



Nadir Photography

**GoPro and
Garmin VIRB**

(Chapter 9)



Nadir Photography

○ What is Nadir

- Nadir is photo shooting straight down from the wing tip (think Google Earth)

○ How/when

- Start the camera before entering the aircraft, then shut it down when the sortie is over
- Record the start and end times when you enter individual “grids”
- You can delete the photo's not in the grid area(s)



Nadir Photography

○ What is Nadir

- Nadir photos can be used to create an Orthomosaic image (again think Google Earth)
- GoPro
- Garmin VIRB
- Waldo (separate training)
- sUAS/drone (separate training)



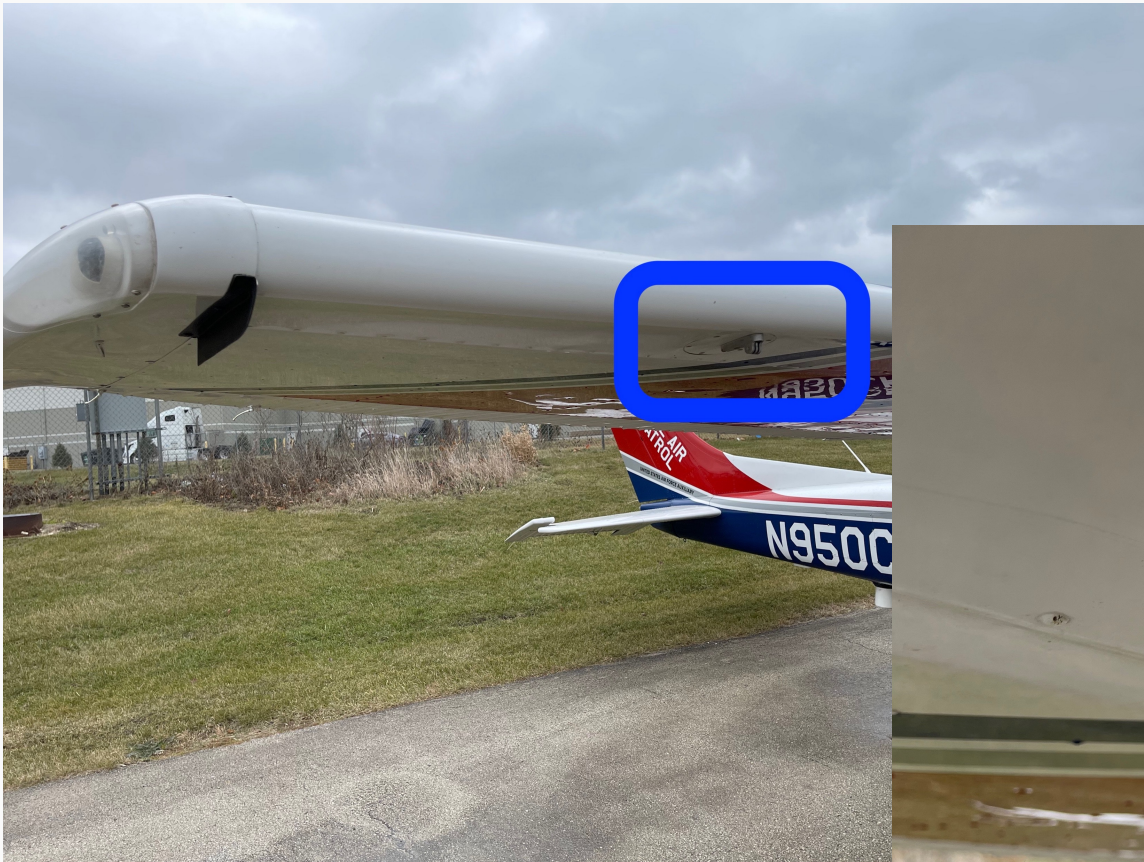
Nadir Photography

○ What is Nadir

- Nadir should be considered an essential component in today's AP work
- Oblique (Nikon) photos can supplement Nadir photography
- Nadir photography is a cost-effective way to stay current with WaldoAir technology



Nadir Aircraft mount for GoPro and VIRB





Nadir camera mounted on airplane

Should be straight up and down



Mounting requires 3mm
hex wrench (not included)



GoPro Hero Black 9/10



GoPro Kit

- **What is included in the kit (right side pouch)**
 - GoPro Hero 9 BLACK
 - Batteries: 2 regular (blue), 1 cold (white)
 - iPad charger (white)
 - GoPro dual battery charger (black)
 - USB-C Cables: 3 black, 1 white (iPad)
 - Mounting brackets for Wing
 - 64MB Micro SD card w/adapter



GoPro Kit

- **What is included in the kit (left side pouch)**
 - iPad in Otterbox case
 - Accessories for mounting on dash (not used)



