

USER'S MANUAL

Discoverer® Auto RC Chip Photography Station

VERSION 2022 09 15

PHONE 1800 105 584 WEBSITE www.dynamicsgex.com.au EMAIL customerservice@dynamicsgex.com.au

Perth: 50 Mulgool Road, MALAGA WA 6090 | **Kalgoorlie:** 15 Cunningham Drive, Kalgoorlie, WA 6430 | **Gympie:** 37 Langton Rd Gympie QLD 4570
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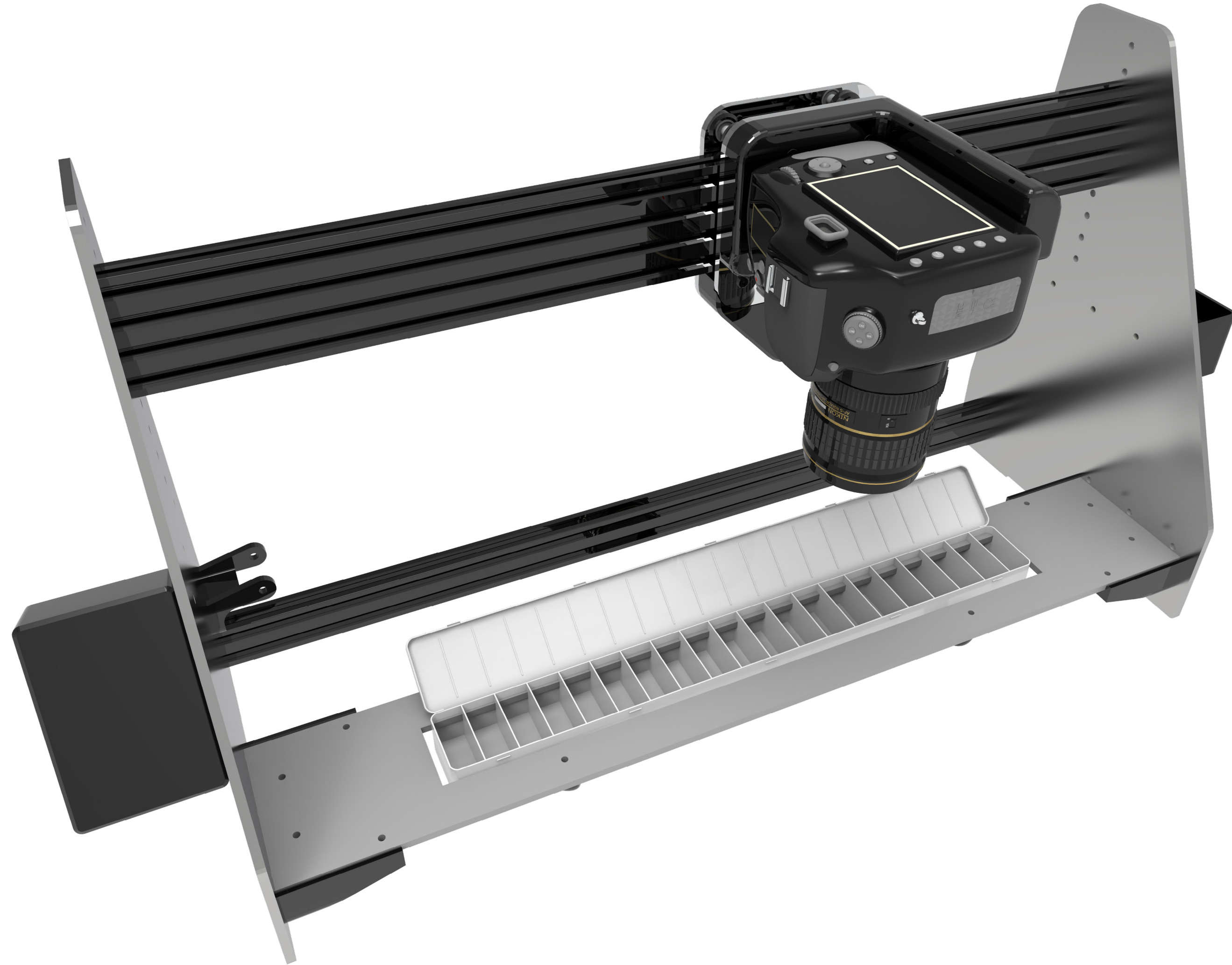
Purpose & Scope

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- The purpose of this document is to clearly outline how to operate the Discoverer Auto RC Chip Photography Station and related software as well as to ensure proper use and maintenance of the camera.
- This procedure applies to all employees, contractors, and other third parties that are required to undertake the tasks, or any part thereof, contained within this procedure.



