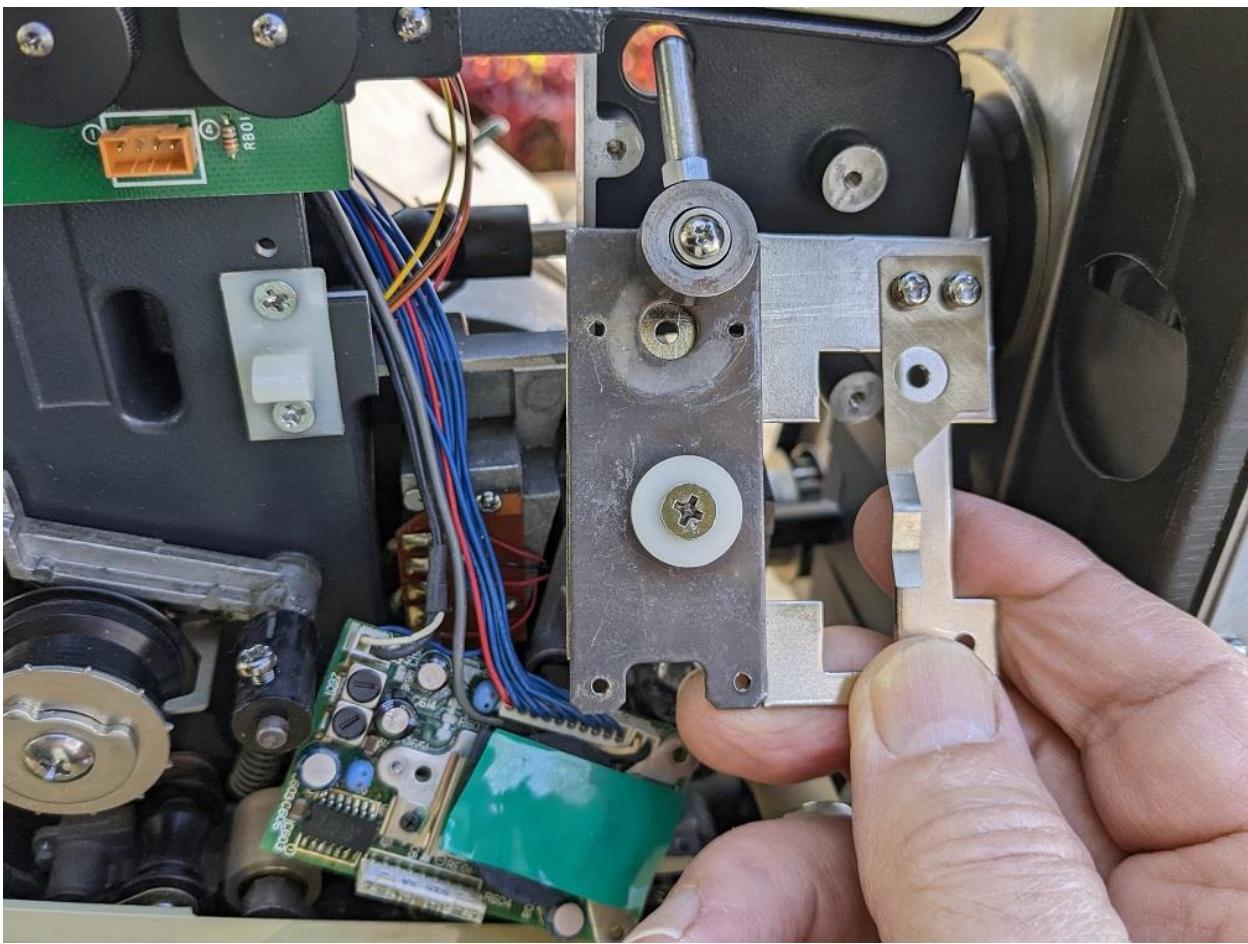


Cover the sensor with tape in case you want to reuse it or sell it.

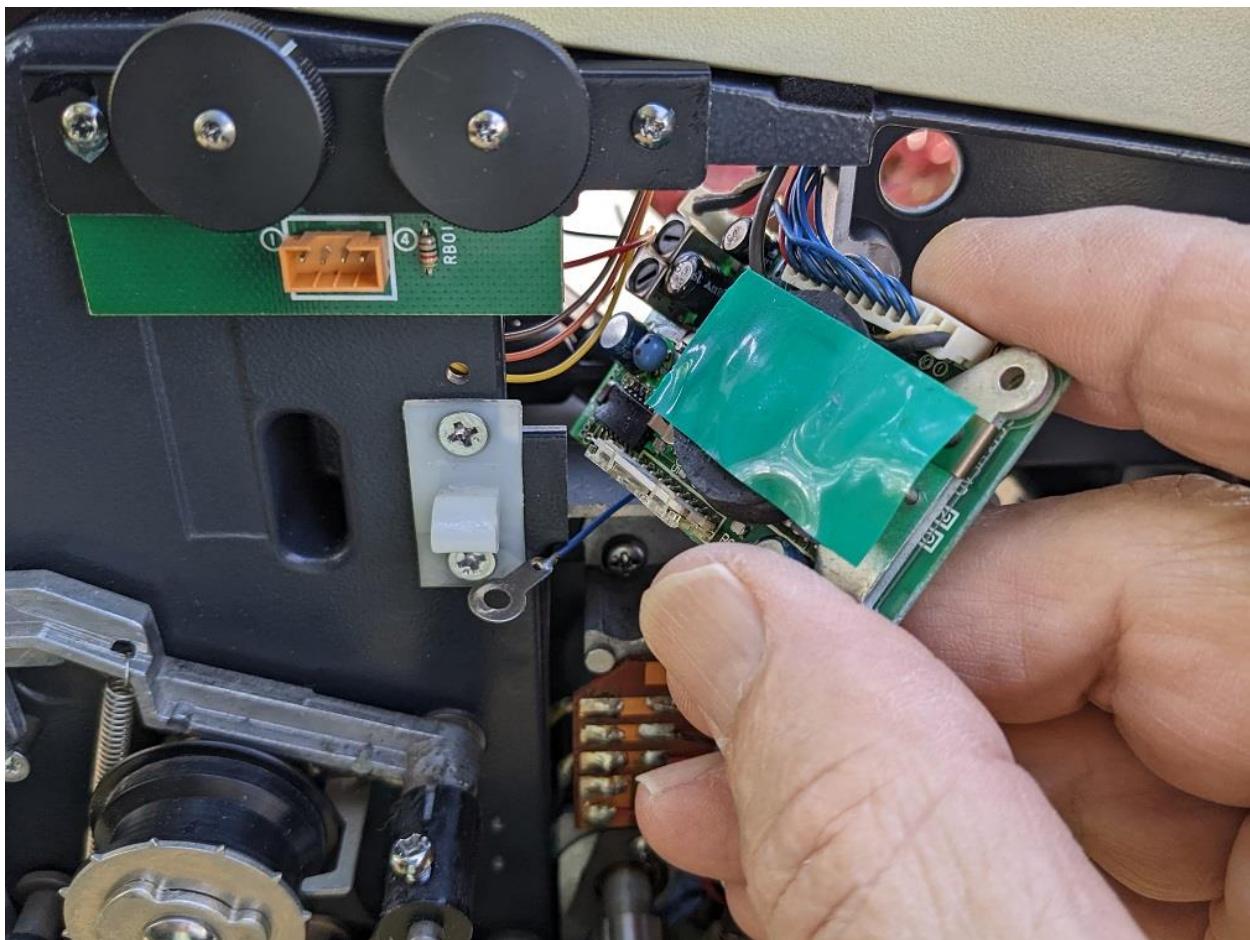


Remove the frame adjustor plate.

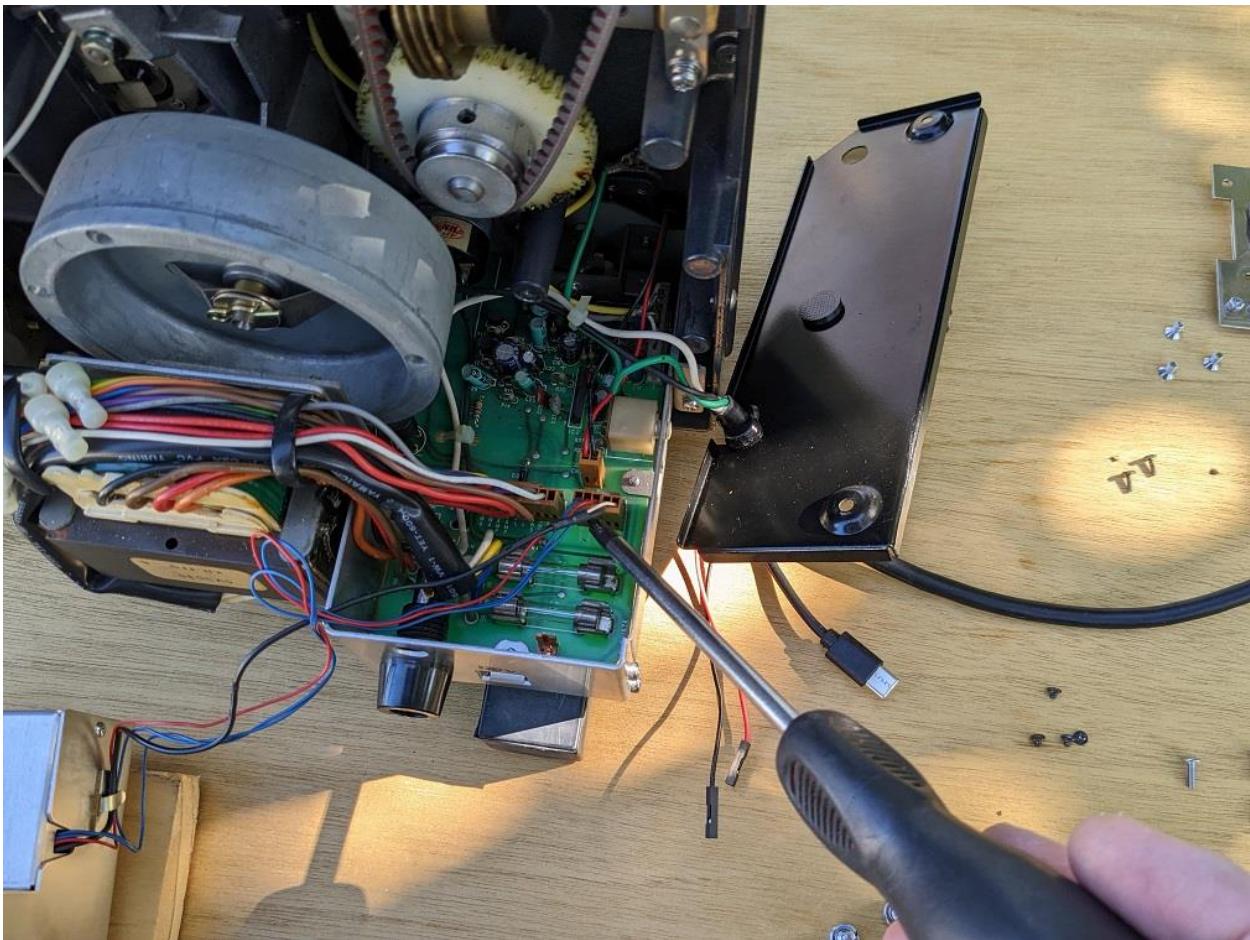




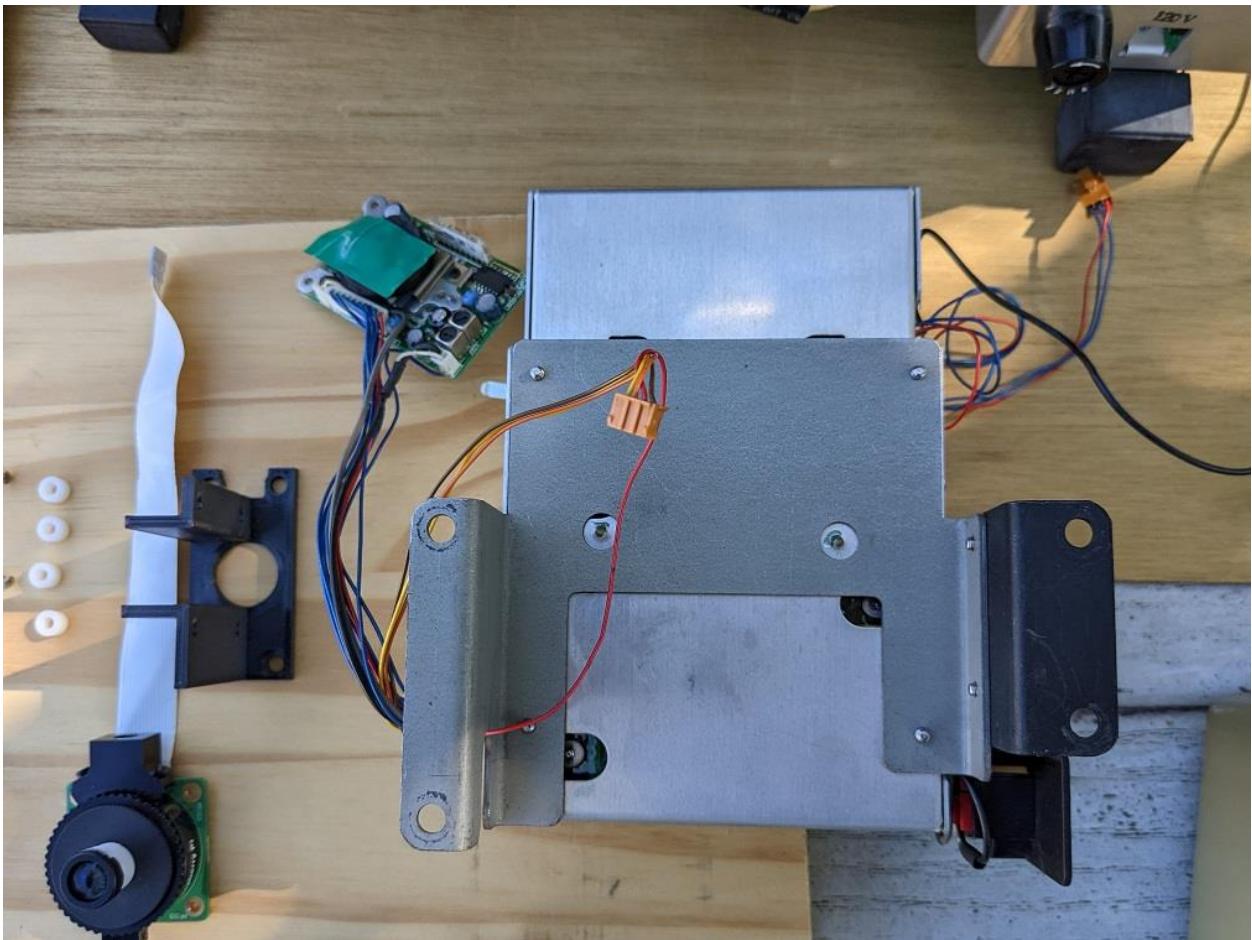
Slide the sensor through the opening towards the back of the unit.



