Athena II – Manual Build Plate Leveling

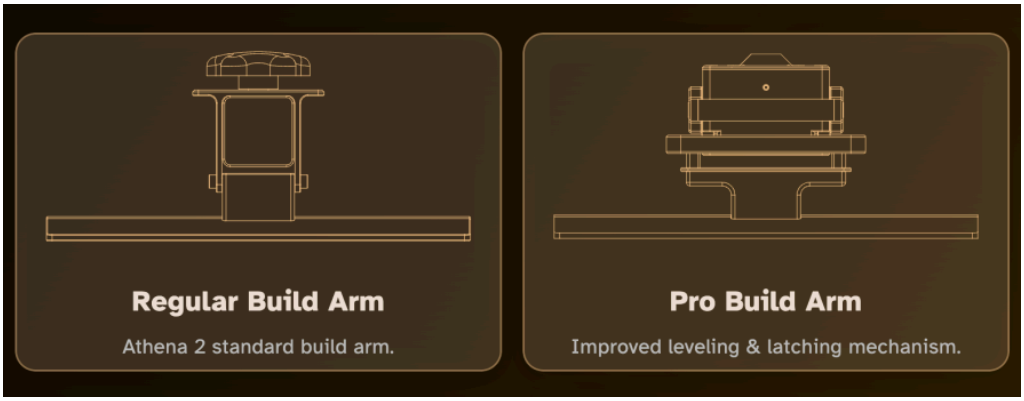
(Standard Arm & Pro Arm) V1.0

These instructions guide you through manually leveling the build plate using the Athena II Orion touchscreen. *Be sure to update AthenaOS to the latest version and check you are running the latest version of Orion UI on the touchscreen.*

Before You Begin

Please confirm the following before starting:

- Remove the resin vat and set it aside
- Install the build plate and ensure it is secured correctly
    - **Standard Arm:** Knob tightened
    - **Pro Arm:** Latch fully locked
- Ensure both the print LCD and build plate are clean, dry, and free of debris
- Locate a **3 mm hex key** (included with the printer)