GoPro Kit



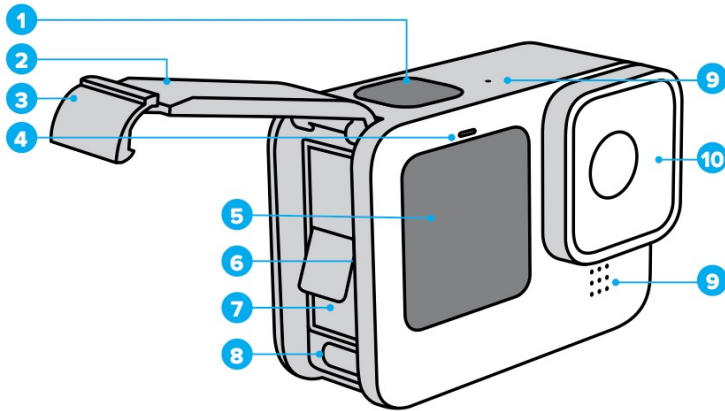



GoPro Kit



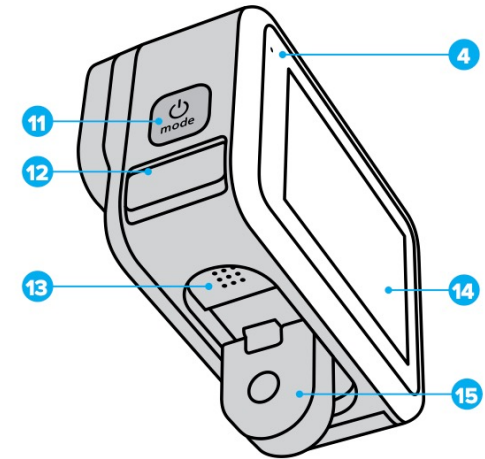



GoPro Kit



- 1. Shutter Button 
- 2. Door
- 3. Door Latch
- 4. Status Light
- 5. Front Screen

- 6. microSD™ Card Slot
- 7. Battery
- 8. USB-C Port
- 9. Microphone
- 10. Removable Lens



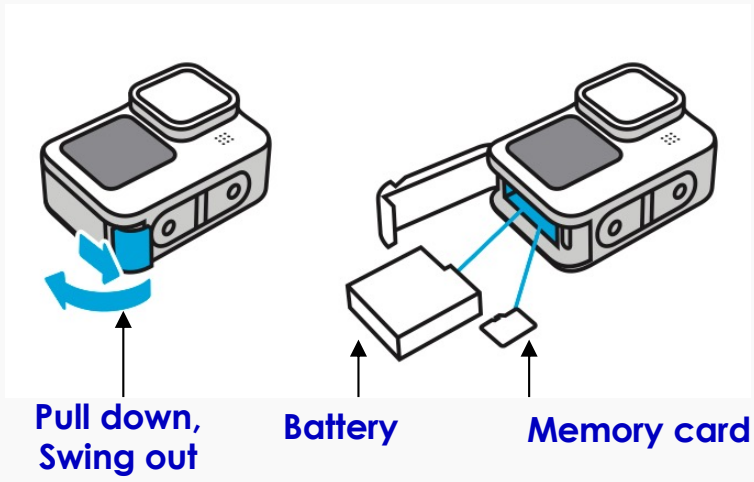
- 11. Mode Button 
- 12. Drain Microphone
(Designed to drain water.
This is not a door/latch.
Do not try to open.)