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Overview

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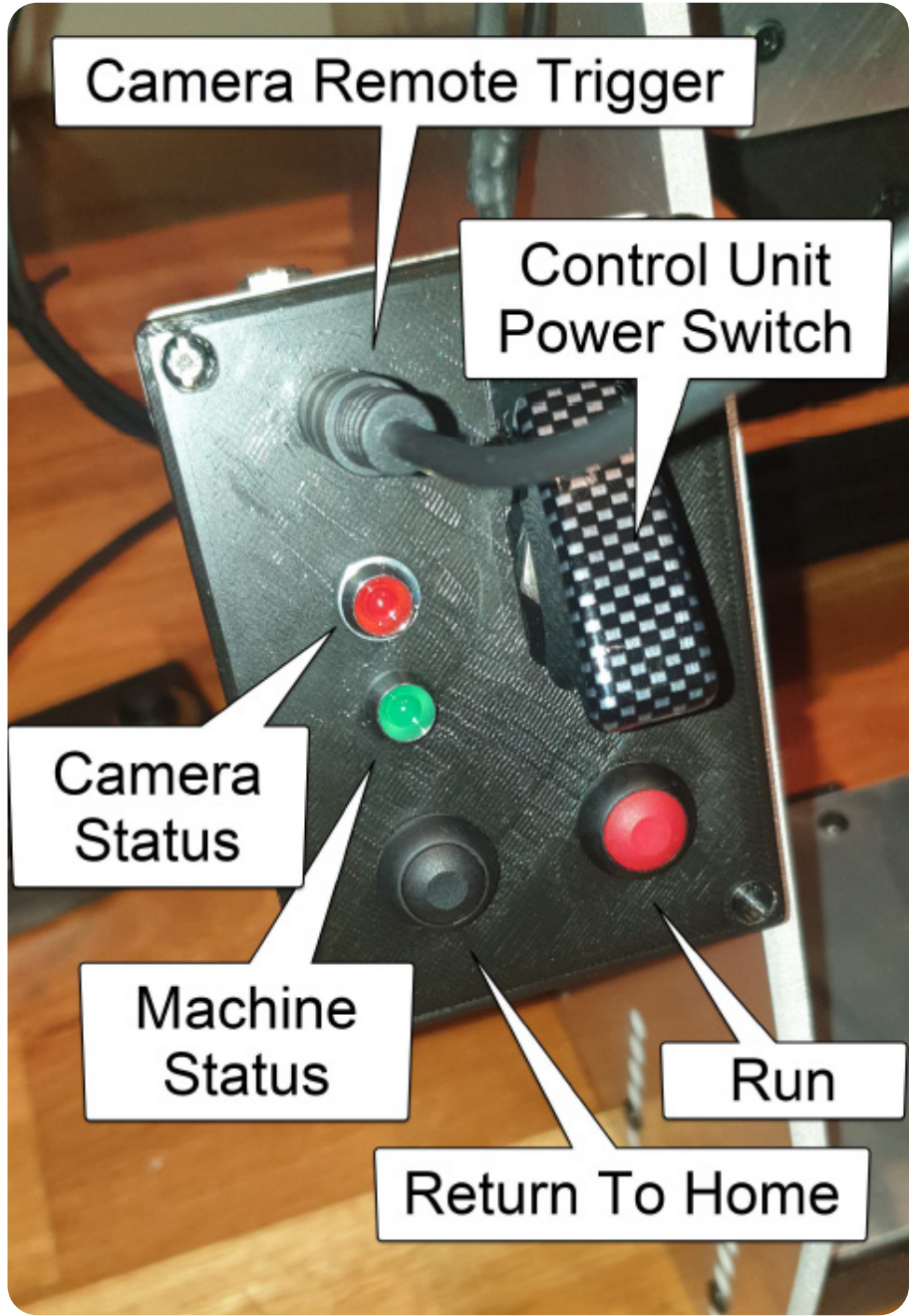
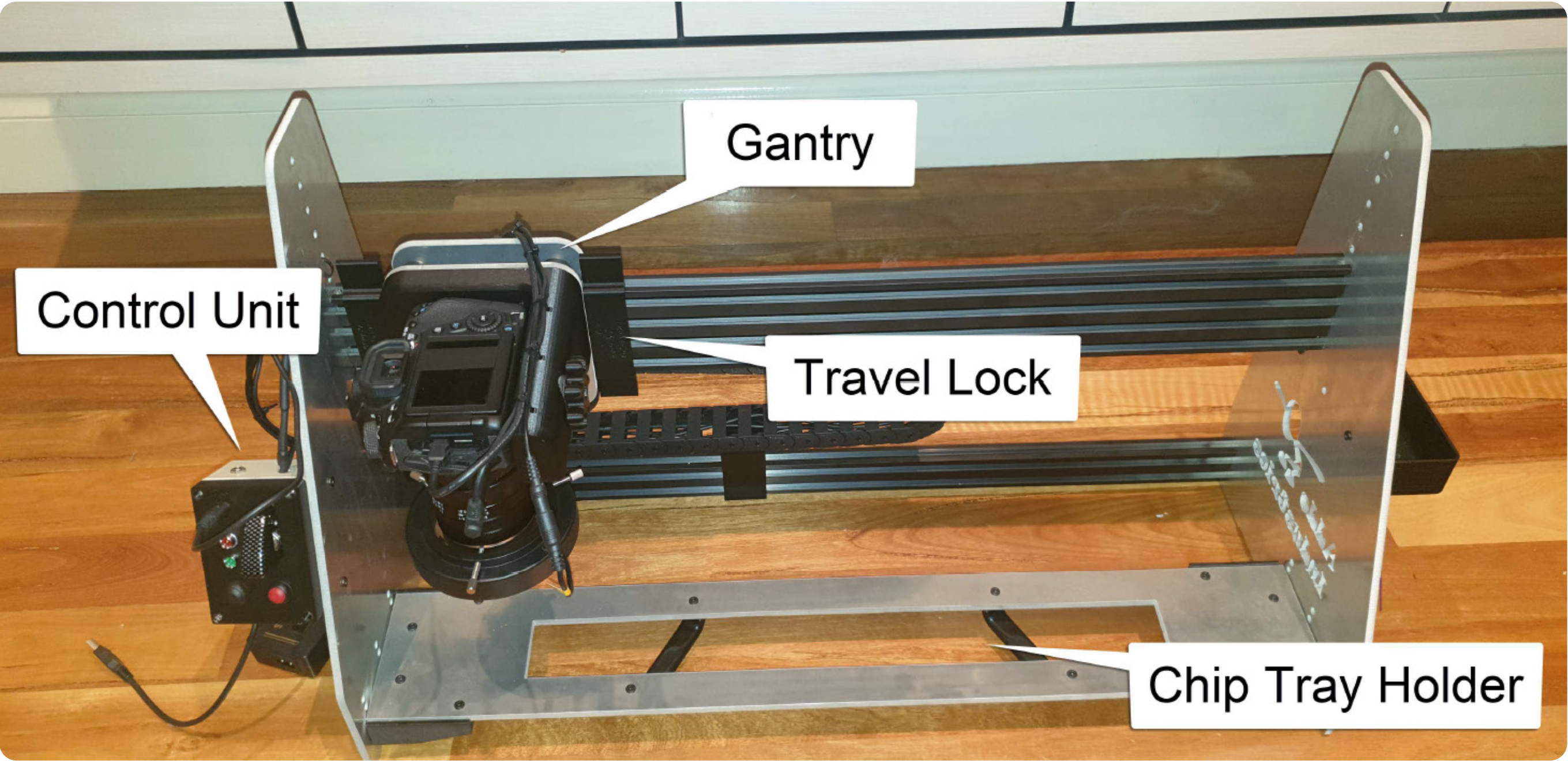
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NOTE:

Before moving the machine please make sure the travel locks are in place. This is to prevent the gantry head from freewheeling and protect the “Home Switch” from being damaged.