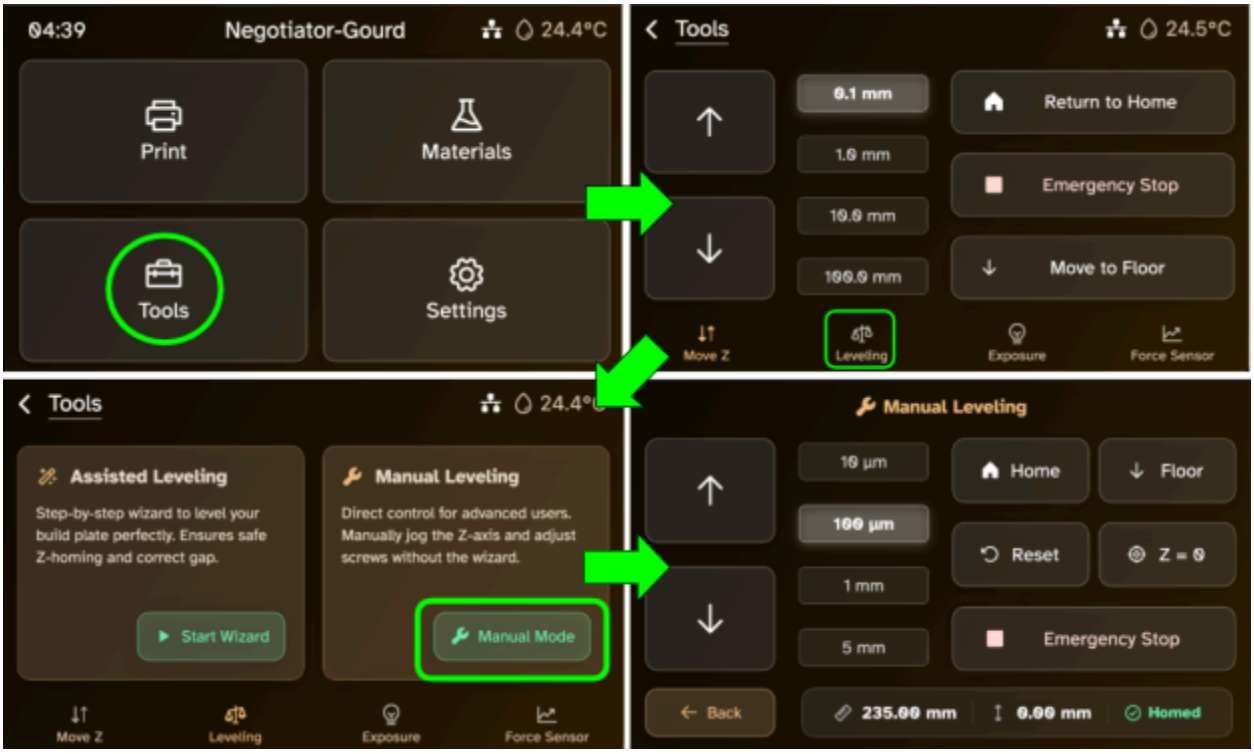


Accessing the Manual Leveling Screen

1. Power on the printer and wait for the touchscreen to load.

2. Press **Tools** then **Leveling** from the printer menu. Select **Manual Mode.**

You should now see the Manual Leveling screen with Z-axis controls, step sizes, and the **Z = 0** button.



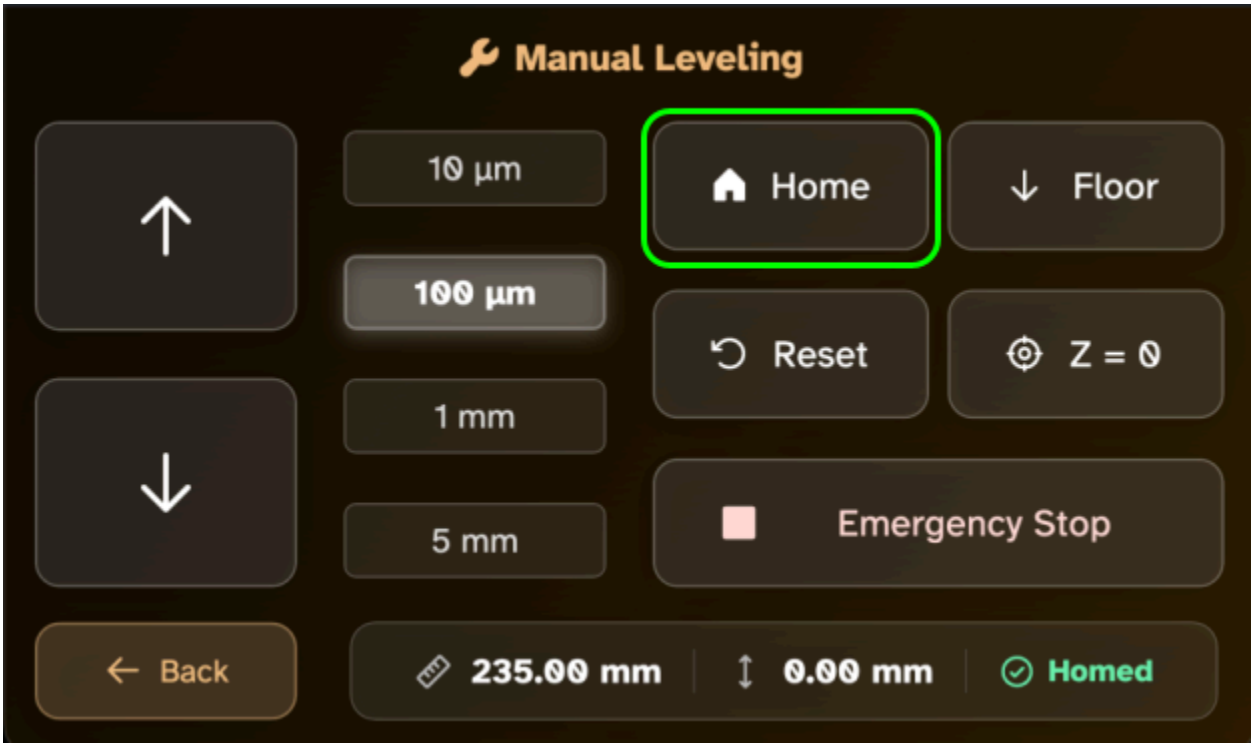
Common Controls (All Versions)