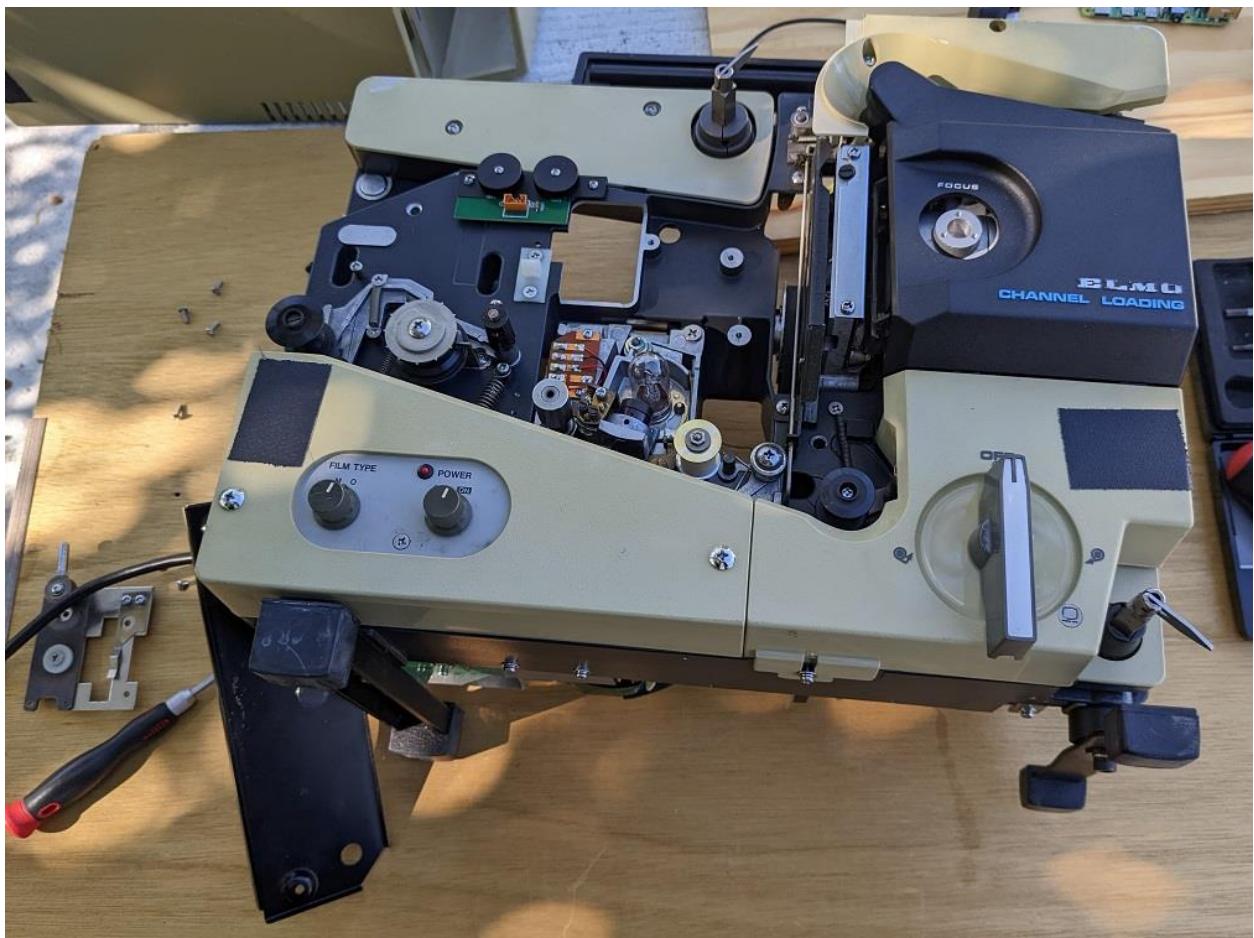
Disconnect camera power and camera audio connectors.



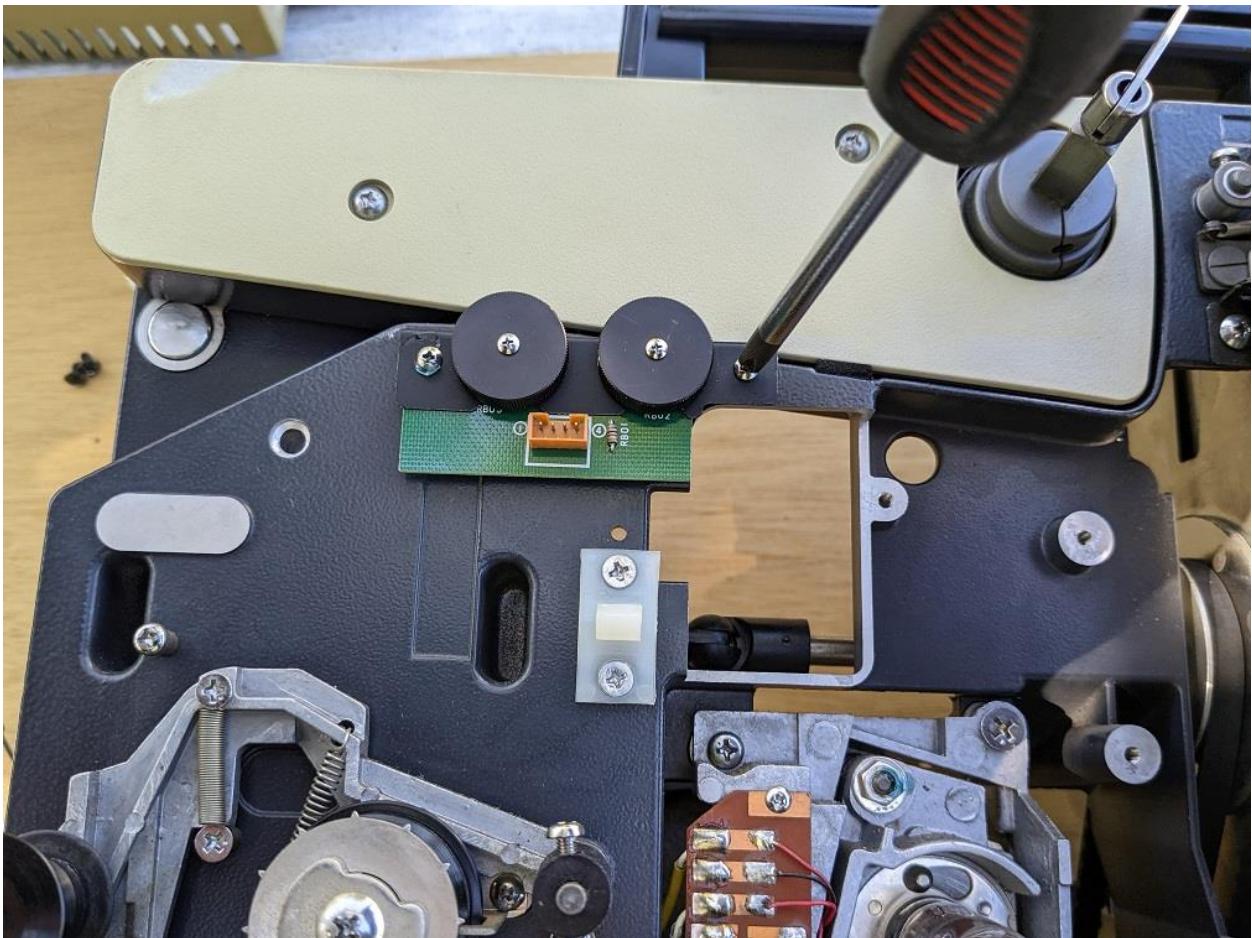
Pull the complete camera assembly out.



The next step is to remove the tint control. Since there are a few plastic washers used bee careful not to drop them into the unit. The best bet is to carefully lay the unit down on its back taking care not to damage any parts located at the back of the unit.

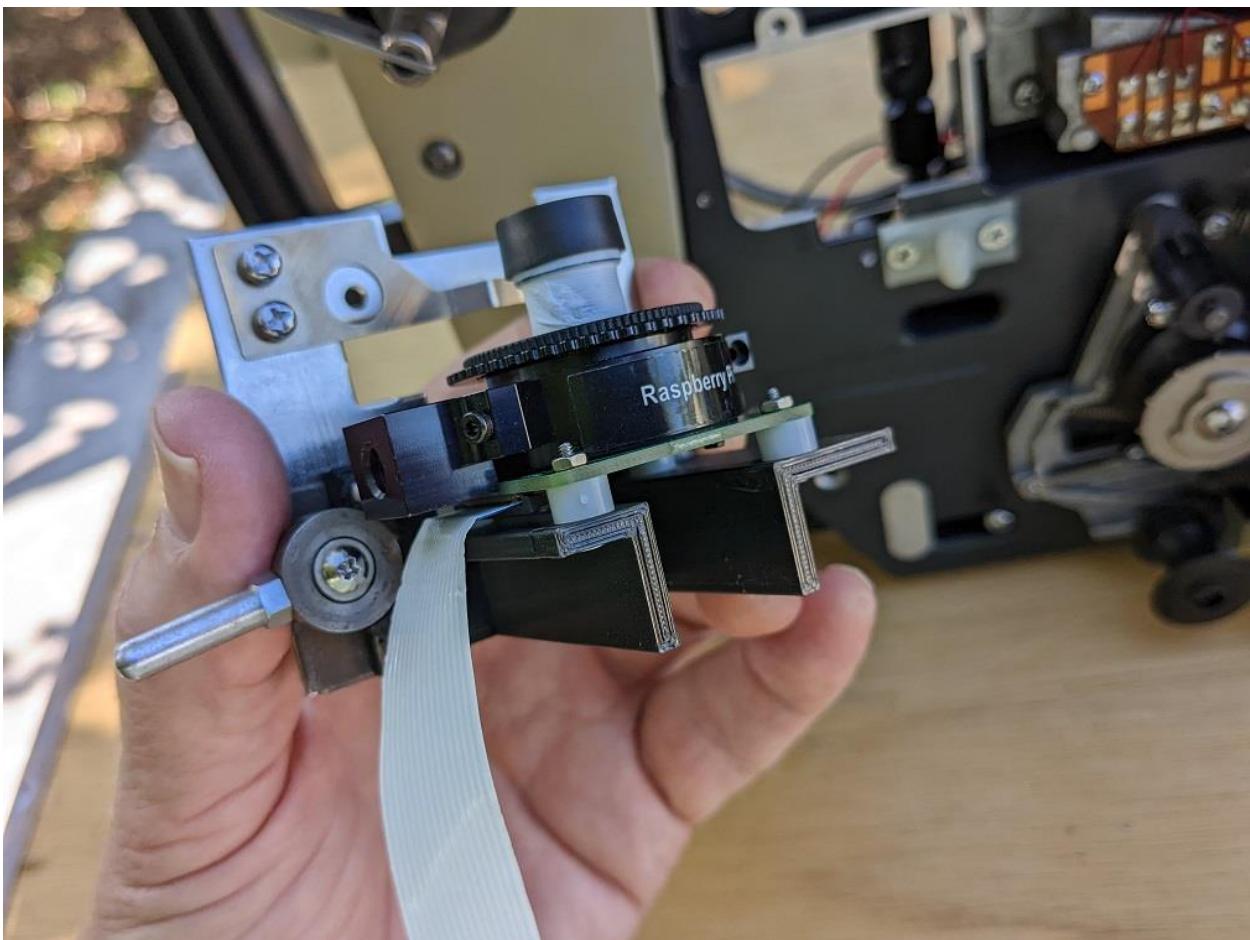


Carefully remove the two mounting screws making sure not to lose the washers.