WARNING!

The stepper motor will act like a generator when moved while the machine is not turned on. Excessive / fast movement will result in an uncontrolled power spike being sent back through the control board. This could result in permanent damage to the control board.



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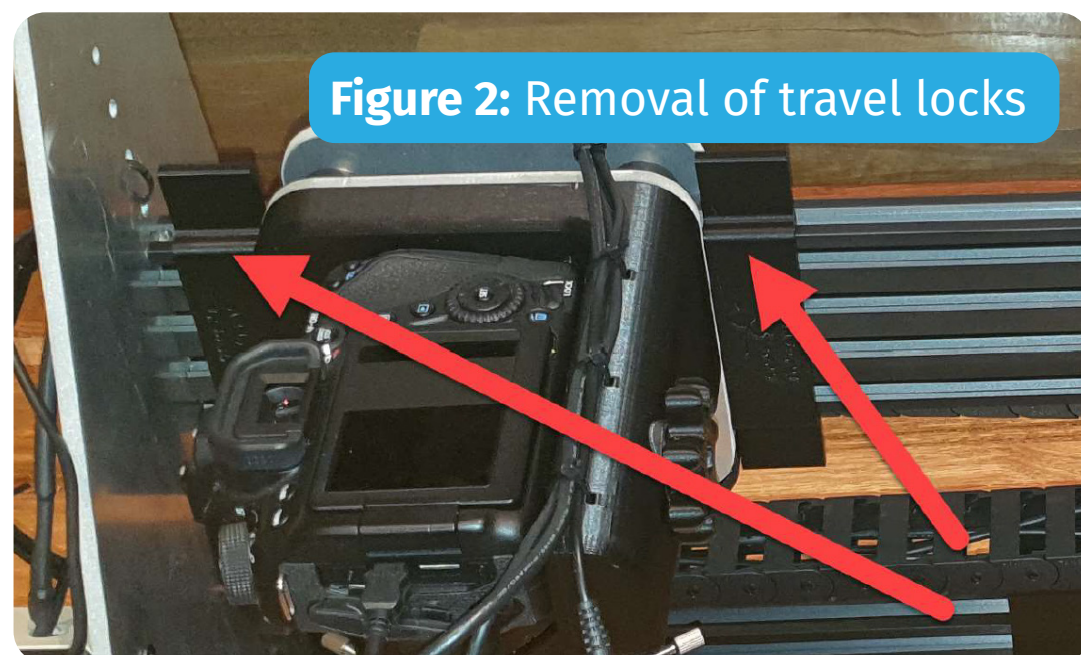
Pre-Start Set-up

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1. Remove the travel locks.



2. Turn the camera on and check the camera angle / position. Adjust as needed. It is important that the camera is turned on before opening Geobank.

NOTE: The camera does not have to be returned to its home position (left as far as it goes), it will return on its own when the machine is turned on.



Figure 3: Correct Lens Focus

- The lens should always be set to manual focus.
- Check the focus of the camera by slipping a Take 5 page or something with small writing underneath and looking through the lens. The writing should appear sharp.
- Turn the LED ring light on, the switch can be found near the power board. It is a small black box with a switch and a dial.
- Turn the machine on, lifting the red cover for the control unit power switch and putting it into the on position (up, or away from the camera), then wait for the camera to return to the home position and the green light to turn on.



Figure 3: LED Right light

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Geobank Mobile Setup

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1. Boot the Toughbook up (the one next to the machine).
2. Start Geobank Mobile. There should be an icon on the desktop.
3. Check the system settings for the camera. Again, first time users will have to correctly setup a couple settings by selecting “File” and then “Options”.
4. Set the image location path to C:\Geobank Data\Chip Tray Photos\
5. Disable the preview window. The options should appear as they do on the photo on the right, and then click “OK”
6. Once this is complete you will need to exit Geo Bank and reboot it back up.