- 13. Speaker
- 14. Touch Screen
- 15. Folding Fingers

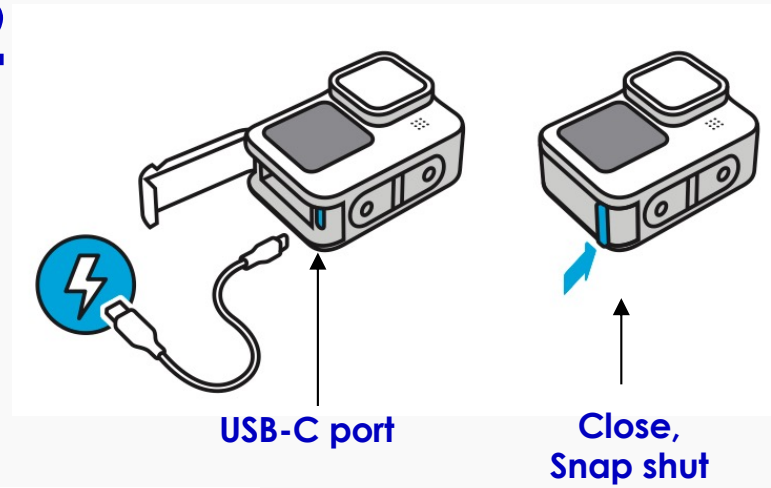


GoPro Kit

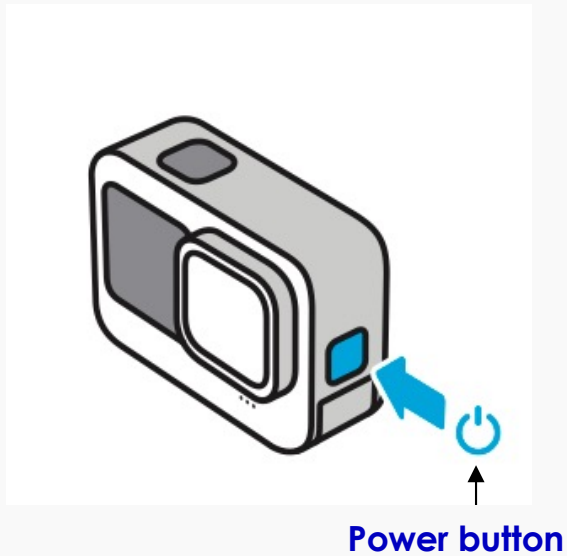
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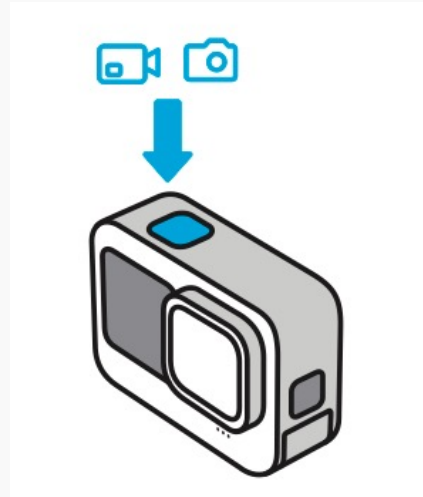
2



3



4



5





GoPro Kit

○ Batteries

- Both 1720mAh
- Blue is standard
- White (Enduro) improved performance in cold weather (> 14° F)





GoPro Kit

Micro SD card (64GB) and SD adapter





GoPro Kit

Wing mounting brackets (3 sizes)



Helmet mount can
be ignored





GoPro Kit

○ iPad

- Power on
 - Press button on right top for 5 seconds
- Power off
 - Press button on right top along with button on far left top for 5 seconds
 - Slide to power off
- To charge
 - Connect powered USB-C cable to bottom center (lift Otterbox flap)
- Storage
 - The iPad should be turned off and can be stored with between 80% and 100% battery level, less than that, charge it before storing



GoPro Kit

- **GoPro** Camera Reset (if necessary)
 - Turn on
 - From any menu
 - Swipe down
 - Swipe left and tap on **Preferences**
 - **Format SD Card**
 - Scroll to bottom and tap on **Reset**
 - Scroll to bottom and tap on **Factory Reset**
 - From Factory Reset
 - Select **English**
 - Set **time**
 - Location (GPS): **On**



GoPro Kit

○ Initial Setup

- **iPad**

- Launch **Settings** app
 - **Wi-Fi**, connect to your local network
- Launch **GoPro Quik** app
- Continue as **guest**
- Click on **GoPro** (bottom right)
- **Connect a GoPro**
- Leave the camera name **as-is**
- Update camera **firmware** if necessary



GoPro Kit

○ iPad Setup Problems

- If told Bluetooth is not turned on,
 - Open Settings
 - Tap on **Bluetooth**, ensure it is turned **On**
 - Scroll down to **GoPro Quik**
 - Ensure **Bluetooth** is On
- Continue with **GoPro Quik** app on iPad
- Possibly Repeat Setting for GoPro
 - Set **Local Network** to **ON**



GoPro Kit

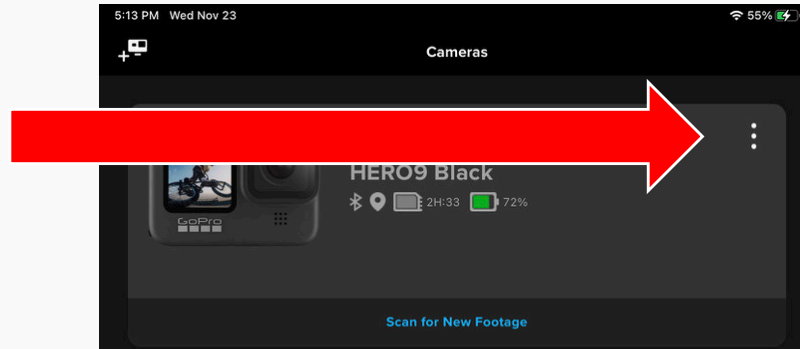
○ Format Memory Card

- Turn on GoPro camera
- From any menu
 - Swipe down
 - Swipe left and tap on **Preferences**
 - **Format SD Card**