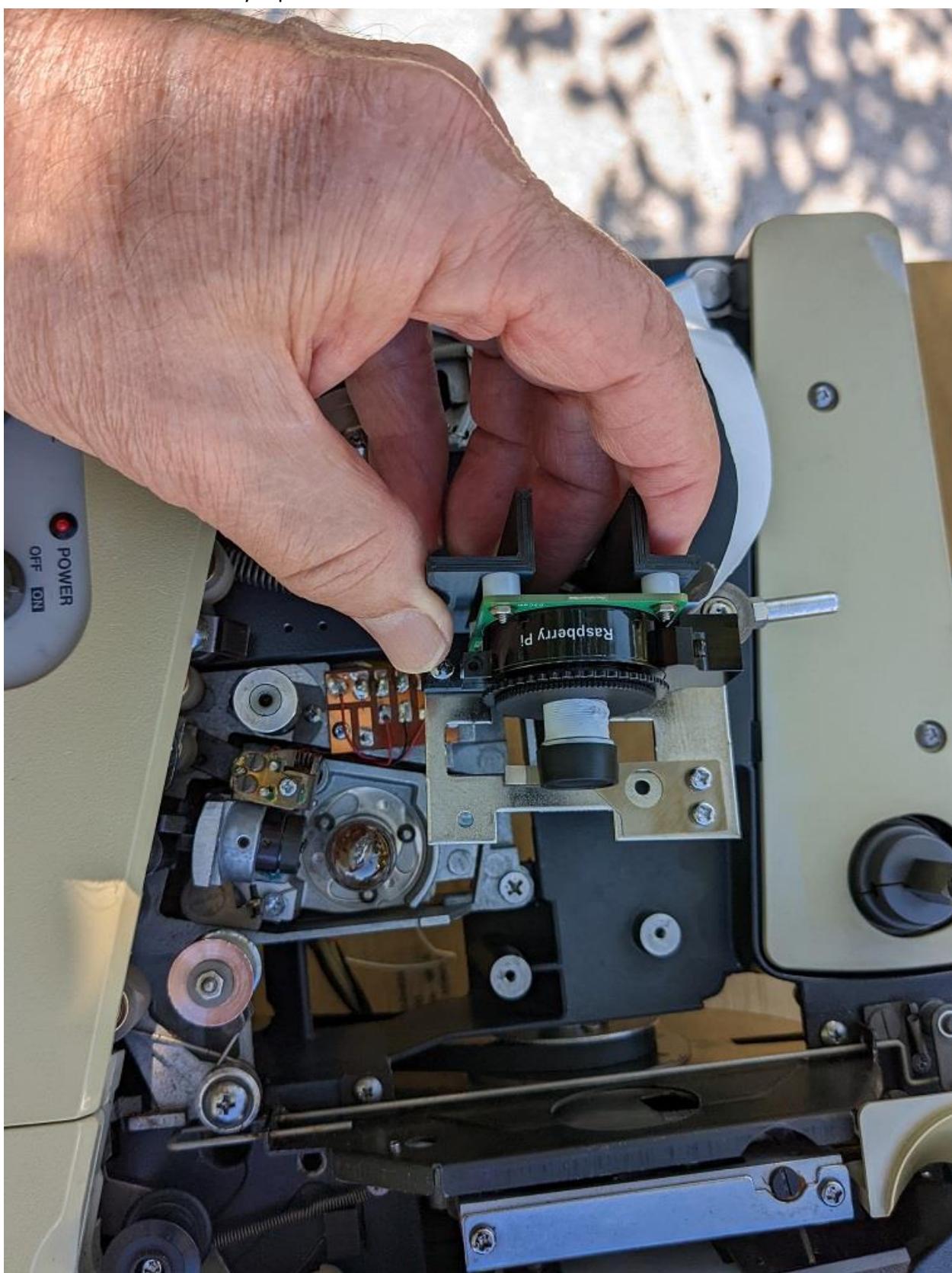


Put the screws back in. They will be needed in the later steps. The washers are not needed.

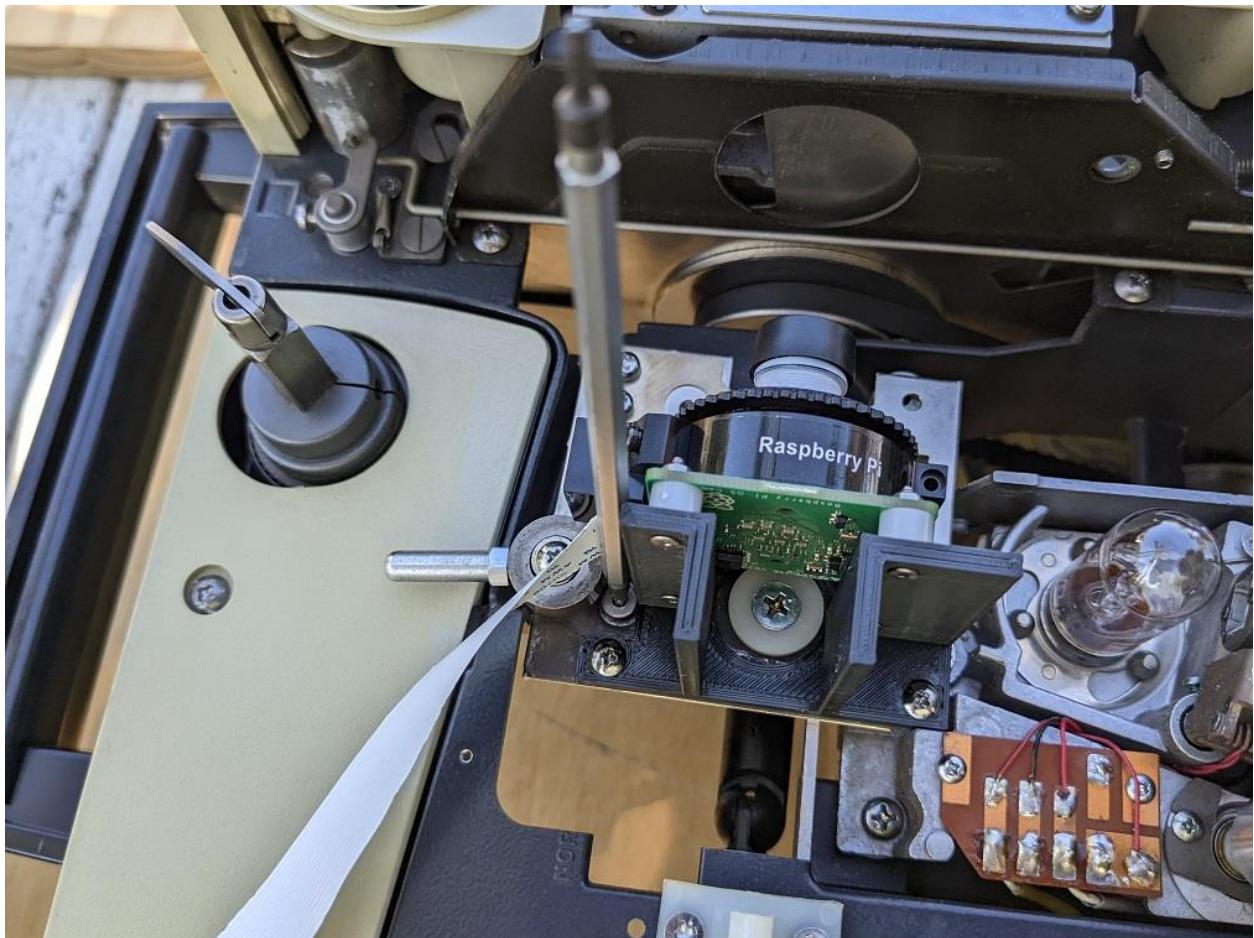
Mount the new camera assembly onto the frame adjust plate reusing the original screws.



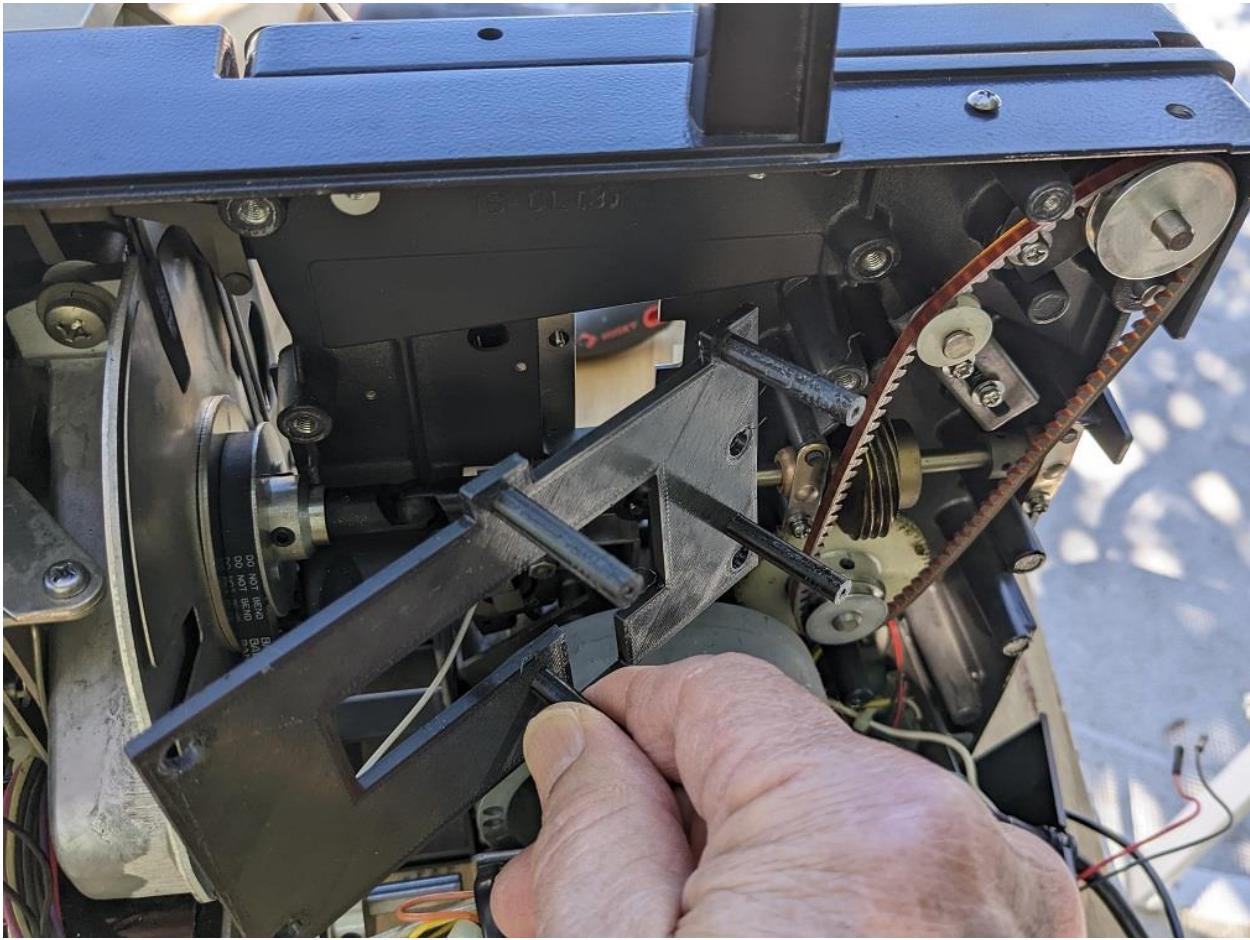
Place the camera assembly in place where the old camera was located.



Use the new mounting screws (qty 3) to fix the mounting plate in. The new screws are hex type (allen) and easier to install but you will need a long allen key.



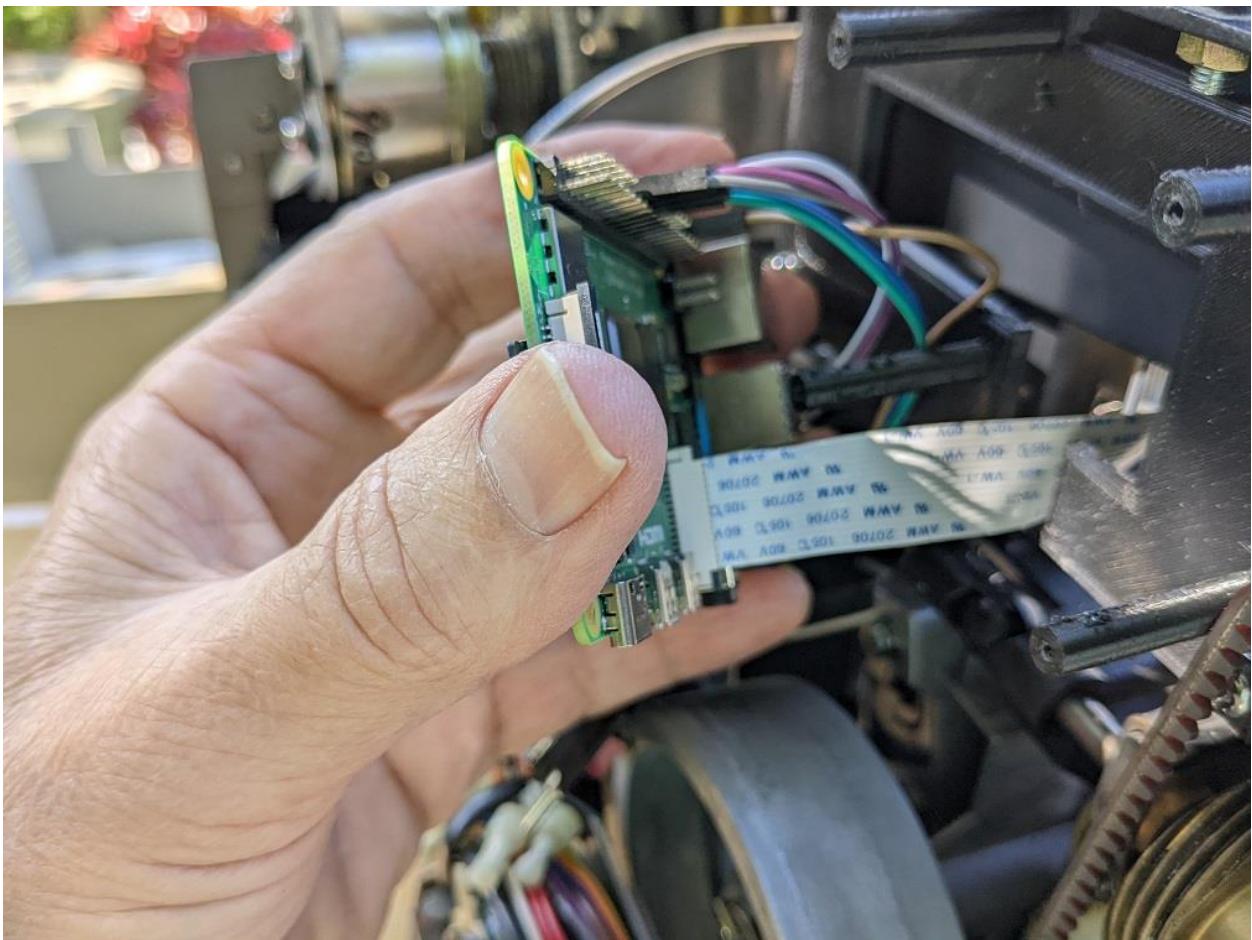
Mount the RPI bracket in place of the old camera electronics. Reuse the four old mounting screws. Remove the RPI mounting screws from the bracket and keep them close by ready for the next step.