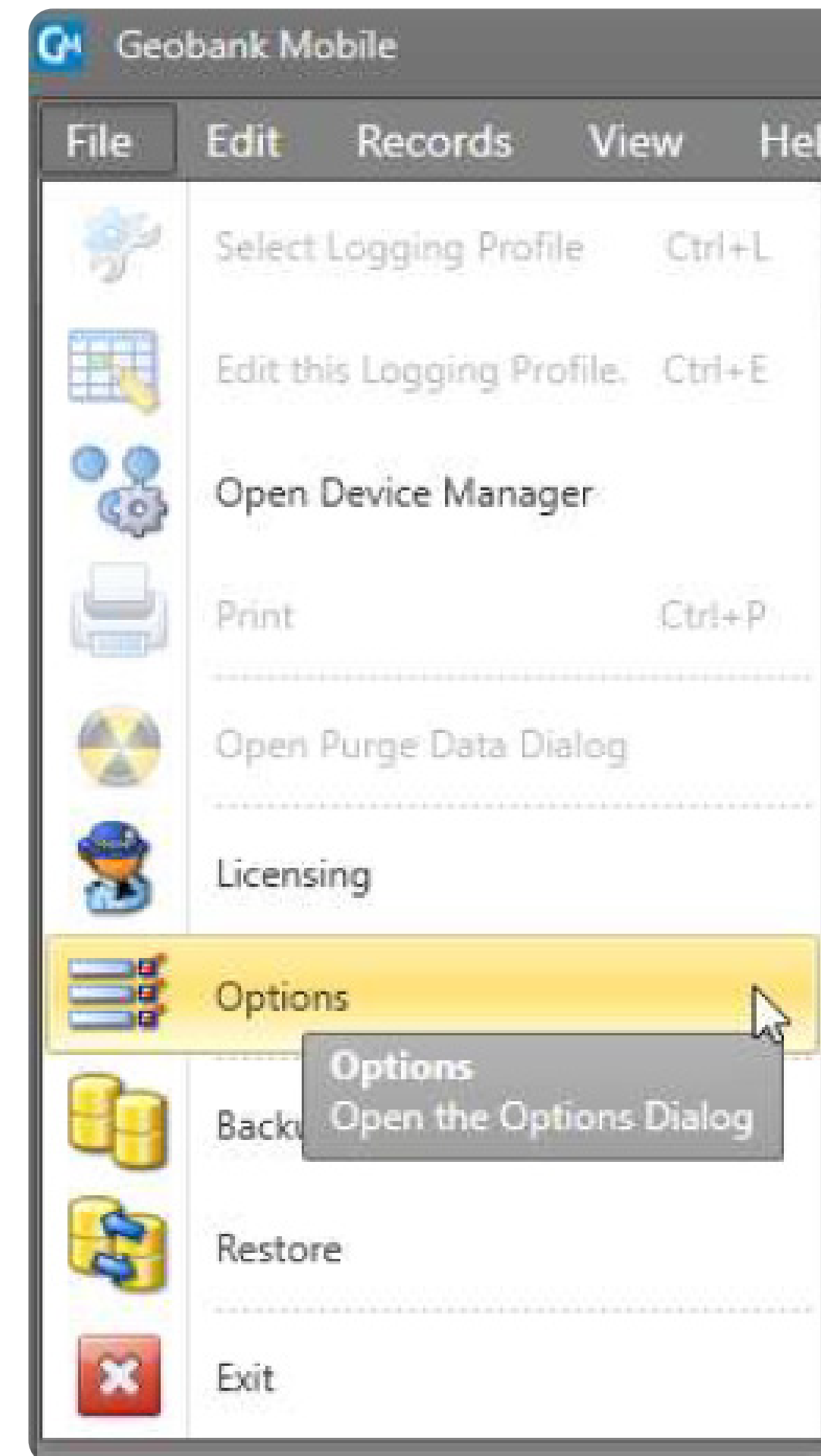


Figure 5: Geobank Mobile Option settings

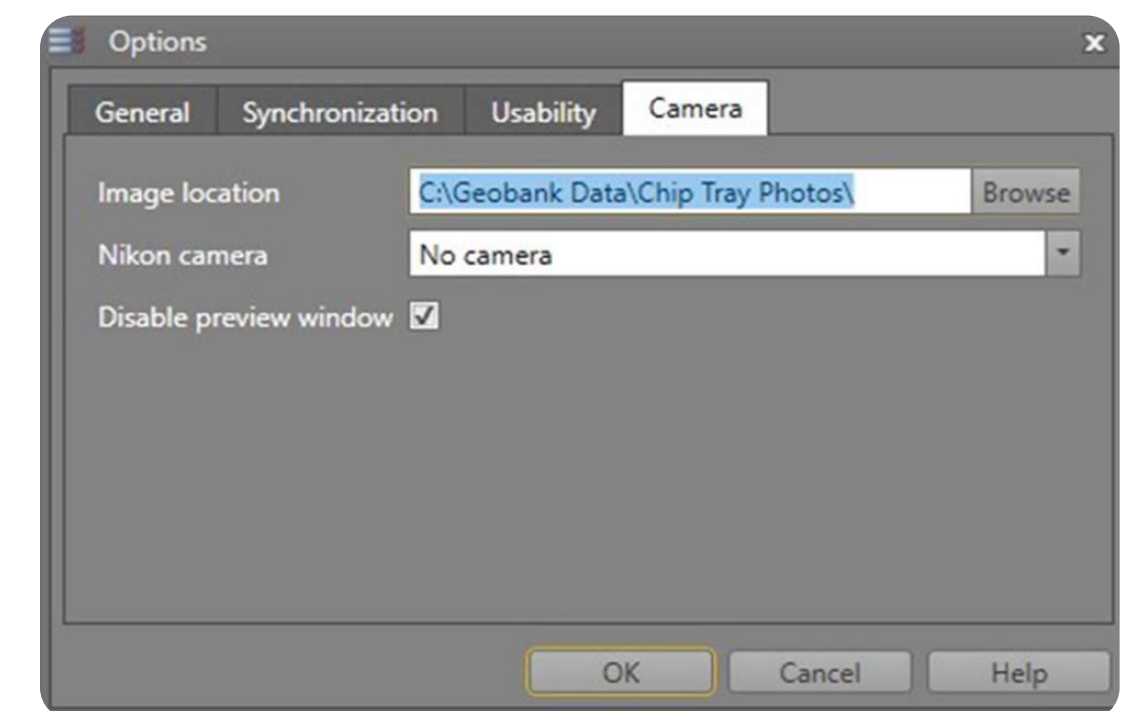


Figure 6: Image location filepath

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Place the chip trays into the chip tray holder. If a chip tray cannot be found (80 – 100m for example), you can skip that sequence in Geobank manually & continue with the rest of the hole. Simply change the “From” and “To” meters to the appropriate numbers. If a 80 – 100m chip tray is missing, replace 80 – 81 with 100 – 101 and continue as the procedure outlines in the 1m Photograph Intervals section. Listen for the first click of the camera on the first meter in the chip tray to confirm it is running correctly.

1M PHOTOGRAPH INTERVALS:

1. Open the “Discoverer Auto RC Chip Photography Station” profile by clicking on the green arrow.
2. In order to search for a hole, click the binoculars outlined in blue in Figure 8 to begin a search. For the search to look through all Hole IDs, change the “Direction” to “All”, as seen on Figure 8.