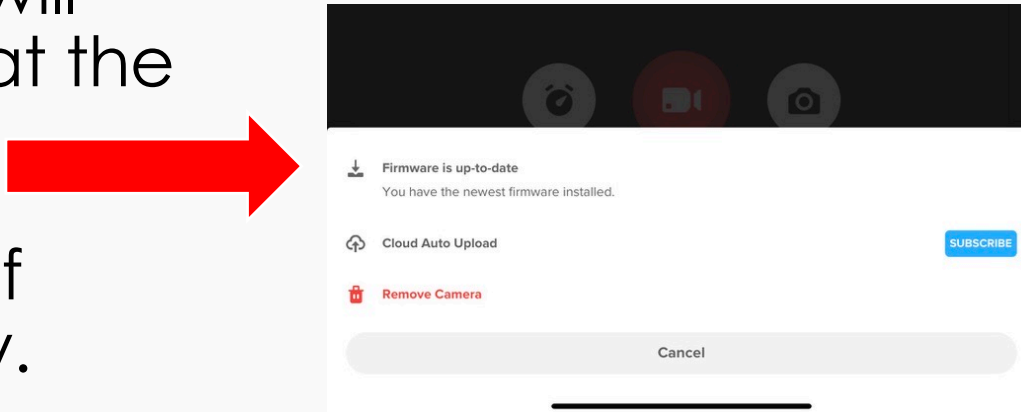


GoPro Kit

○ In the Quik app, click the 3 dots by the camera



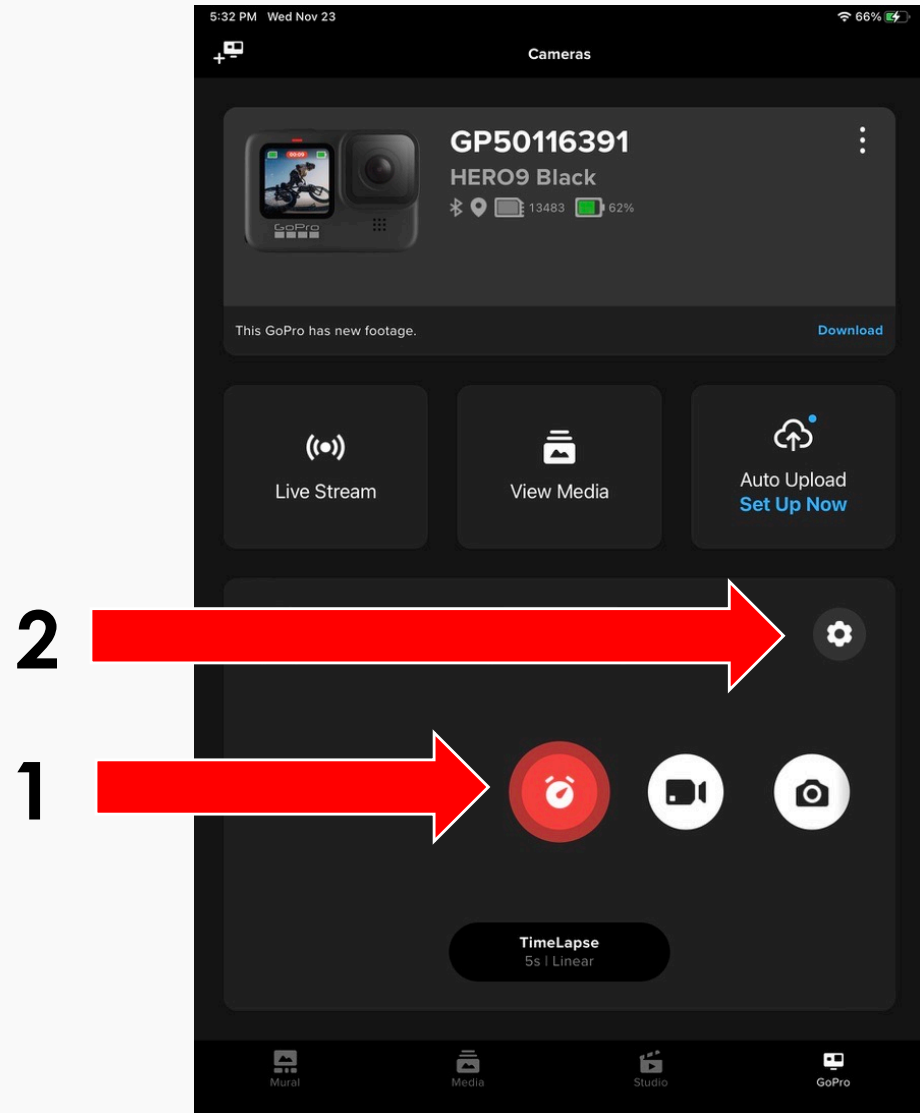
○ Then this will show up at the bottom. Update firmware if necessary.