- **Home**: Raises the Build Plate to the home/top position
- **Floor**: Lowers the Build Plate toward the LCD
- **Move Increments**: 10 µm, 100 µm, 1 mm, 5 mm
- **Z = 0**: Sets the current position as the zero reference offset
- **Emergency Stop**: Immediately halts motion
- **Reset**: Resets the Z = 0 offset

Standard Arm Leveling Procedure

1. Home the Z Axis

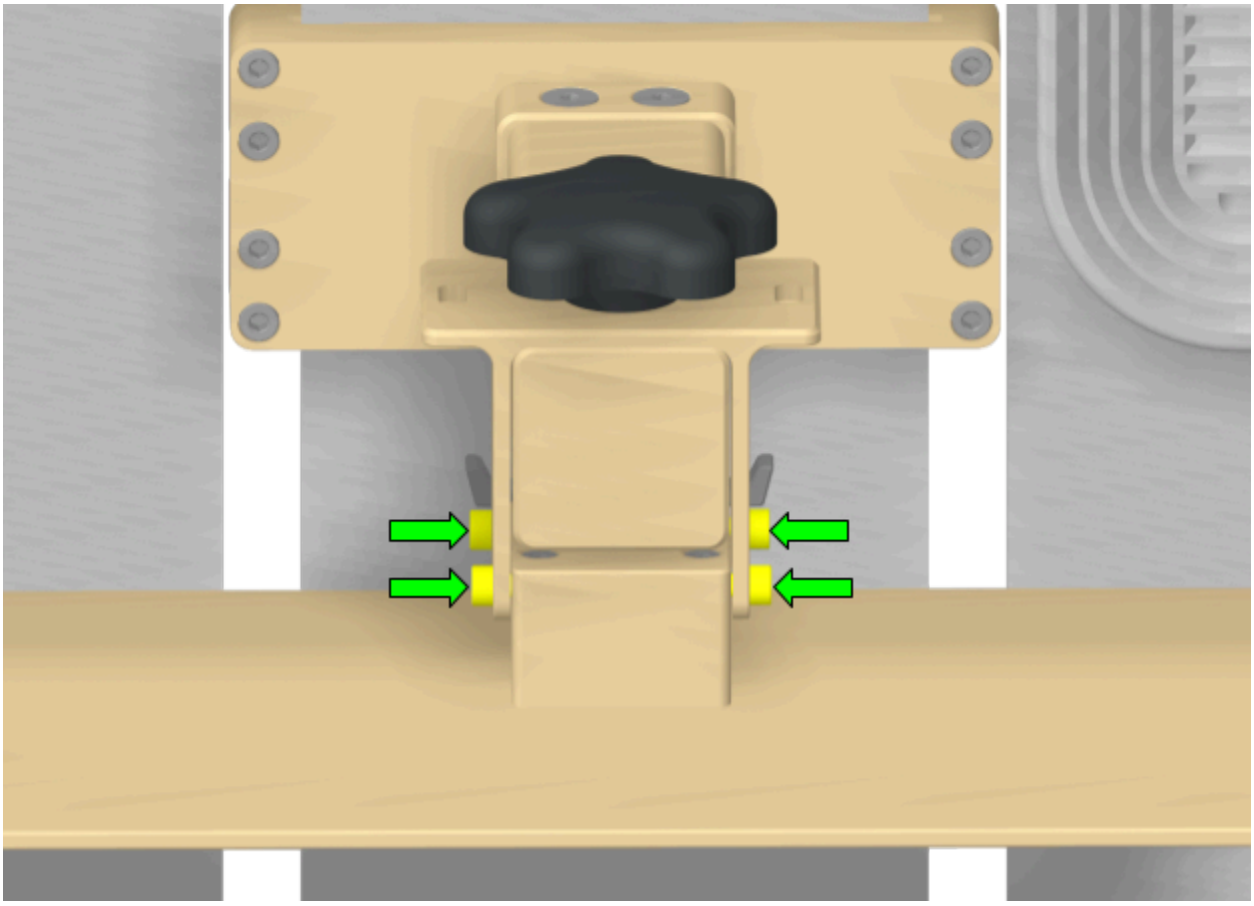
Press **Home** to raise the Z axis to the top position.