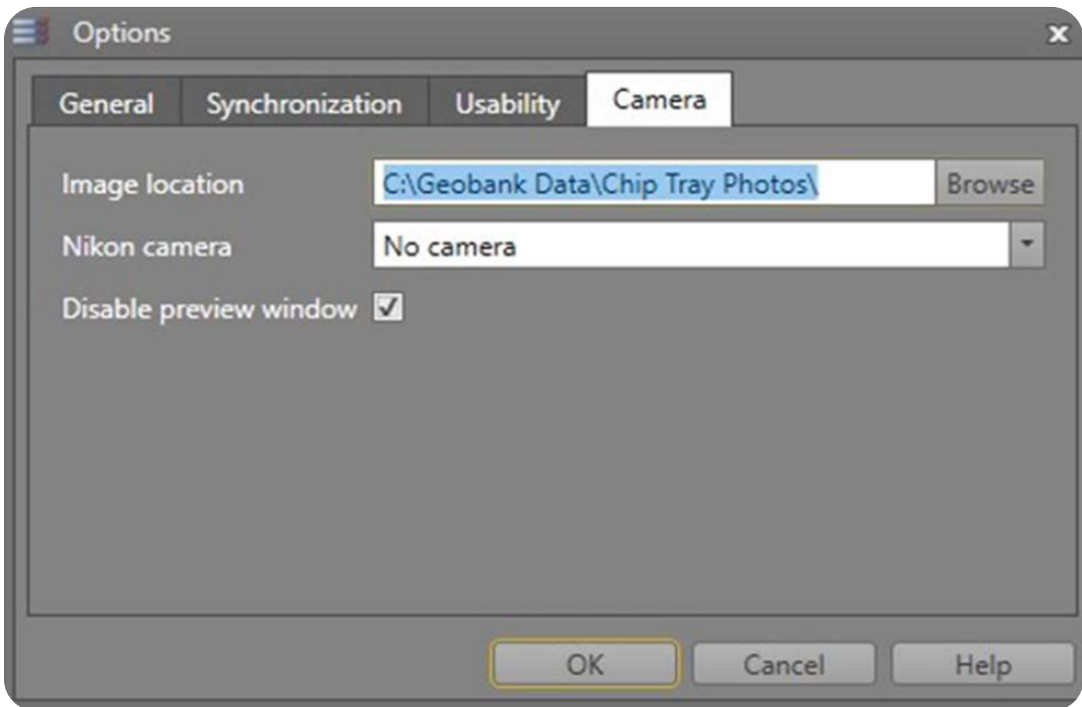


Figure 7: Selecting Chip Trap Machine profile

3. After selecting the correct Hole ID, go to the “1m Chip Tray” tab as shown in Figure 9.
4. To add the first row, click the green plus symbol in the toolbar, outlined on Figure 9.
5. After adding the first row, select the “1m_Photo” field for the appropriate meter also outlined on Figure 9, in dark blue.
6. The camera icon pointed out above can be used to check that the camera is awake/on.

Figure 8: Searching for a hole

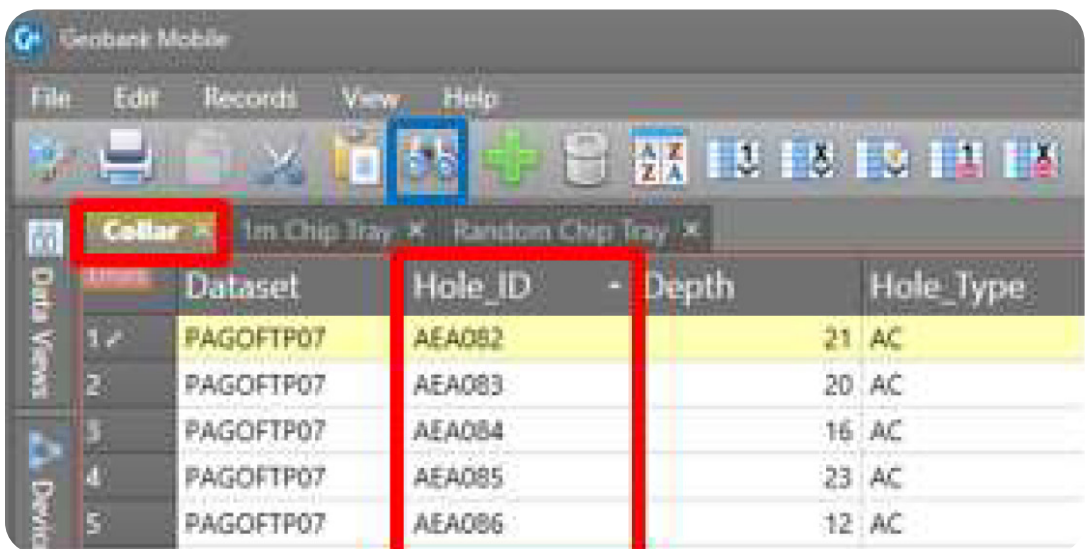
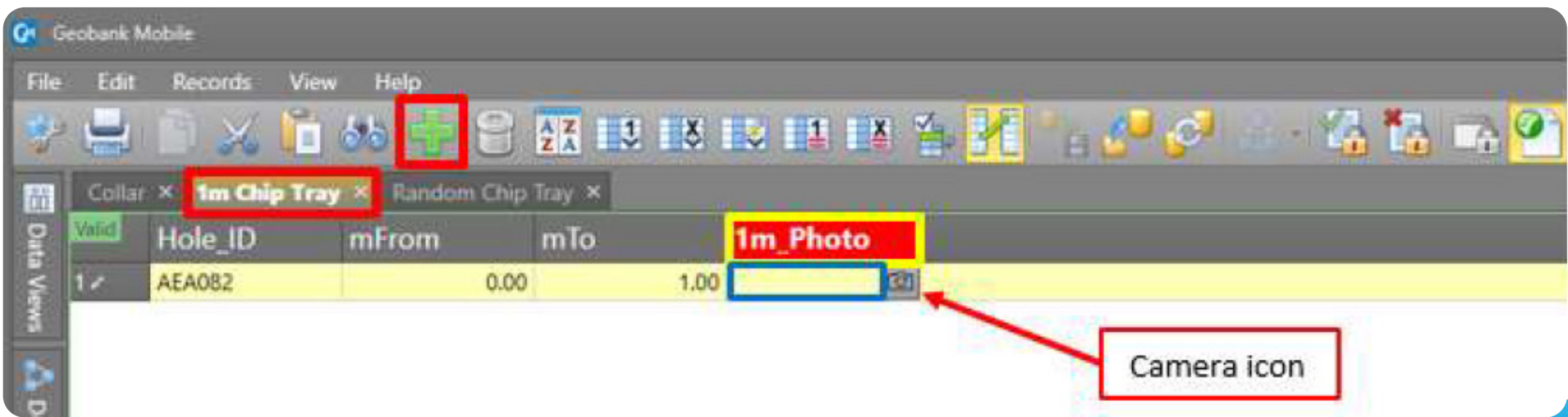