GoPro Kit

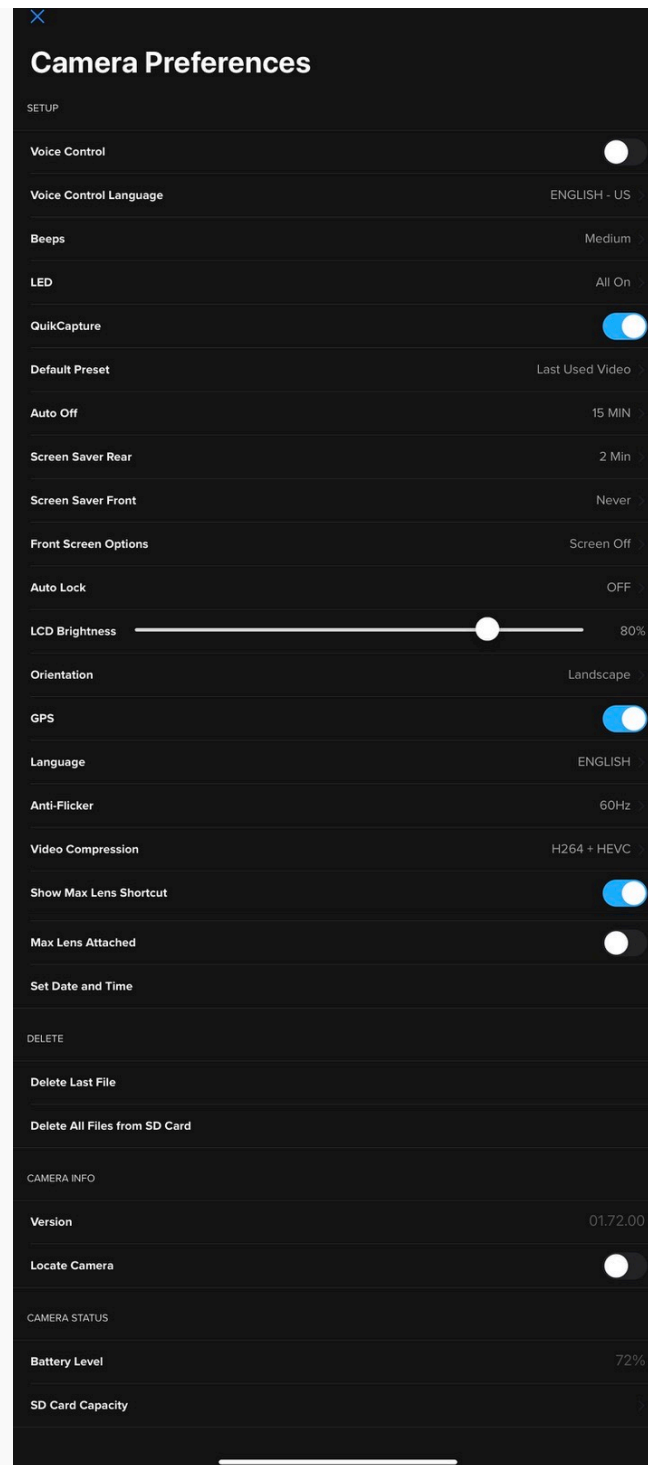
1. Select the **Time Lapse** button
2. Click on the **Preferences** icon





GoPro Kit

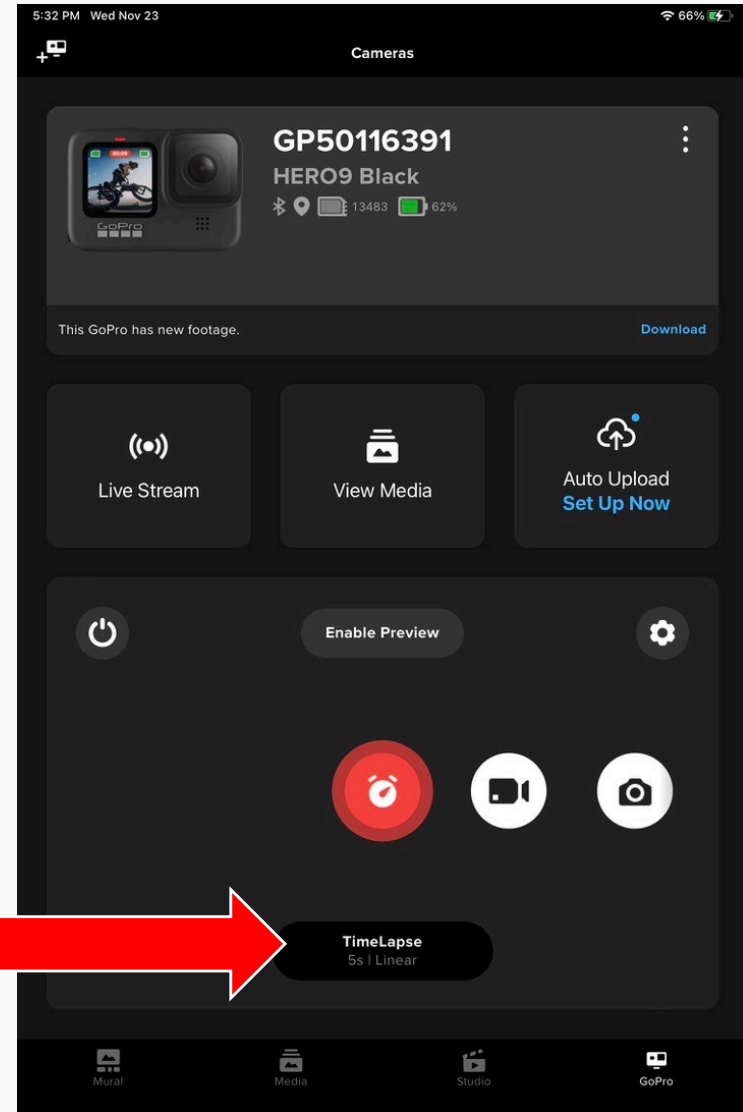
- Set options as displayed:
- **Default Preset:** Last Used Time Lapse
- **Screen Saver Front:** Never
- **Front Screen option:** Screen Off
- **Orientation:** Landscape
- **GPS:** On
- **Set Date and Time:**
 - As required
- **Delete All Files from SD Card:**
 - Format