2. Loosen Build Plate Bolts

Using the 3 mm hex key, loosen the **four bolts** on the build plate bracket.

Do not remove the bolts. The plate should be able to move freely.



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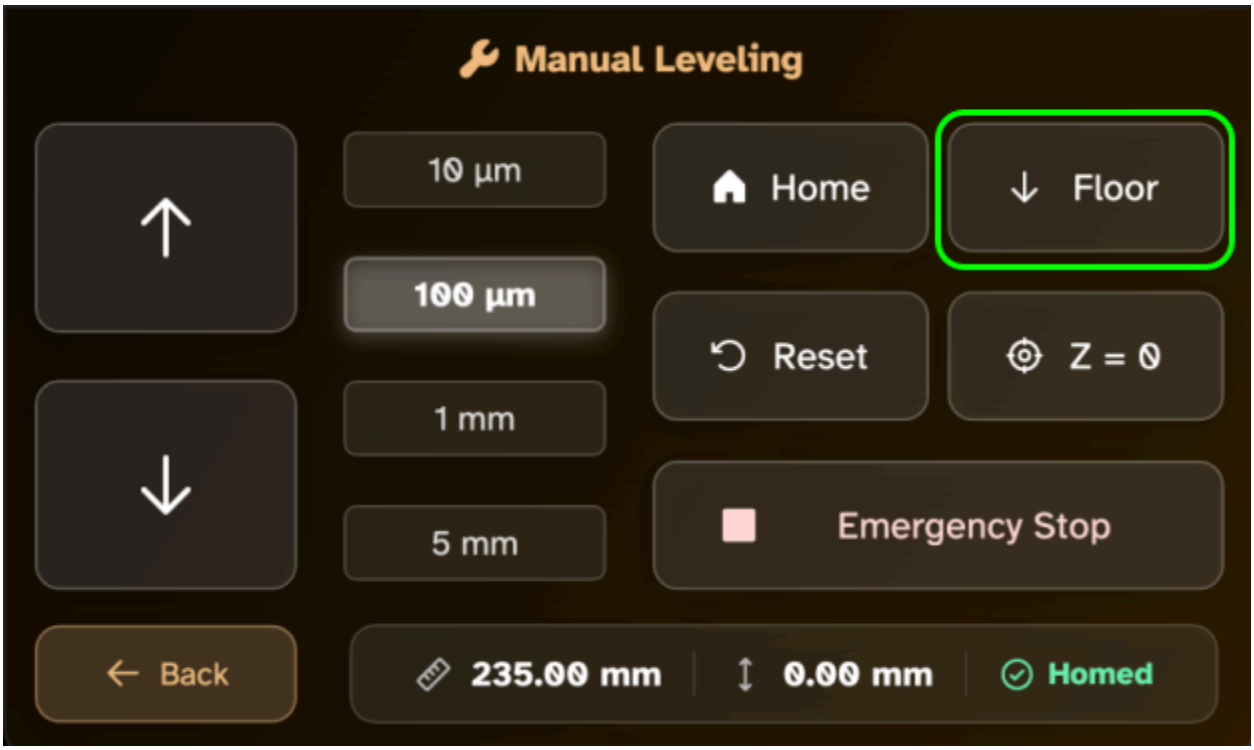
3. Verify Free Movement

Gently grab and move the plate to confirm it can tilt freely in all directions.