Figure 9: Adding Rows



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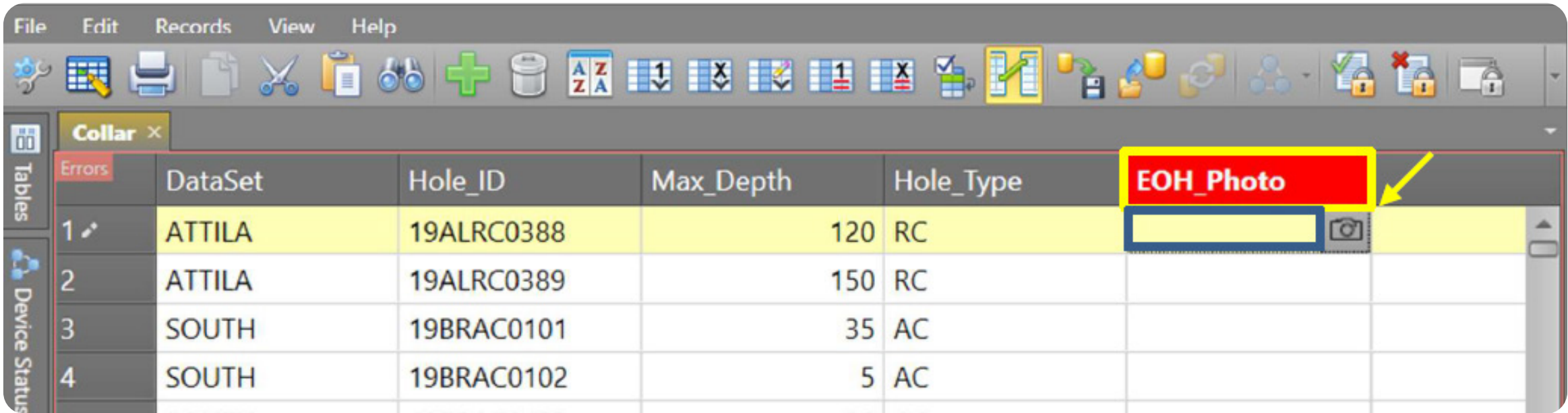
EOH CHIP TRAY PHOTOGRAPHS

In order to take EOH chip tray photos, you will need to select the collar tab in the profile.

1. Within the collar tab, find the first Hole ID that matches with the first chip tray section and select it.
2. Select the “EOH_Photo” field (outlined yellow in Figure 11), and use the camera icon to ensure the camera is awake/on.

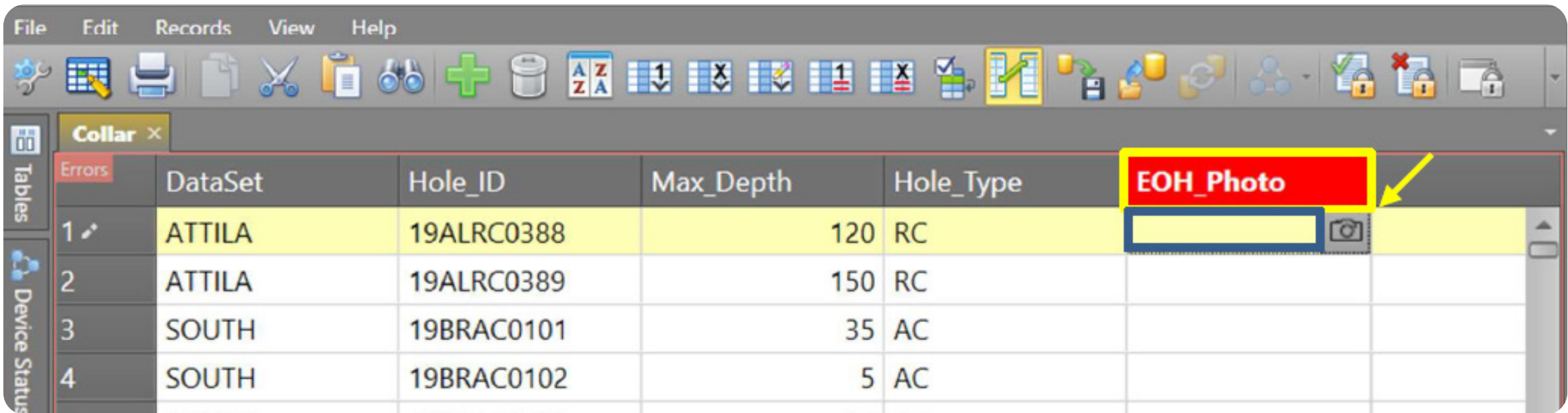
If there are EOH chip trays where the Hole IDs are out of order, you can sort them by numbering the holes as they appear in the tray within the “SortOrder” column. After they have been numbered, double check that it is correct and then click on the “SortOrder” heading and the holes will sort themselves into the order which they appear in the chip tray. You can then continue photographing the EOH trays as normal (see next page).

Figure 10: Collar settings for EOH photo



Errors	DataSet	Hole_ID	Max_Depth	Hole_Type	EOH_Photo
1	ATTILA	19ALRC0388	120	RC	
2	ATTILA	19ALRC0389	150	RC	
3	SOUTH	19BRAC0101	35	AC	
4	SOUTH	19BRAC0102	5	AC	

Figure 11: Out of sequence EOH chip tray.
From left to right: 20LSAC0351, 0352, 0353, 0354, 0355, 0356, 0357, 0349, 0350, 0348, 0347, 0345 & 0346



Errors	DataSet	Hole_ID	Max_Depth	Hole_Type	EOH_Photo
1	ATTILA	19ALRC0388	120	RC	
2	ATTILA	19ALRC0389	150	RC	
3	SOUTH	19BRAC0101	35	AC	
4	SOUTH	19BRAC0102	5	AC	

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EOH CHIP TRAY PHOTOGRAPHS

Prior to Figure 12, the numbers outlined in red were entered in the order you saw in Figure 11. Then the “Sort_Order” heading was clicked, and the holes sorted themselves into ascending order, indicated by the small up arrow seen in the yellow outline.