GoPro Kit

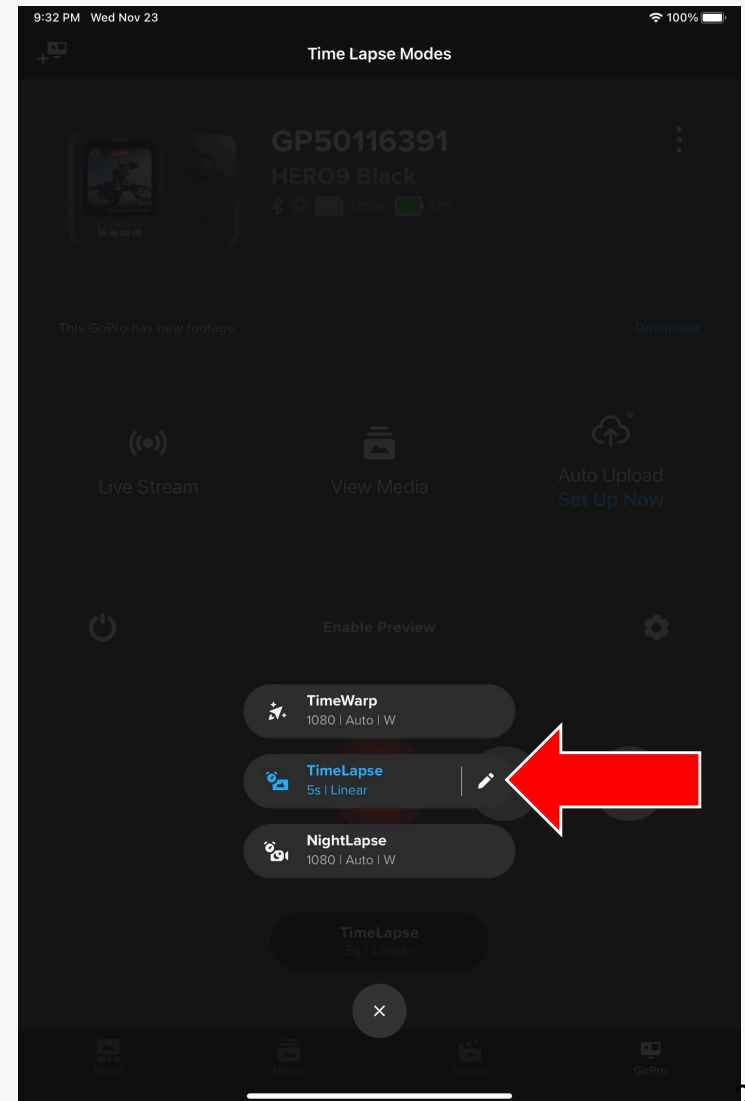
- Click on the **TimeLapse** button





GoPro Kit

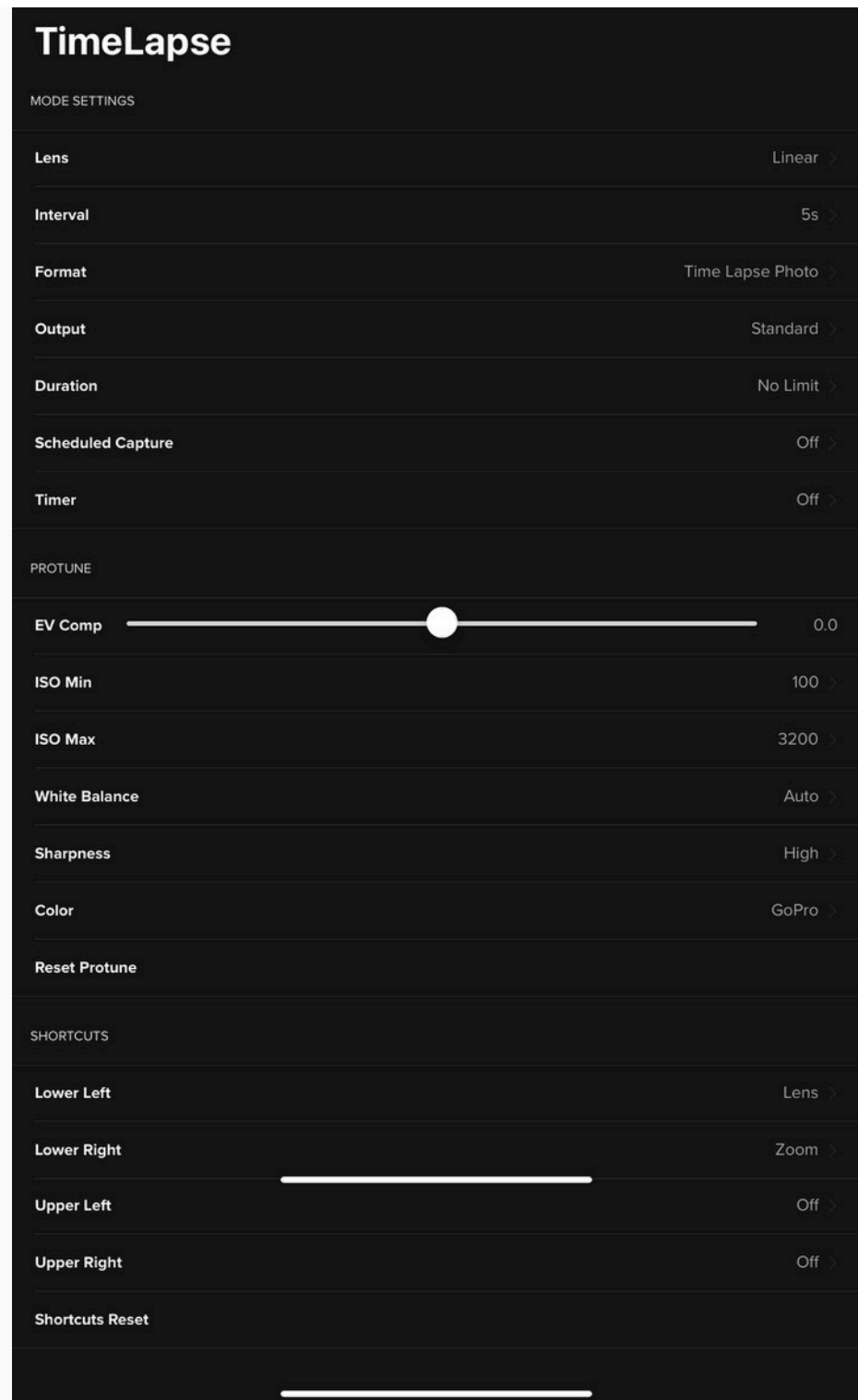
○ Click on the **TimeLapse** pencil





GoPro Kit

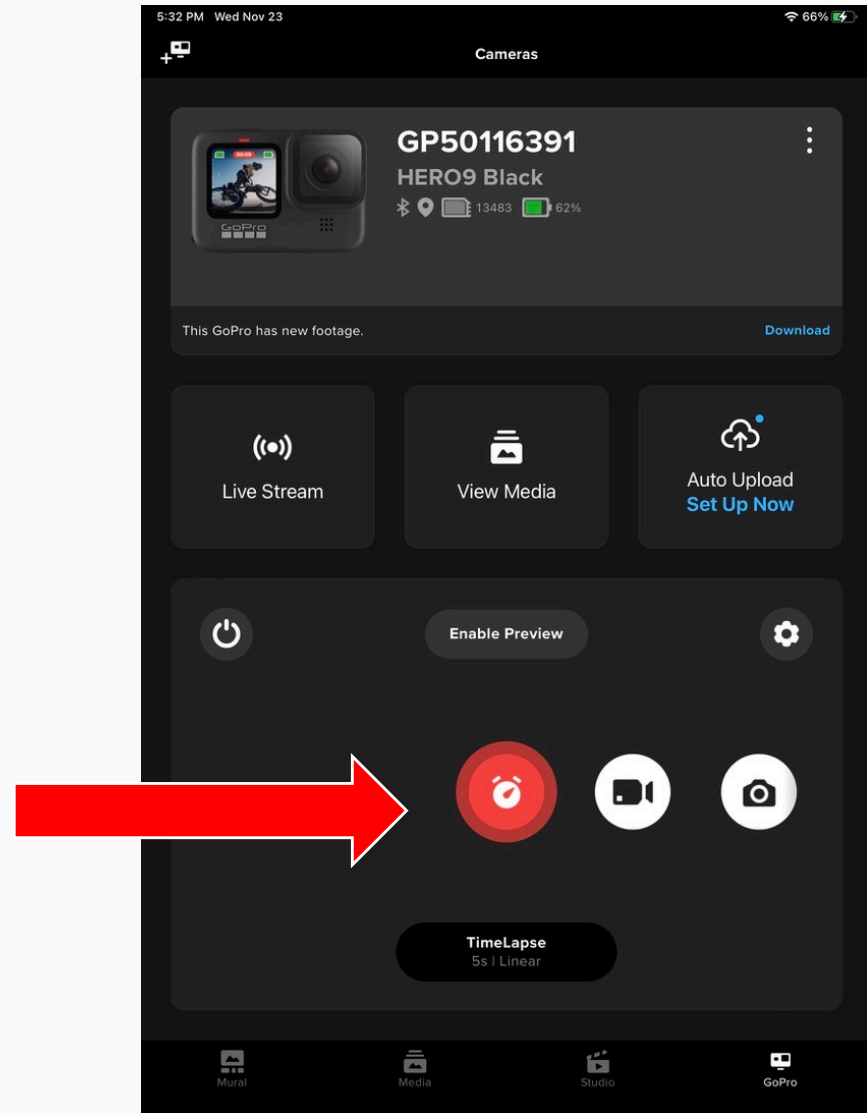
- Set options as displayed:
- **Lens:** Linear