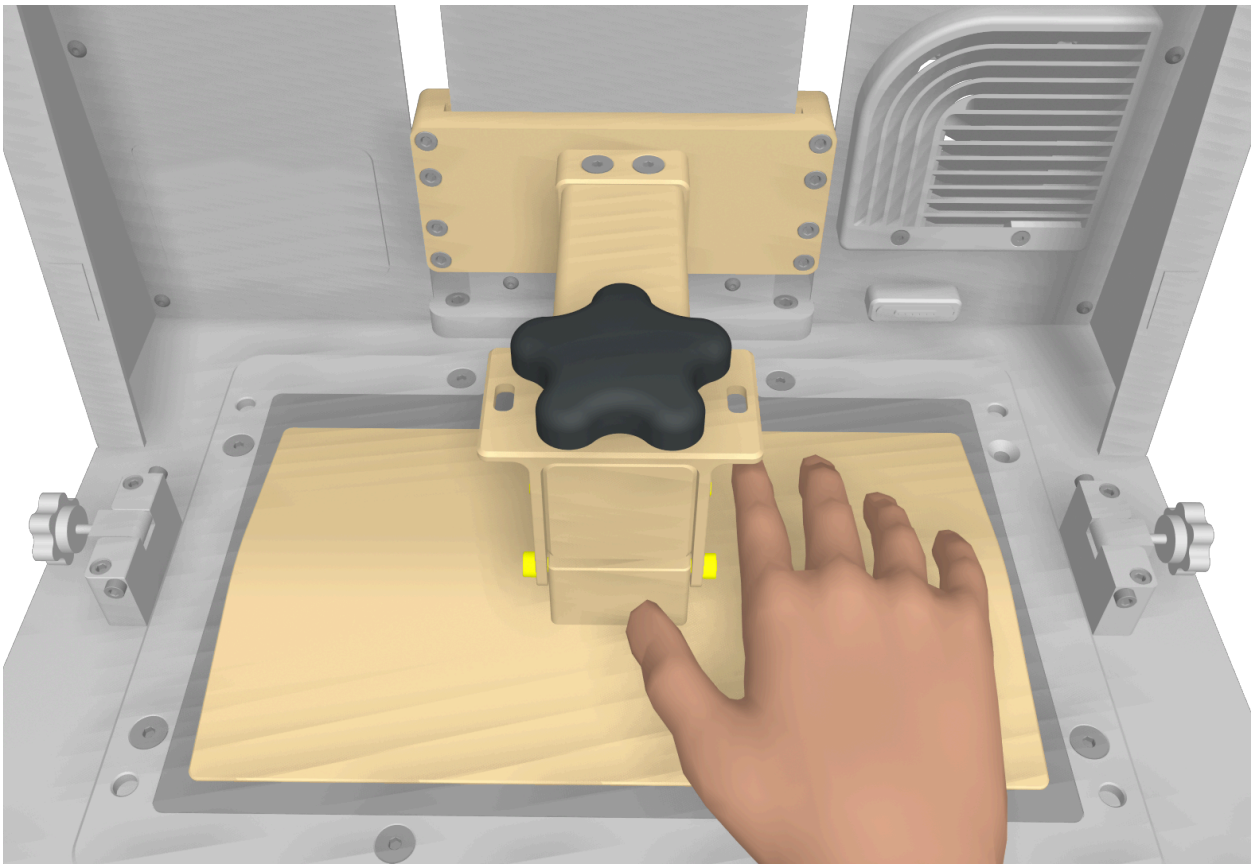
4. Lower the Plate to the LCD

Press **Floor** to lower the Z axis until the build plate rests flat on the LCD surface.



5. Apply Downward Pressure

With one hand, apply **moderate, even pressure** to the top of the **build plate** to ensure full contact with the LCD. You can even place the center post of the build plate between your middle and ring finger so you can evenly distribute the pressure on both sides of the plate.