Pull up on the RPI camera connector lock bar to make sure it is unlocked.

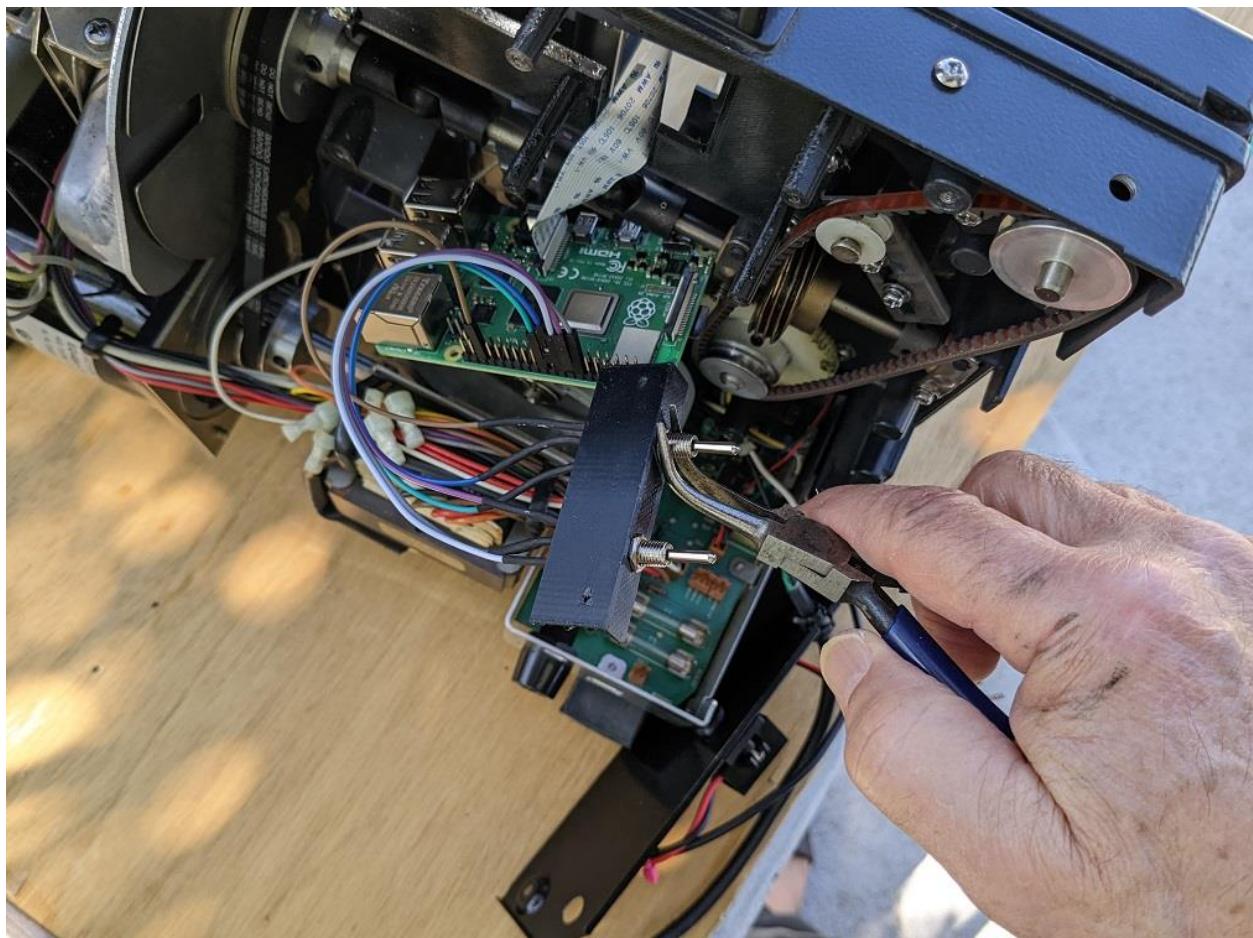
Slide the camera ribbon back and carefully align it with the connector and slide it in. The ribbon pins should be facing the HDMI label as shown. Push the lock bar back in to lock the ribbon connector in place.

Place the RPI onto the bracket and install the four mounting screws from the previous step.

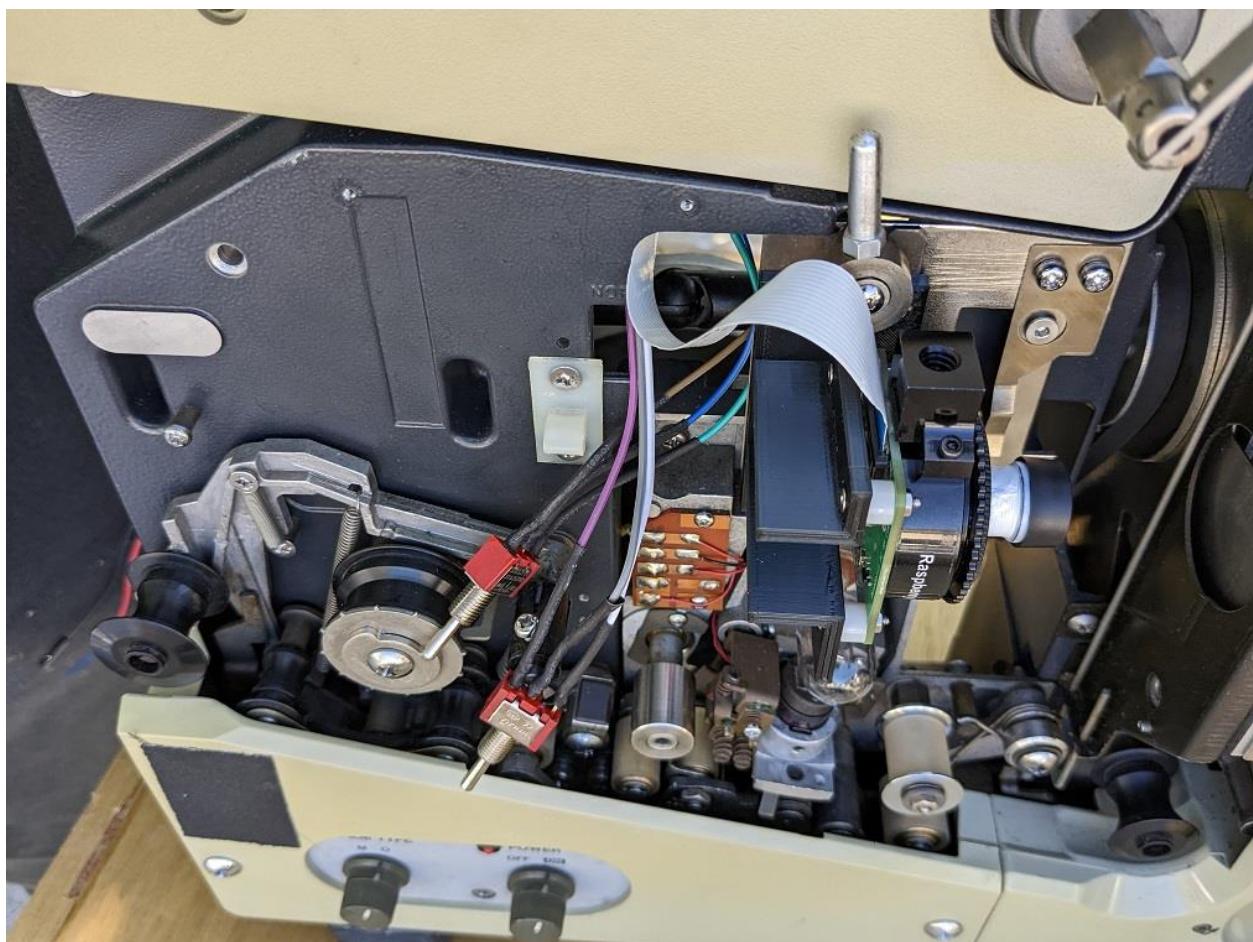


Mark up the location of the control switches on the mounting bracket because you will have to remove them in the next step. The best way is to attach a sticky label onto the switches and indicate their position on the label and their orientation.

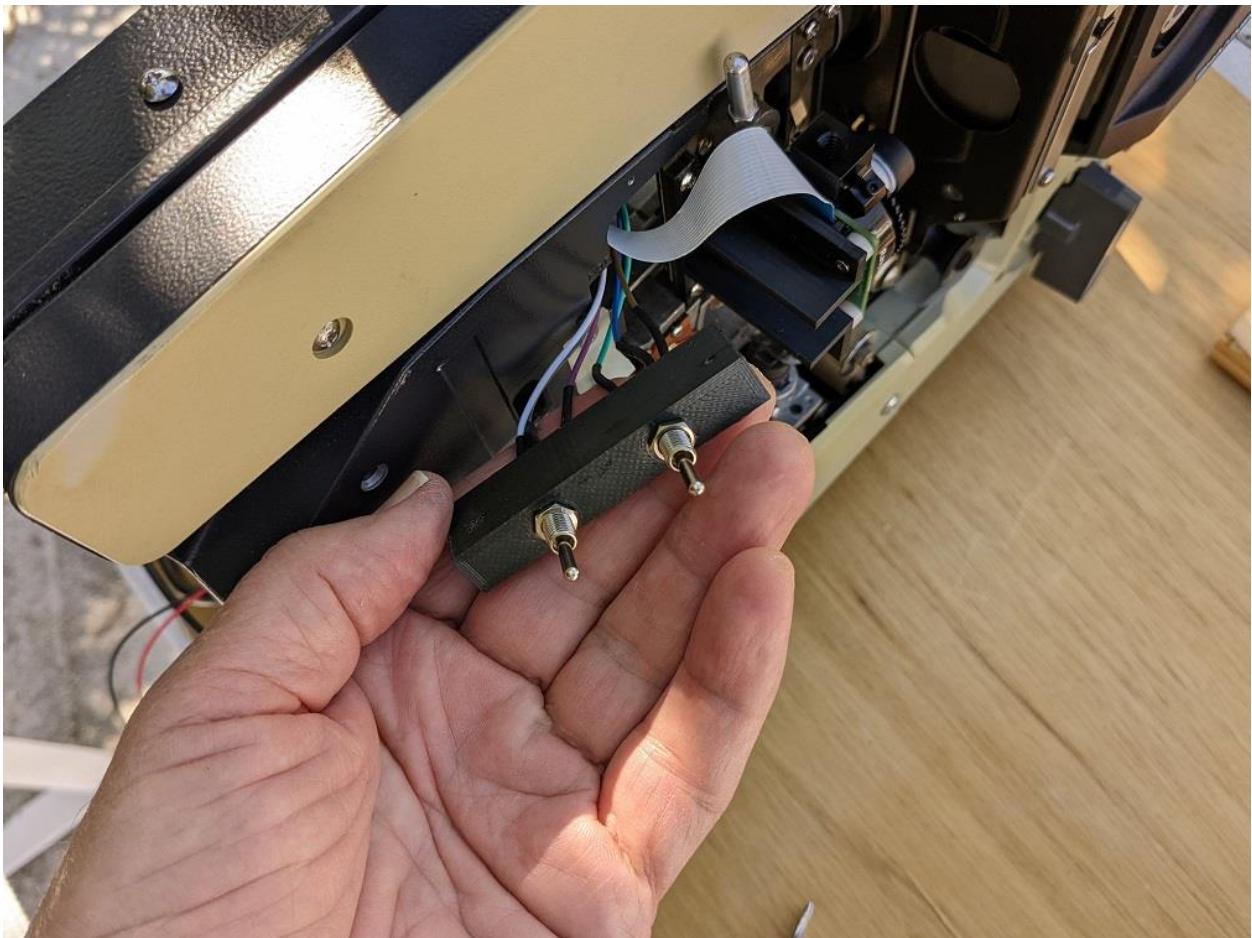
Remove the switches from the bracket.