Figure 12: Sorting order to match EOH Chip Tray

Valid	DataSet	Hole_ID	Max_Depth	Hole_Type	Lease_ID	Project	EOH_Photo	Sort_Order
7057	SOUTH	15SYRB5436	3	INTERFACE	E 38/2507	Bluebell		
7058	SOUTH	15SYRB3012	3	INTERFACE	E 38/2292	Grevillea		
7059	SOUTH	20LSAC0466						
7060	SOUTH	15SYRB4600	1	INTERFACE	E 38/2355	Smokebush		
7061	TEST	20TESTAC001	65	AC	E 38/1054	Attila-Alaric Trend		
7062	TEST	20TESTRC001	150	RC	E 38/1054	Attila-Alaric Trend		
7063	SOUTH	20LSAC0351	55	AC	E 38/2291	LS		1
7064	SOUTH	20LSAC0352	55	AC	E 38/2291	LS		2
7065	SOUTH	20LSAC0353	41	AC	E 38/2291	LS		3
7066	SOUTH	20LSAC0354	61	AC	E 38/2291	LS		4
7067	SOUTH	20LSAC0355	26	AC	E 38/2291	LS		5
7068	SOUTH	20LSAC0356	50	AC	E 38/2291	LS		6
7069	SOUTH	20LSAC0357	50	AC	E 38/2291	LS		7
7070	SOUTH	20LSAC0349	57	AC	E 38/2291	LS		8
7071	SOUTH	20LSAC0350	31	AC	E 38/2291	LS		9
7072	SOUTH	20LSAC0348	31	AC	E 38/2291	LS		10
7073	SOUTH	20LSAC0347	49	AC	E 38/2291	LS		11
7074	SOUTH	20LSAC0345	29	AC	E 38/2291	LS		12
7075	SOUTH	20LSAC0346	29	AC	E 38/2291	LS		13

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TAKING PHOTOS

1. Lightly spray the chip tray down then place the tray in the slot making sure the lid is open enough to give a clear view of the tray.
2. Double check you have selected the correct hole in Geobank. Check if the Max_Depth of the hole matches what's in the chip trays.
3. Click the required "Photo" cell as outlined above in dark blue in both the 1m interval section and the EOH section.
4. Press the "Run Button" (Red Button) on the control (Figure 13).
5. If the chip tray does not have chips in all the sections, you can press and hold down the "Return to Home" (Black Button) after taking a photograph of the second-last meter that has chips. After a few seconds the machine will take a photo of the last meter and return to its home position.

NOTE: The green light indicates that the machine is ready to go. The red light indicates the camera shutter has been triggered and it is currently taking photos.

6. Once a whole chip tray has been photographed, use a red paint marker to mark a dot on.

Figure 13: Run and Return to Home buttons

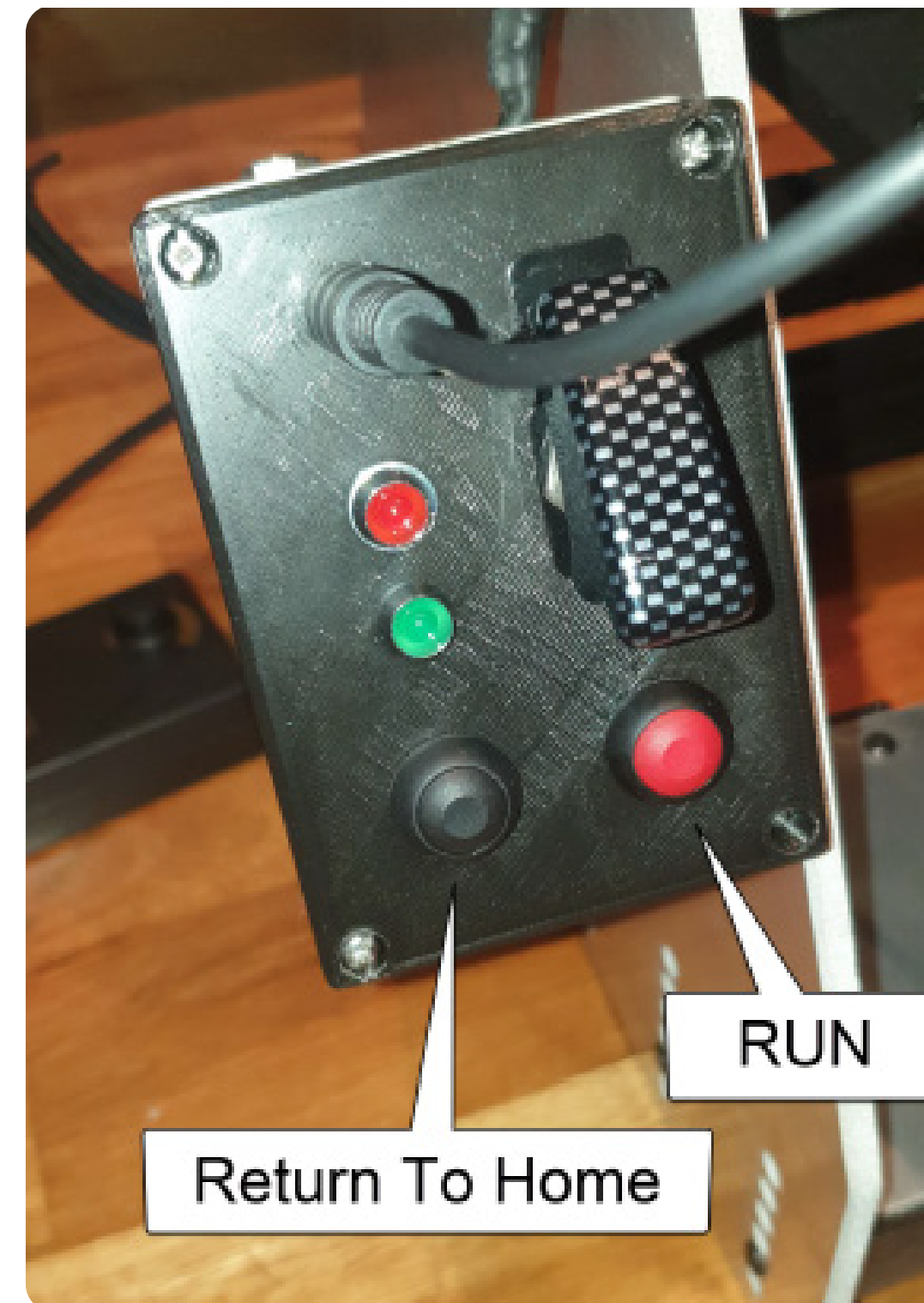


Figure 14: Marking trays once they have been photographed



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CHANGING THE BATTERY

Currently, the camera is battery powered. This is temporary until we get a power cord that will plug straight into a power board and then we won't have to worry about changing the battery. For now, however, the battery changing process is as follows:

1. Ensure power to all components is off.
2. Unplug all wires and cords from the camera.
3. Undo the wingnut at the base of the camera, being careful not to drop it.
4. Flip open the battery door and replace the battery with a charged battery.
5. Place the used battery on charge.
6. The camera will need alignment after changing the battery.