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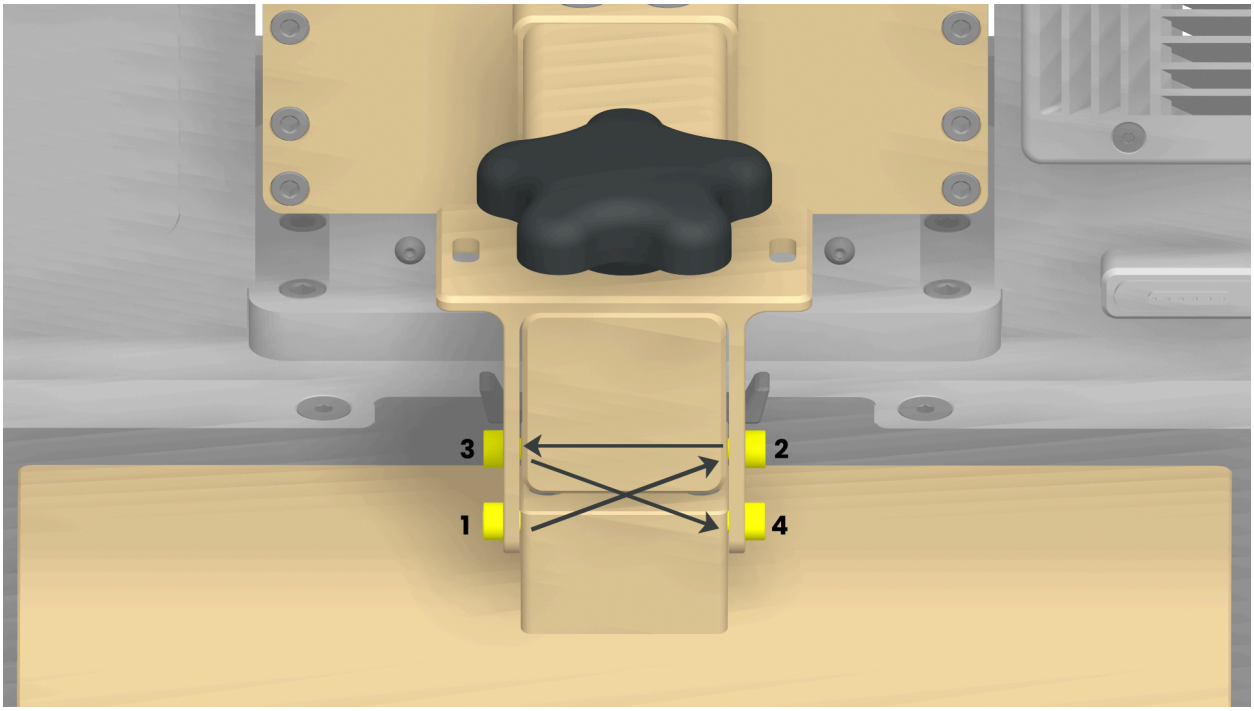
6. Tighten Bolts Evenly

While maintaining pressure:

- Tighten each bolt slightly in a **cross pattern** with the 3mm hex key.
- Perform **2–3 passes**, snugging the bolts gradually while repeating the pattern
- Finish with a firm tightening, but do not overtighten



7. Set Z = 0

Raise the Z axis by the thickness of the vat film (**about 150 - 200µm**) then press **Z = 0**.

8. Paper Check (Optional)

Slide a strip of plain paper between the LCD and build plate.

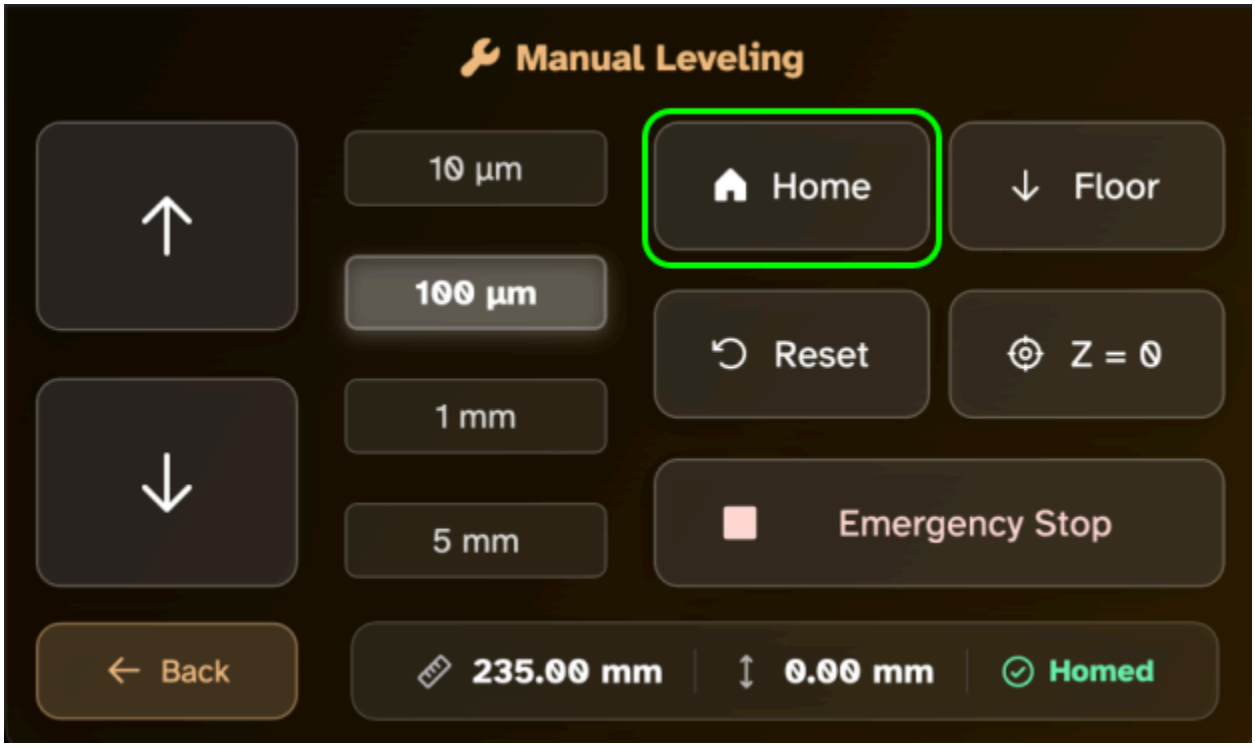
You should feel slight, even resistance at all corners.