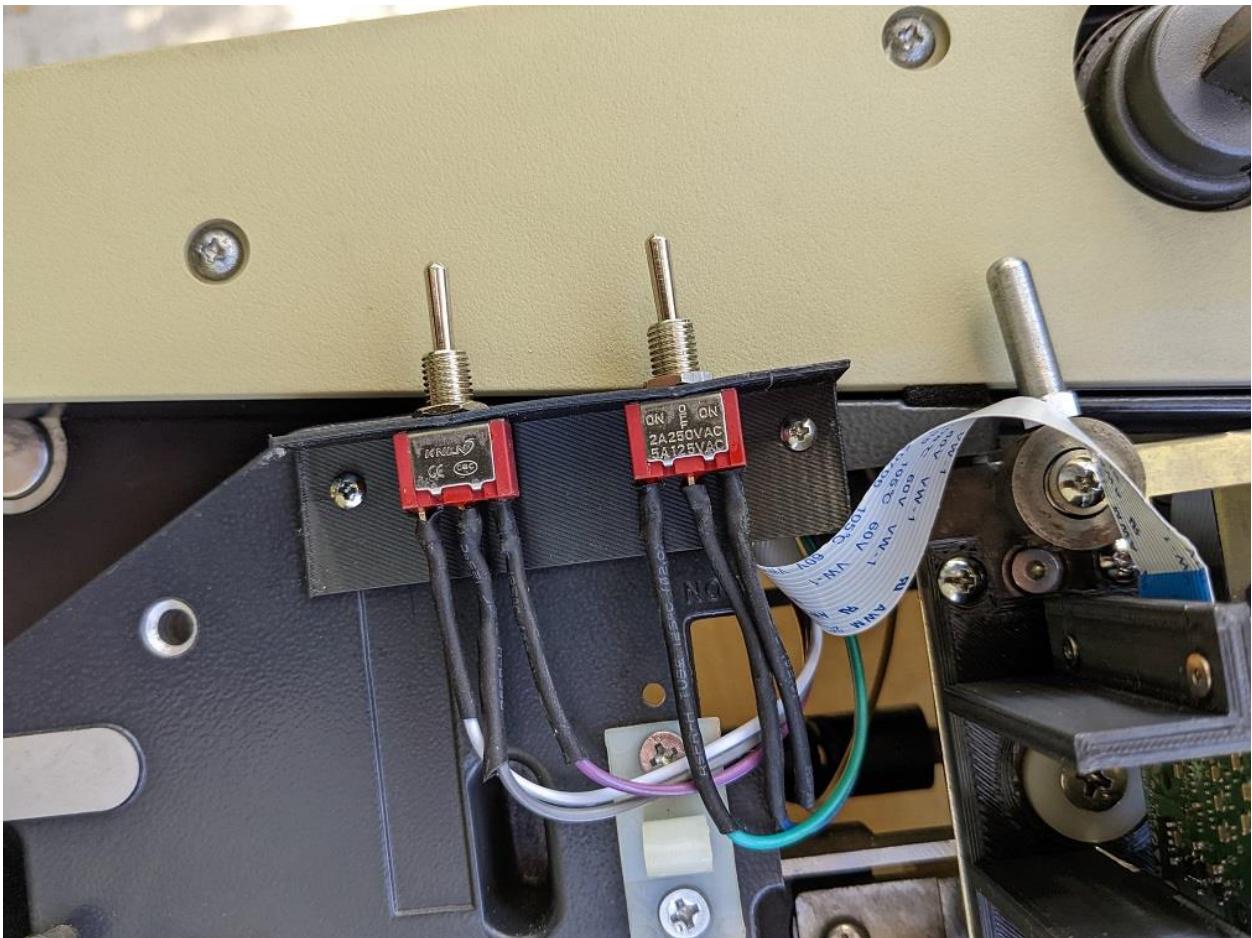
Slide the switches through the cutout towards the front of the unit as shown.



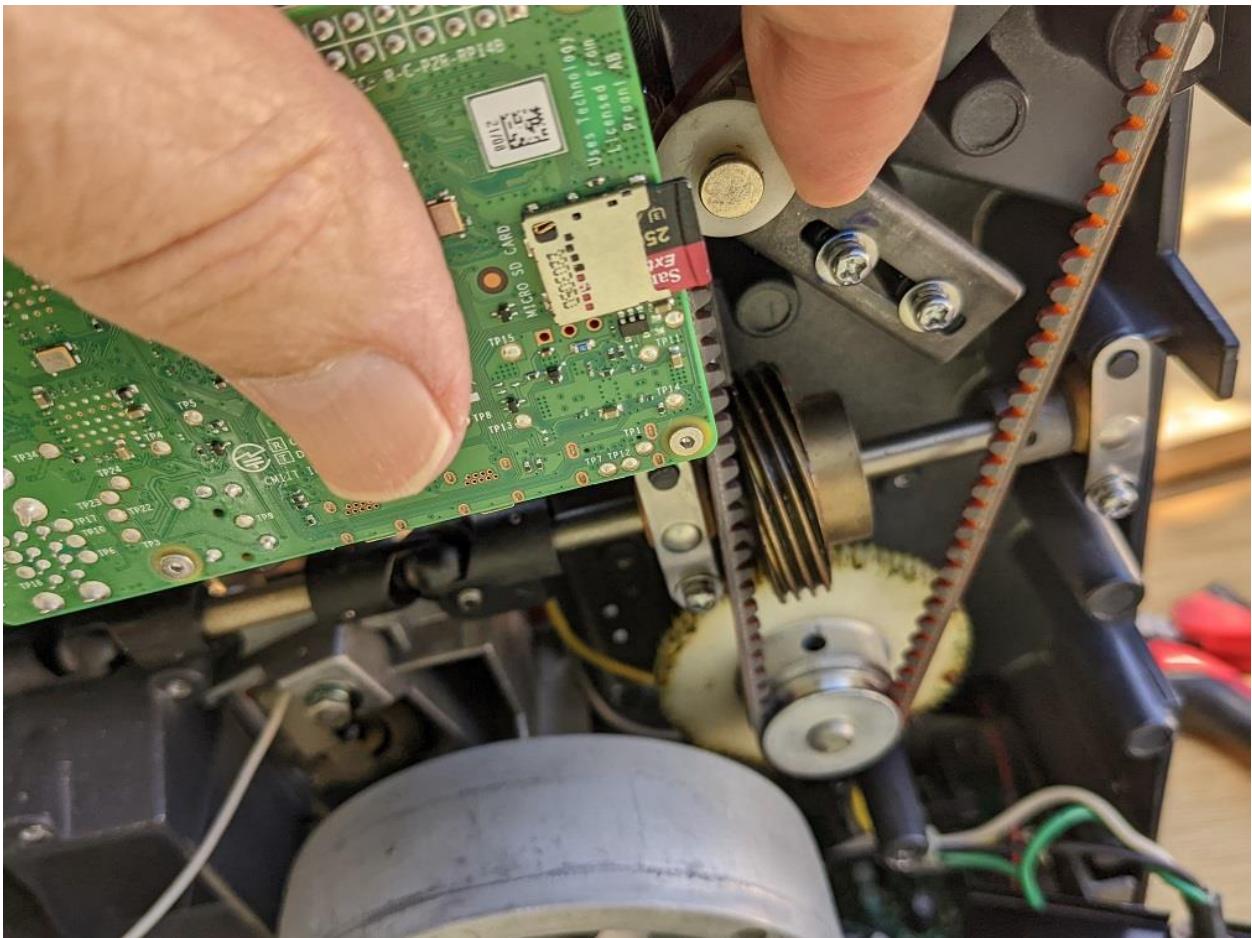
Mount the switches onto the bracket.



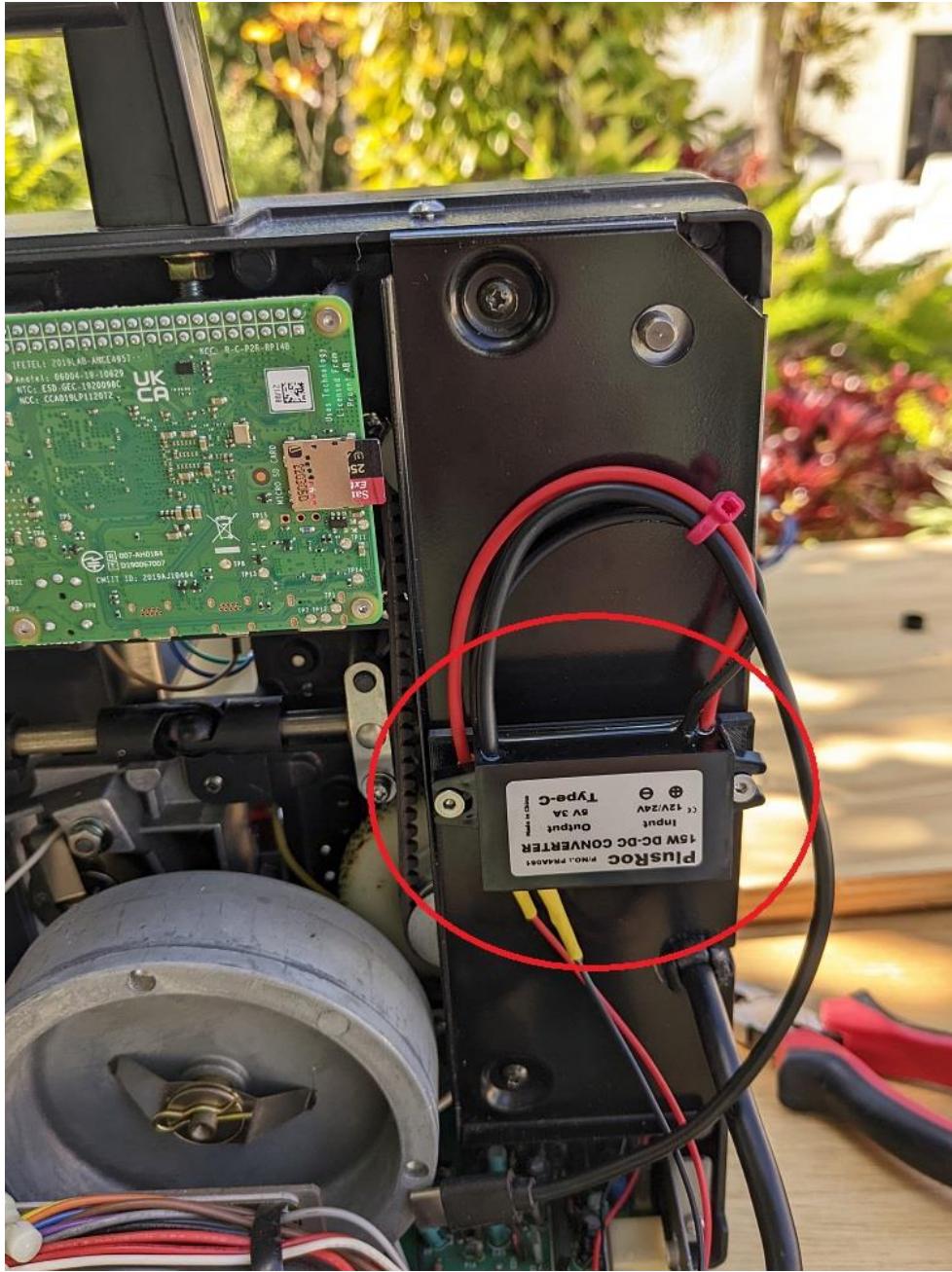
Install switch bracket onto the unit.



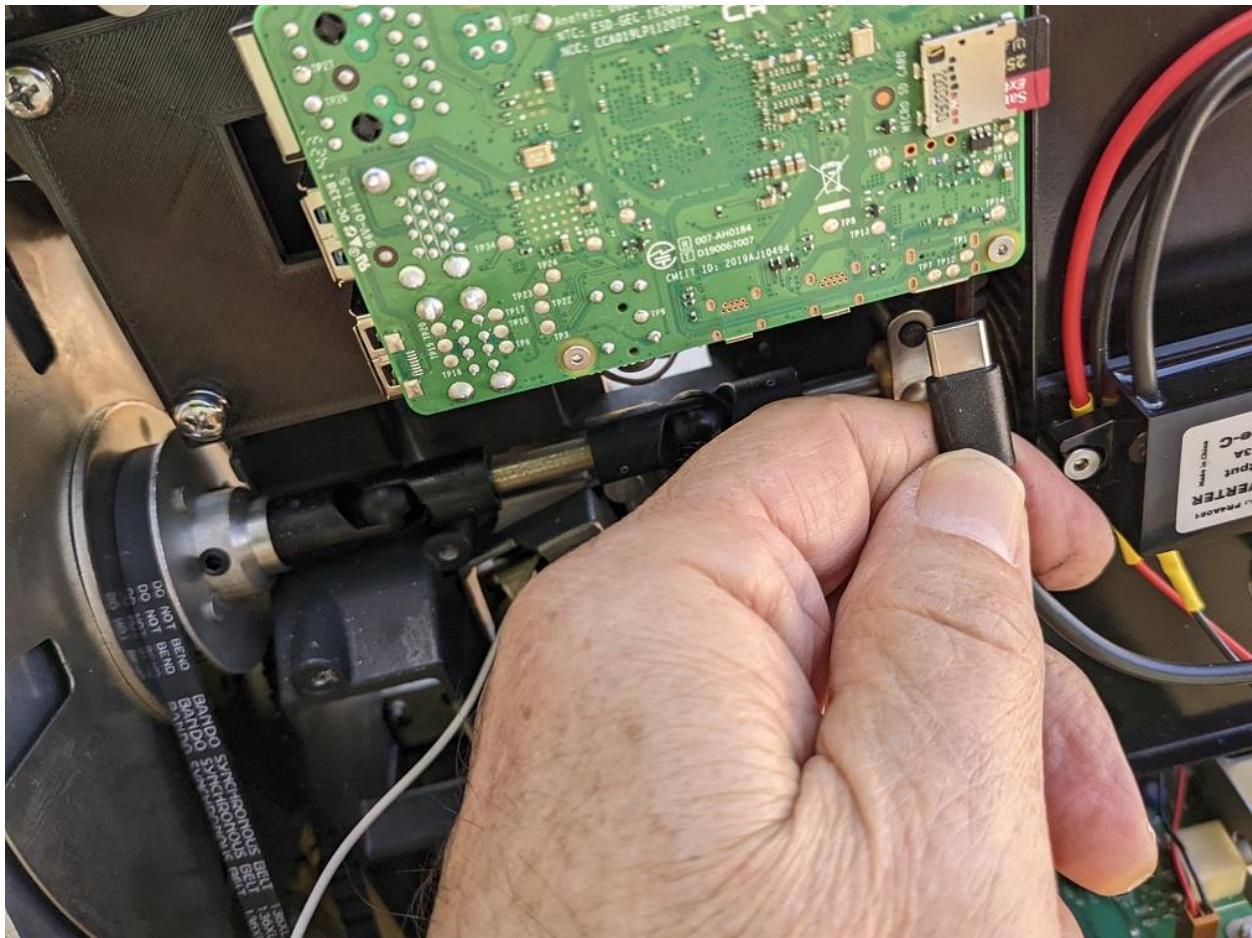
Re-tension the takeup pulley by pushing it up (not too much force) and retightening the mounting screws.