PACKING UP

1. Turn off the LED ring light and camera.
2. Turn off the machine by switching it towards yourself/the camera or just closing the red cover for the switch.
3. Replace the travel locks.
4. Put a cover over the camera (blank sample bag, cut for purpose).
5. Close Geobank, log off and shut down the Toughbook once all the photos have been moved.

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Efficiency And Preparation

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In order to get the most out of the machine and your time, it is important that adequate preparation takes place. There are several steps you can take to increase efficiency:

1. Have the chip trays open and a spray bottle nearby to spray them down prior to photographing, in ascending order, as can be seen in Figure 15. Bonus points if you have them sorted in ascending Hole ID as well. It takes a little over a minute to complete a chip tray, giving you the flexibility to spray the chip trays ahead of time.
2. Make sure you have chip trays sorted in such a way that you don't have to waste time looking for more to photograph. (see Figure 16)
3. Ensure you have enough space to place the chip trays that you have already photographed prior to starting any new chip trays.

Figure 15: Trays and Spray bottle ready to go



Figure 16: Chip trays stacked, ready to be taken to storage



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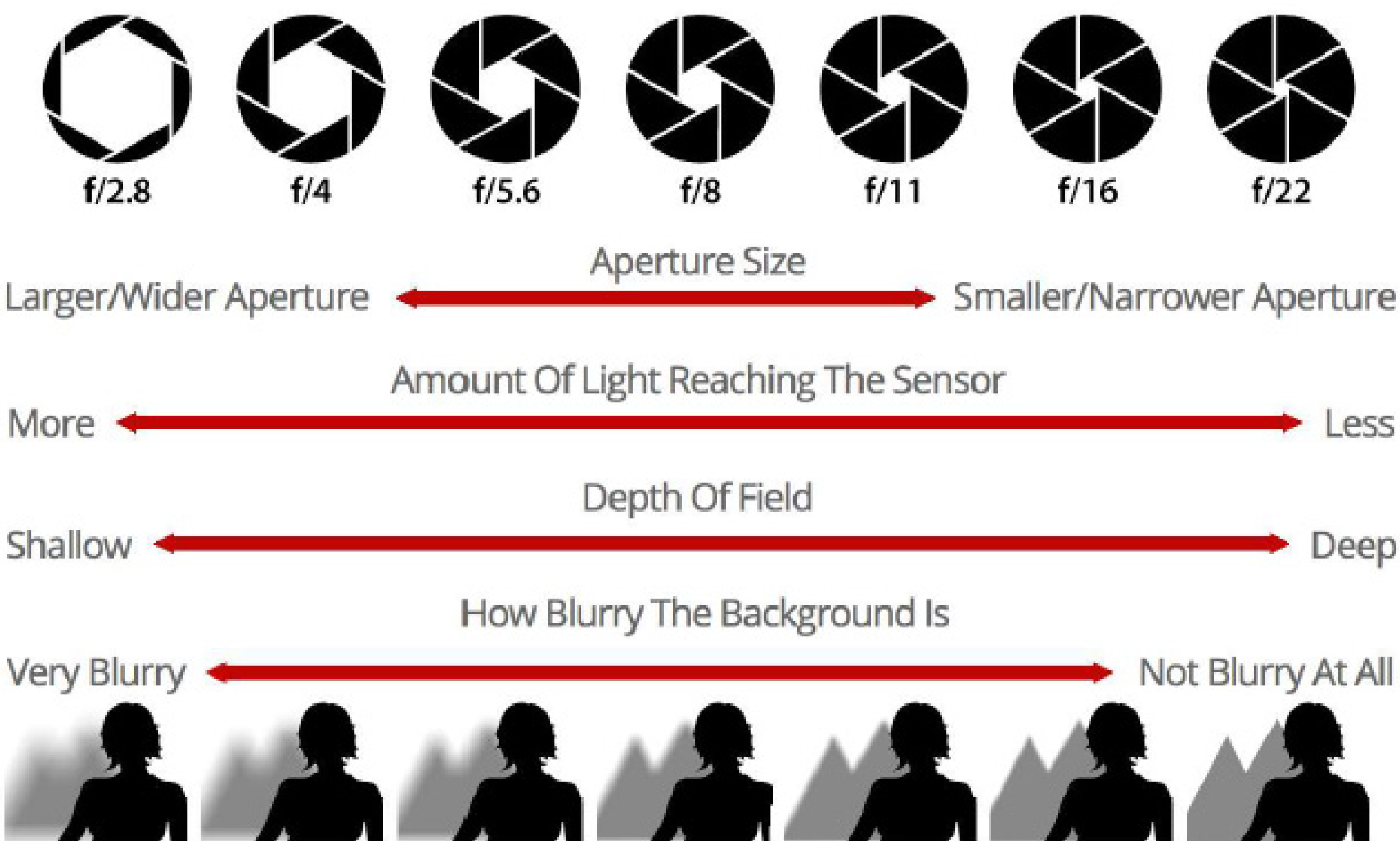
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Default Camera Setup

Ensure the camera is set to Aperture – Priority mode. By setting a high aperture f/number (f/32), you increase the depth of field of both the foreground and background. Depth of field (DoF) is defined as the distance between the nearest and the furthest objects giving a focused image.

Figure 17: Camera Focus Settings



CHANGING THE BATTERY

- If the camera isn't connecting, check that it's turned on or that it hasn't gone to sleep.
- If another user has Geobank open and you cannot access it, turn the Toughbook off and back on again. This will provide a clean start and you'll be able to open Geobank without any issues.
- If the camera is not taking photos, turn it off and unplug all cords. Restart the Toughbook as well for good measure. Plug all the cords back in and start from the top.

REFERENCE AND RELATED DOCUMENTS

- Canon 6D Mk. 2 Instruction Manual



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