Leveling Standard Arm Complete. Check the last page for final instructions

Pro Arm Leveling Procedure

1. Home the Z Axis

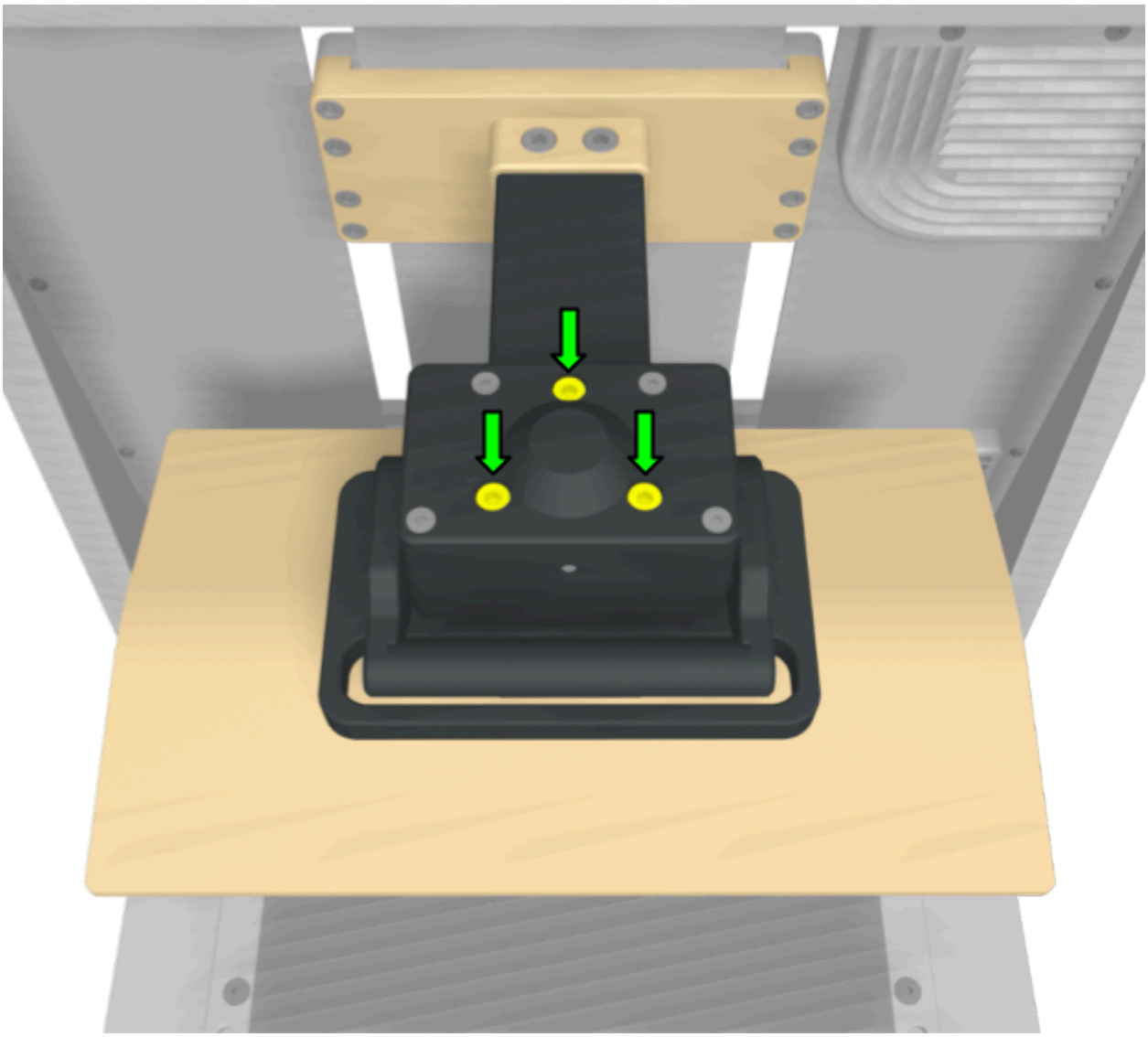
Press **Home** to raise the Z axis to the top position.