Mount the RPI power supply onto the power supply cover. The cover has a large hole in it. Insert the lock pin from the other side of the cover to lock the power supply in. The pin engages with the power supply bracket and it is pressure fit to keep the bracket and supply solidly in place. Add few drops of crazy glue where the pin engages the bracket is needed.

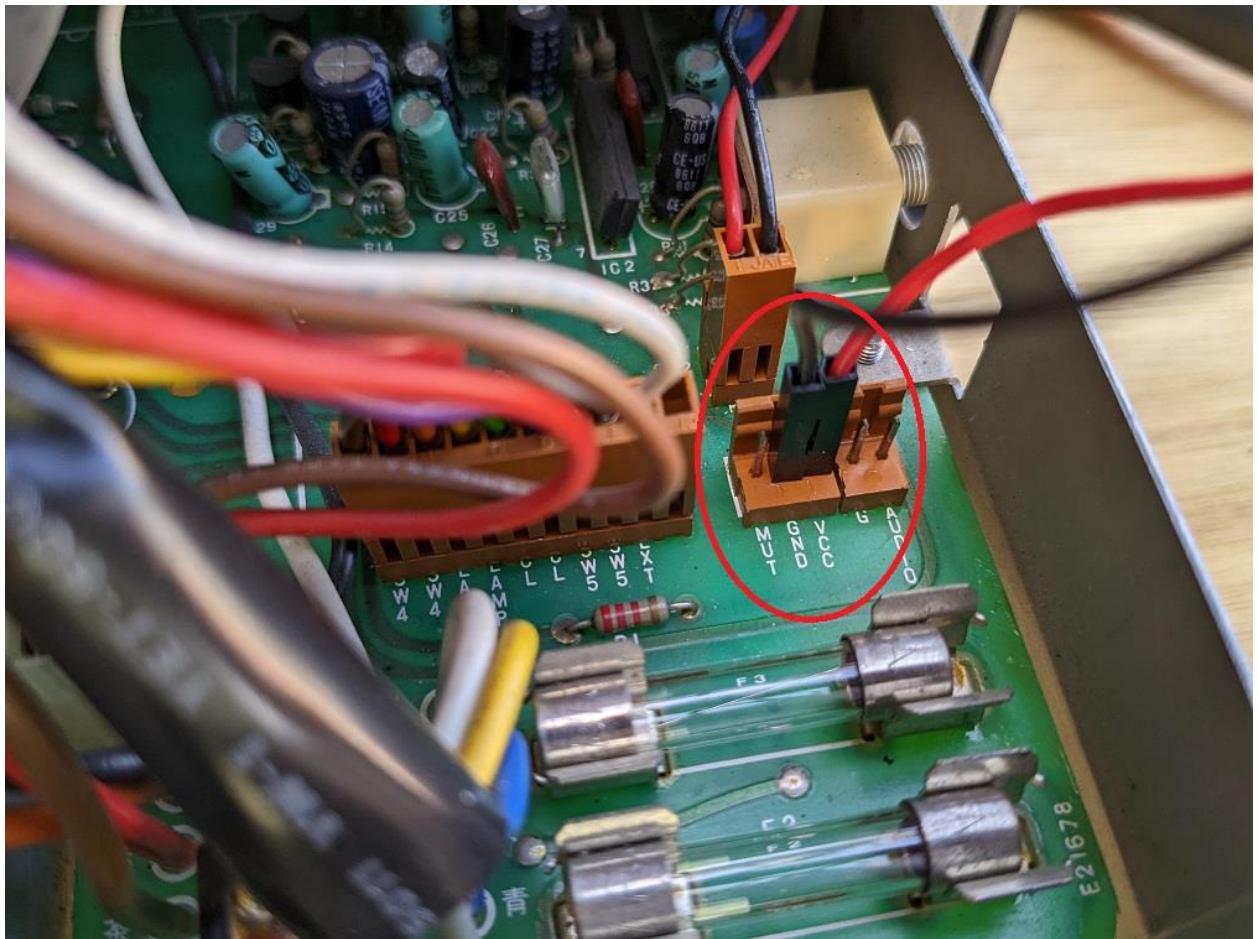


Plug the RPI power USB connector into the RPI power plug.



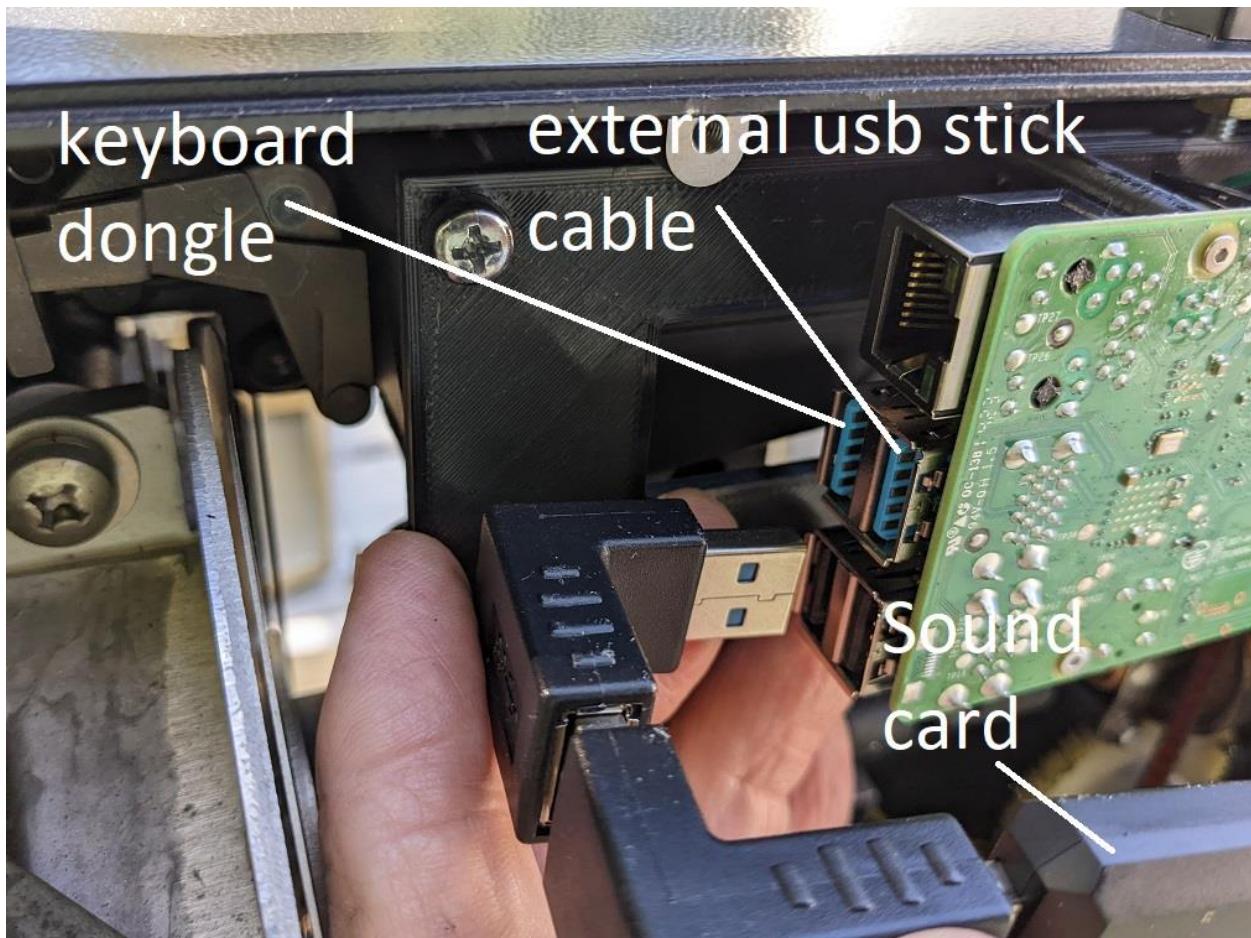
Plug the 12V side of the power supply to the main board as shown in the picture.

Do not reverse the pins.



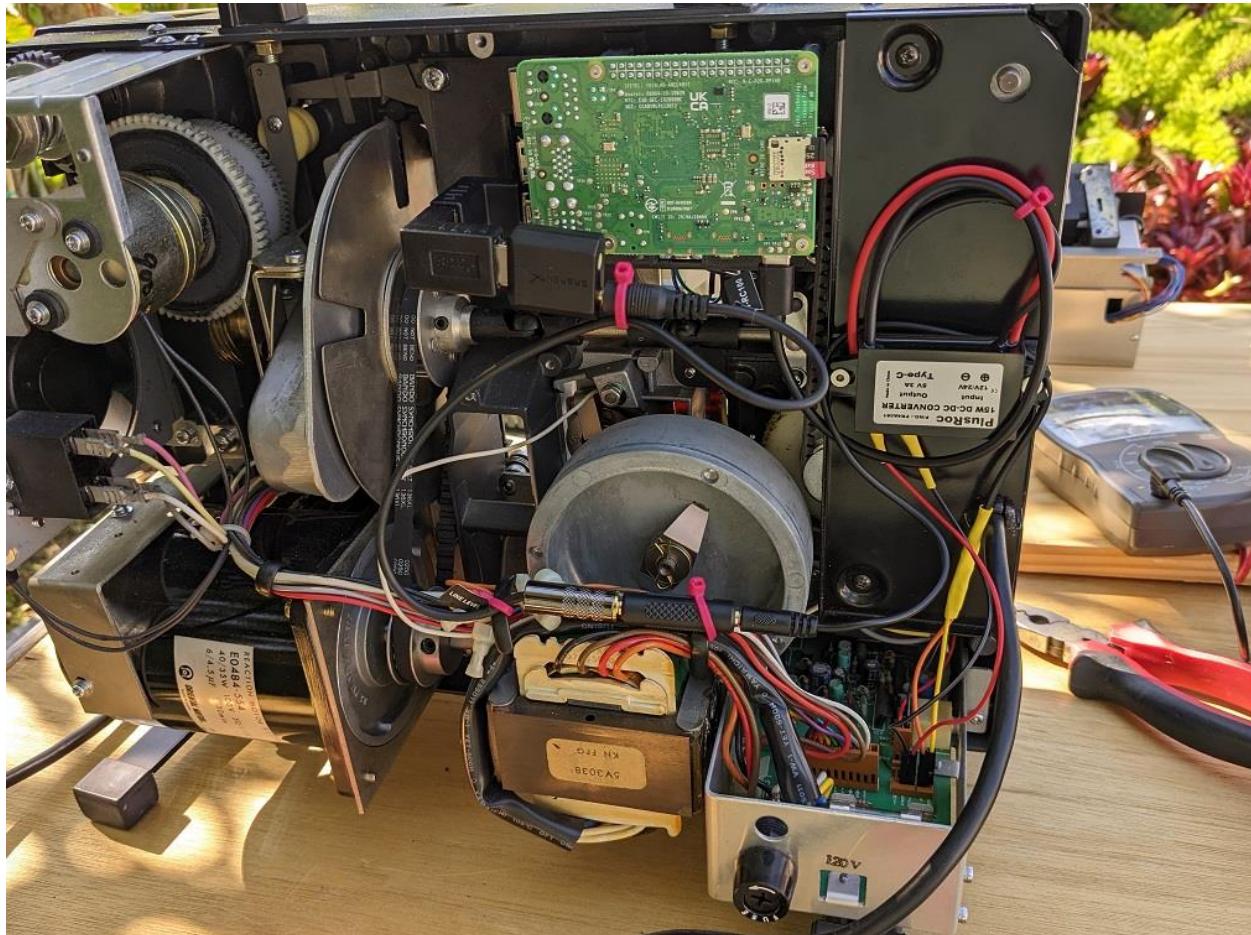
The following picture shows the RPI USB connections. An adapter is provided and can be used if the USB cables are getting to close to the shutter wheel when a particular device is plugged in directly into the RPI.

The adapter is used to connect the sound card.



The following picture shows the wiring of the unit. You can do it similar to the picture or figure own a better way.

It is to be noted that if the wiring is dressed up properly it will be possible to put the back cover on without big problems.



With this, the kit installation is complete and you can proceed with the unit test.

Unit Test

Plug the unit into the 110V outlet.

Connect the HDMI connector to the HDMI monitor.

Turn the wireless keyboard on.

Load in the film and turn the unit on.

The display should show the RPI power up sequence and after a few minutes should display the camera output.