- **Interval:** 5s (seconds)
- **Format:** Time Lapse Photo
- **Output:** Standard
- **Duration:** No Limit
- **Timer:** Off





GoPro Kit

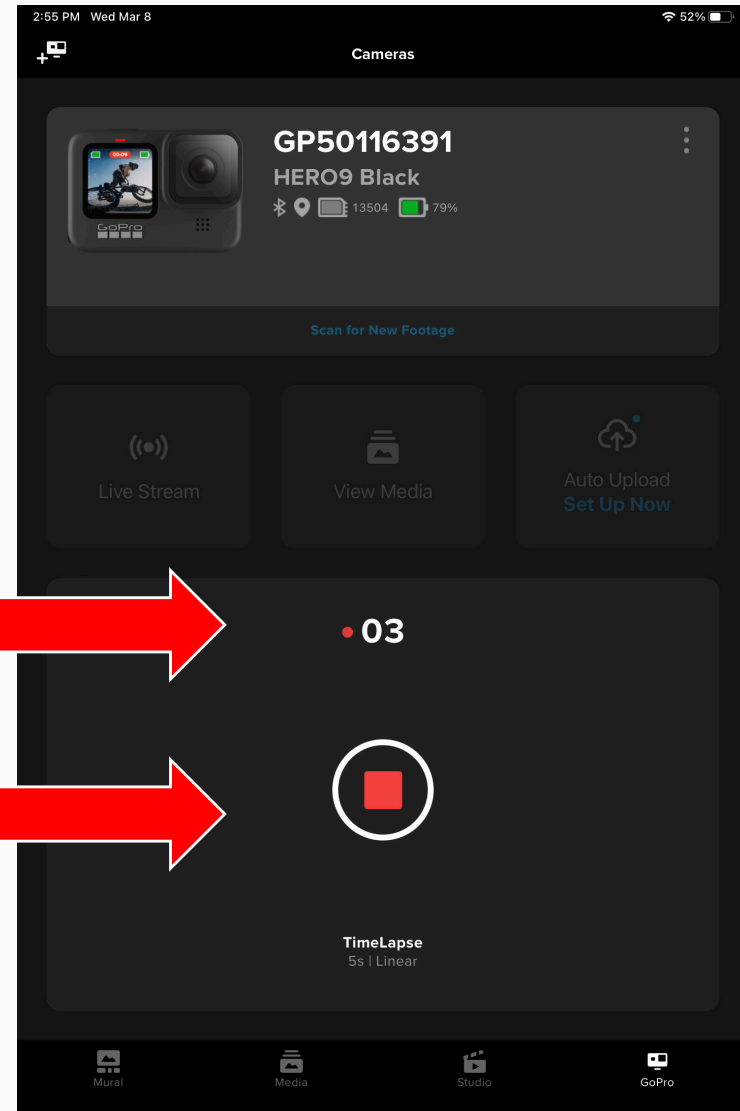
- Tap the red timer button to start the GoPro camera





GoPro Kit

- Counter will show number of photos taken.
- Button will be square when camera is active. Tap again to turn stop recording.





GoPro Kit

- You can either turn ON camera recording when:
 - You are in target area
 - Leave it on for entire sortie (not recommended during cold weather)
- Note the time when entering and exiting the target area(s)