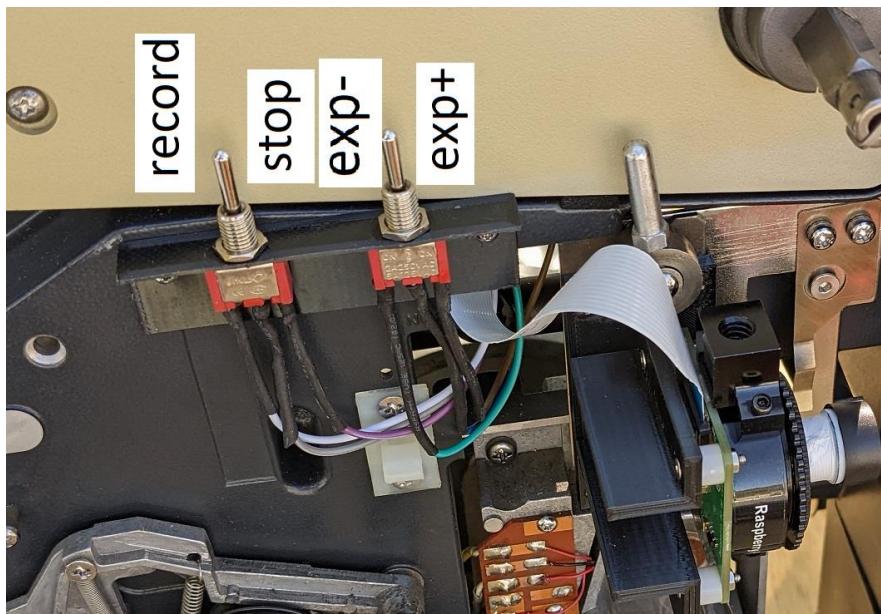
Move the cursor to one of the corners using the wireless keyboard.

Advance film beyond the leader.

Readjust lens focus by turning the lens in or out.

Preview

The camera operation is controlled by two control switches.



Normally, after power up the unit will go into preview mode. Use the right exposure switches to adjust the correct exposure. The preview will be interrupted during exposure adjustment because the RPI has to stop the preview, adjust the exposure and then restart the preview.

Recording Video and Audio

Once the right exposure has been achieved you can record the film (video+audio) externally using the external HDMI recorder or hit the left switch to the left momentarily to record to the internal Micro SD Card.

Use the stop switch to stop the recording or preview.

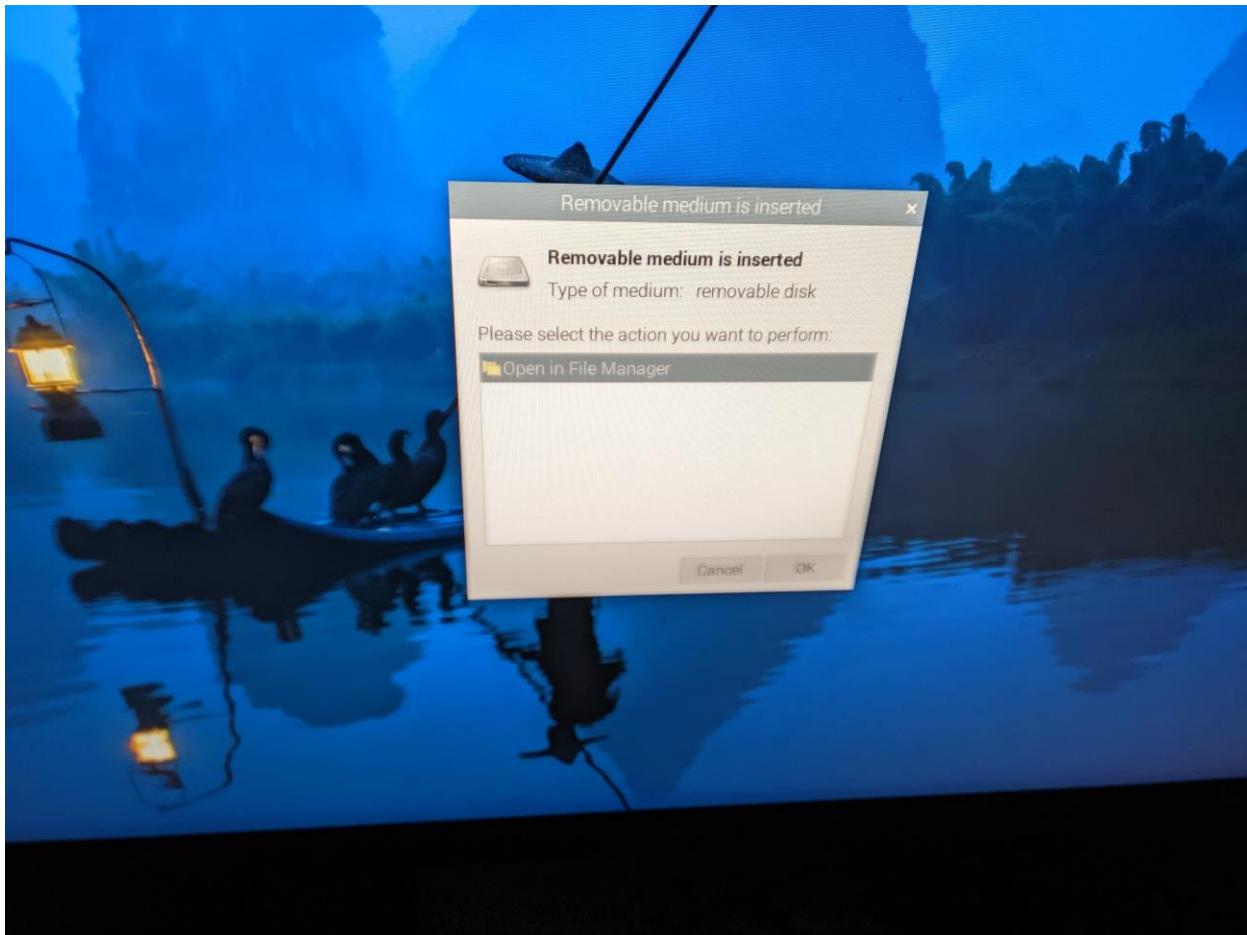
It is to be noted that multiple recordings can be done one after the other in sequence and every time the record switch is activated a new video file will be created in the internal SD Card.

Retrieving the internally recorded videos

Reboot the unit and once the camera preview pops up stop it using the stop switch.

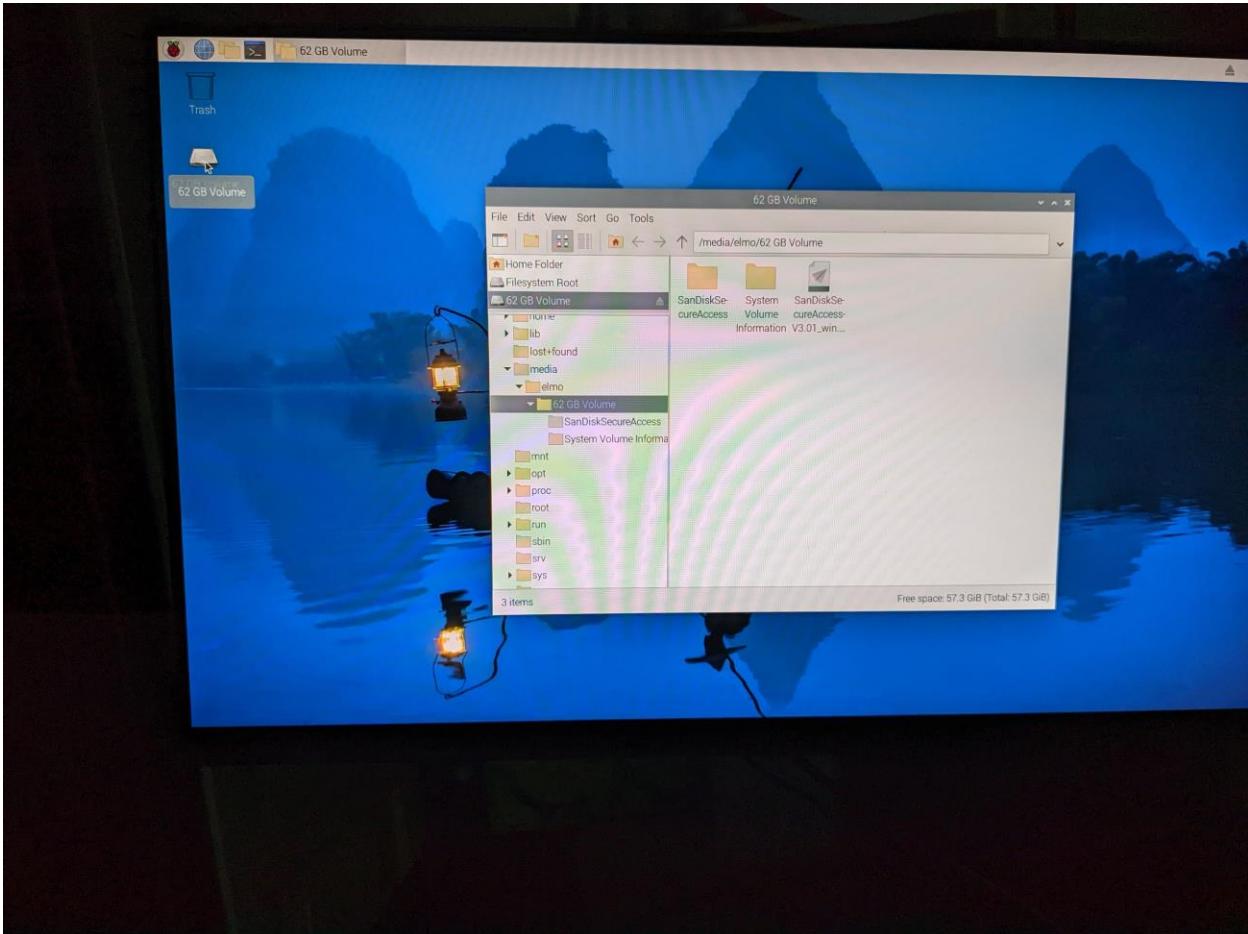
Then plug the USB Stick to the external USB connector still accessible even with the cover on.

The monitor will show the file manager prompt.



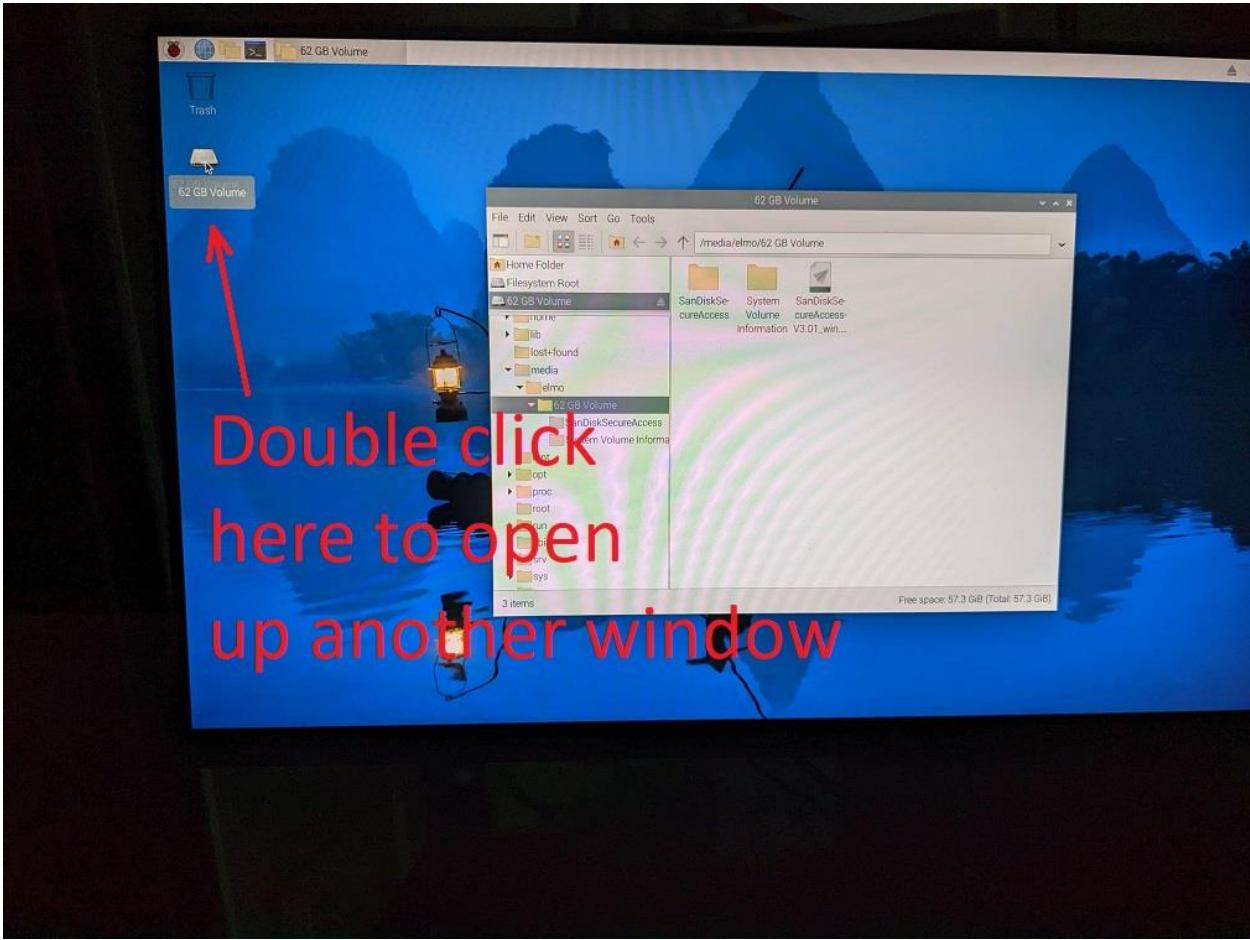
Click ok. The USB stick window will open up.

Note, the wireless keyboard left and right mouse buttons are located all the way on the left side of the keyboard.



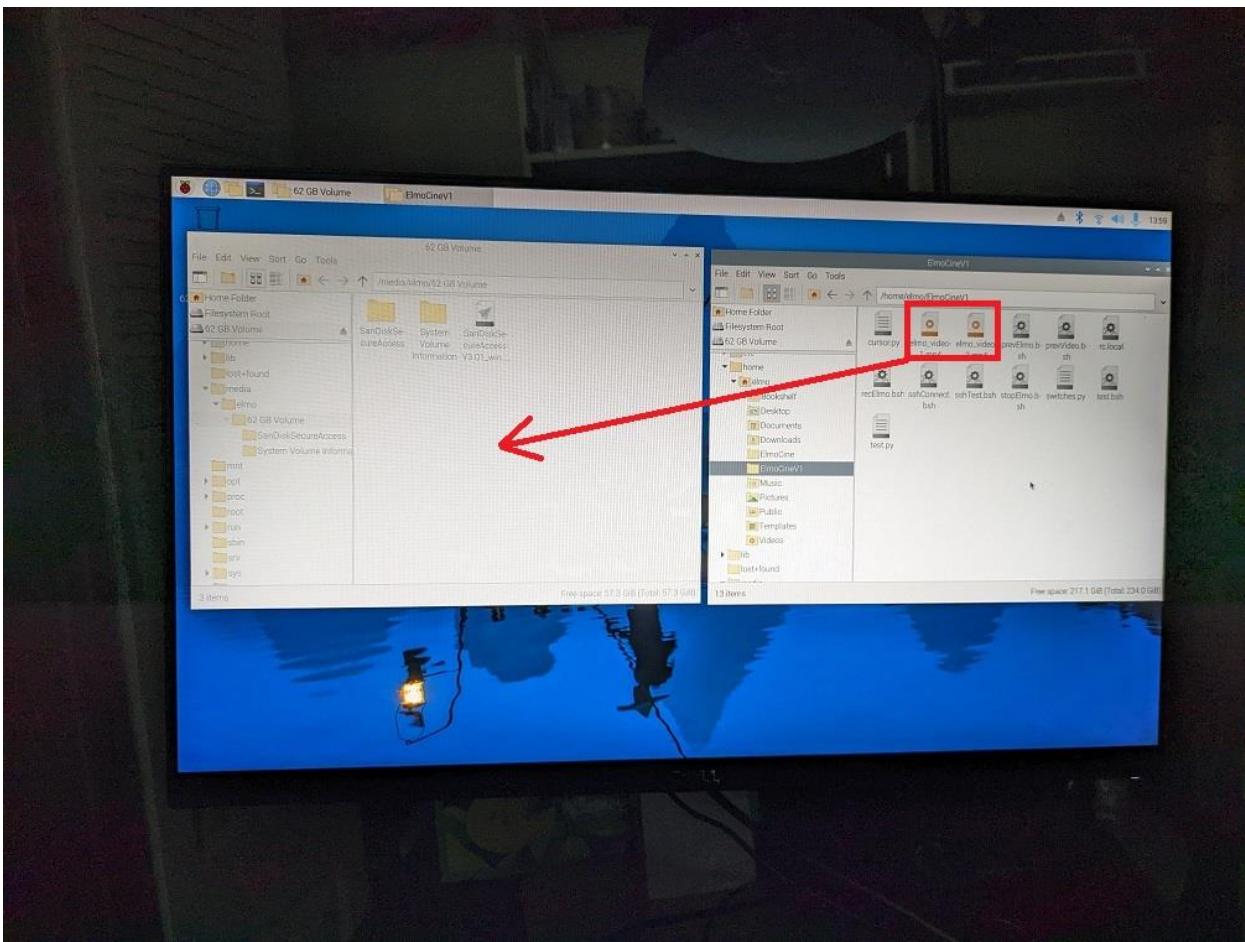
This is where you will drag the video files into.

Then open up the source directory by clicking on the file manager.

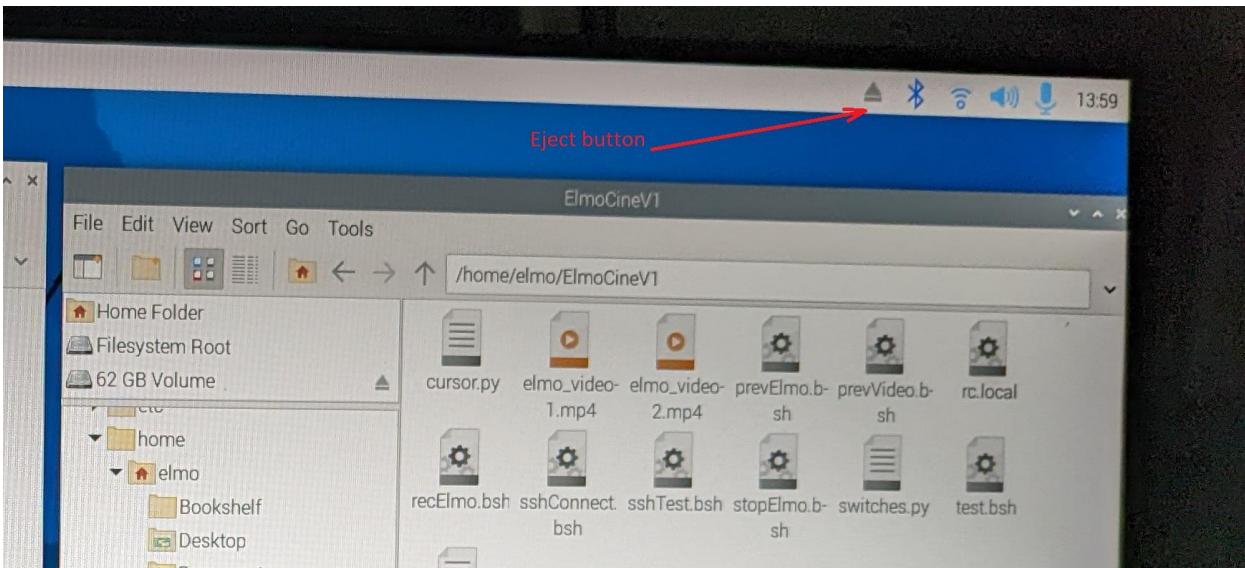


The in the source window navigate to the ElmoCineV1 directory by double clicking on it.

In there you will see the video mp4 files. Drag them over to the USB stick window,

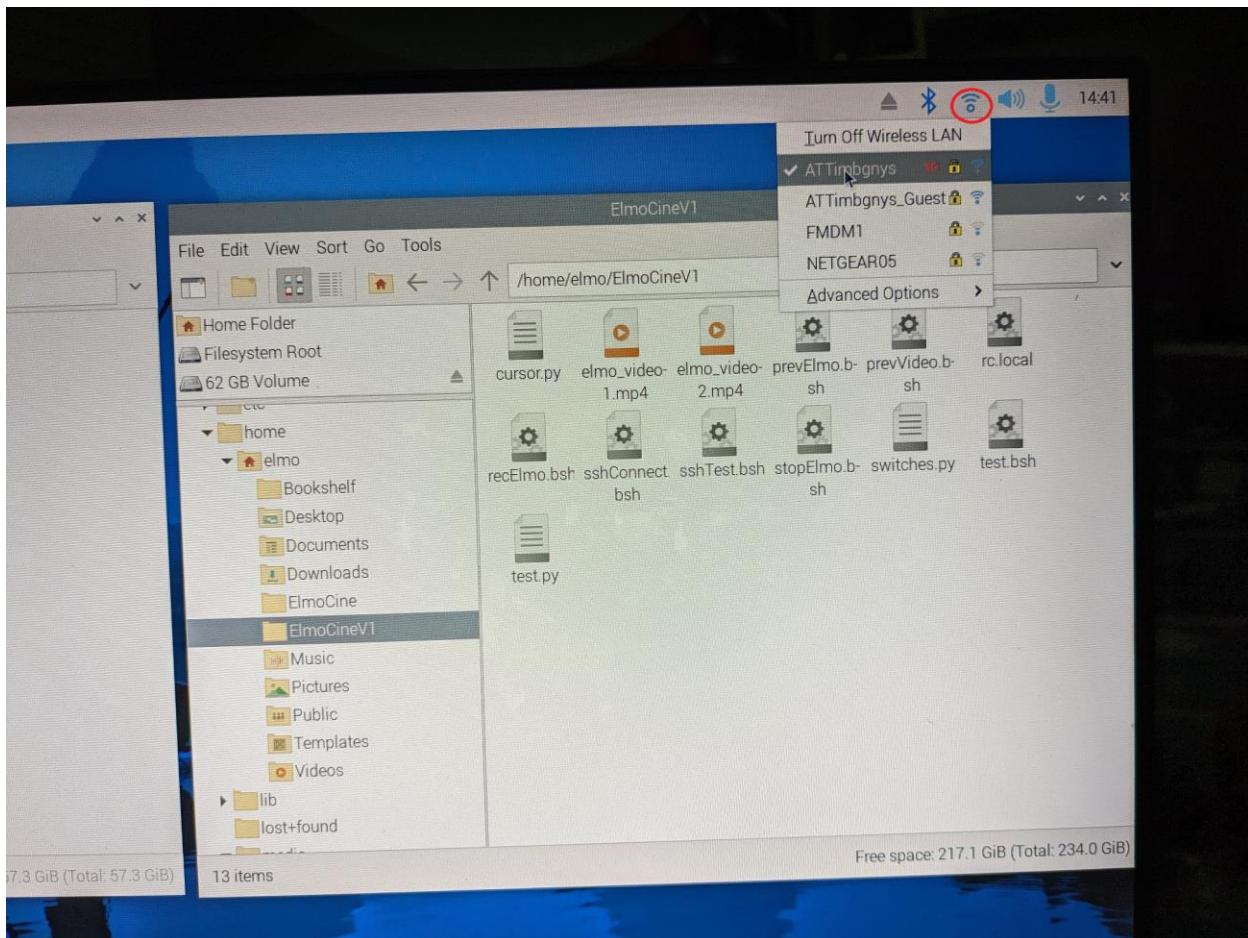


Eject the USB stick by clicking in the Eject button.



Copy files via Wifi

Connect the RPI to the local router.



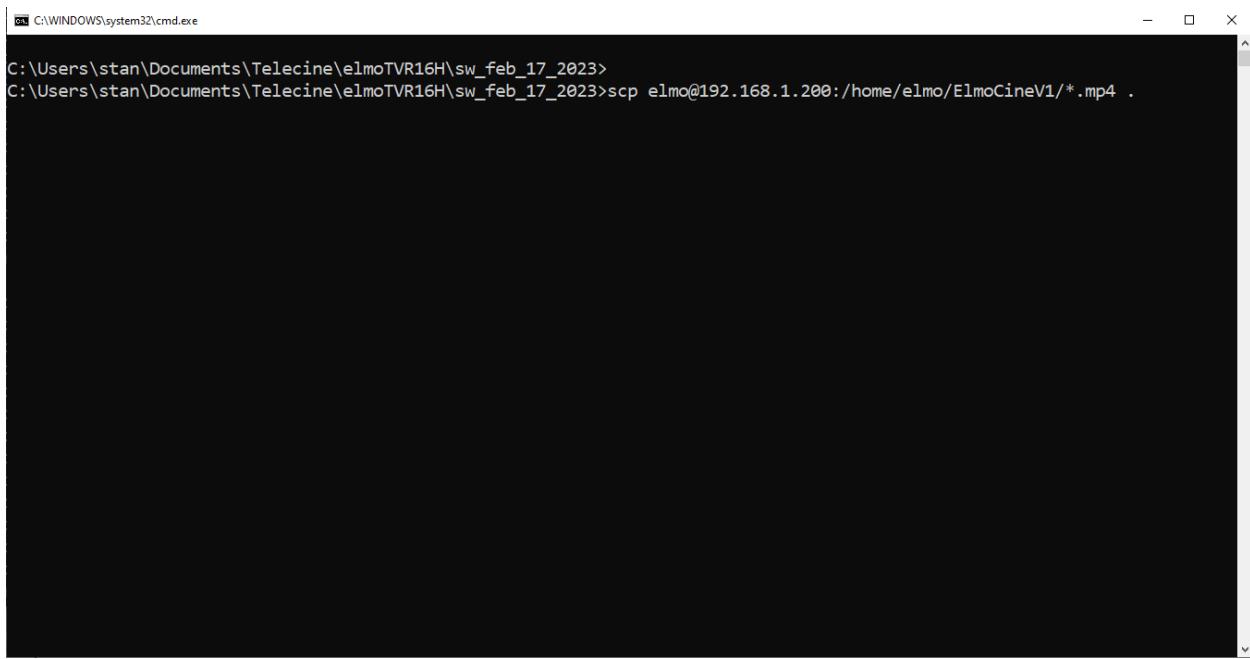
Click on the WiFi icon and select your router.

Enter the password and click OK.

Now you will be connected to your local router and you can transfer the files using the scp session.

Google for scp transfer for your specific computer that you normally use.

Shown here is the SCP session for Windows 10.



The image shows a Windows Command Prompt window with the title 'cmd'. The window is black and contains white text. At the top, it says 'C:\WINDOWS\system32\cmd.exe'. Below that, a command is entered: 'C:\Users\stan\Documents\Telecine\elmoTVR16H\sw_feb_17_2023>scp elmo@192.168.1.200:/home/elmo/ElmoCineV1/*.mp4 .' The command is intended to copy all MP4 files from a remote server to the local directory.

In command window navigate to the directory where you want to store the files and run the scp copy shown above and you are done.