2. Loosen Adjustment Bolts

Using the **3 mm hex key**, evenly loosen the **three bolts** on top of the Pro Arm by **about 1/2 turn**.

Do not remove the bolts.



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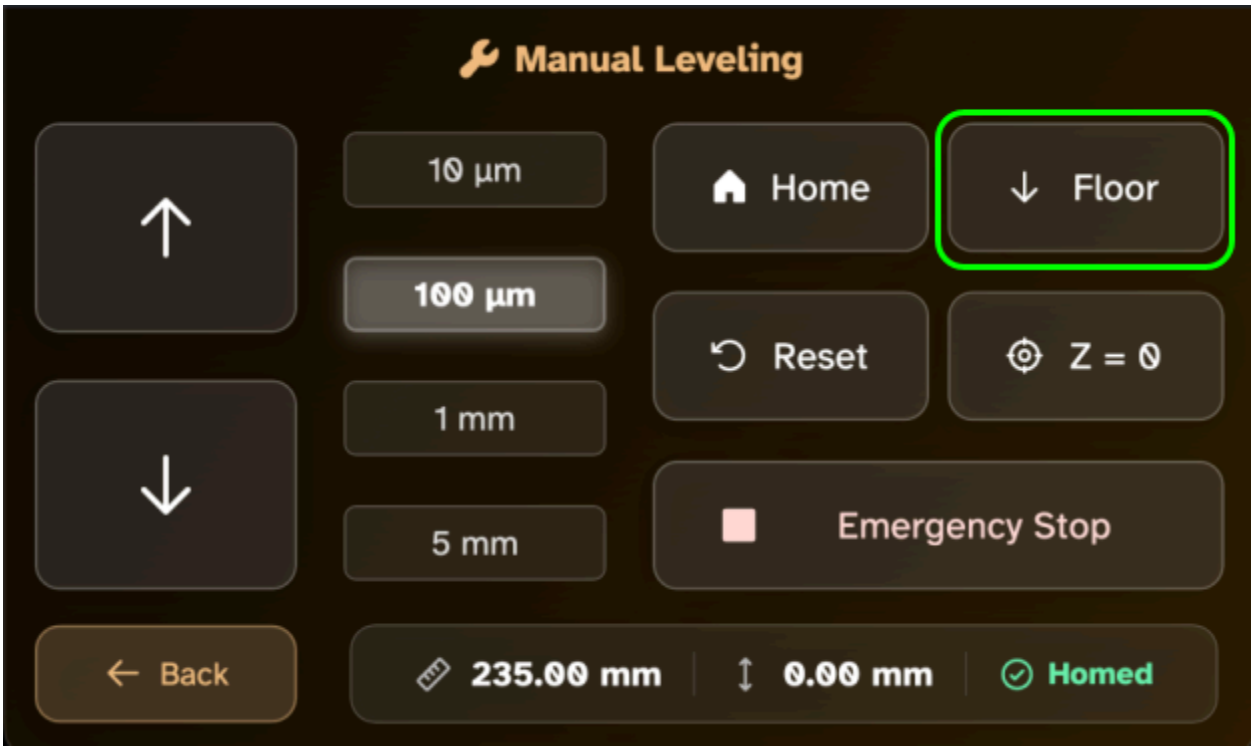
3. Verify Free Movement

Gently move the build plate by hand to confirm it can tilt freely in all directions.

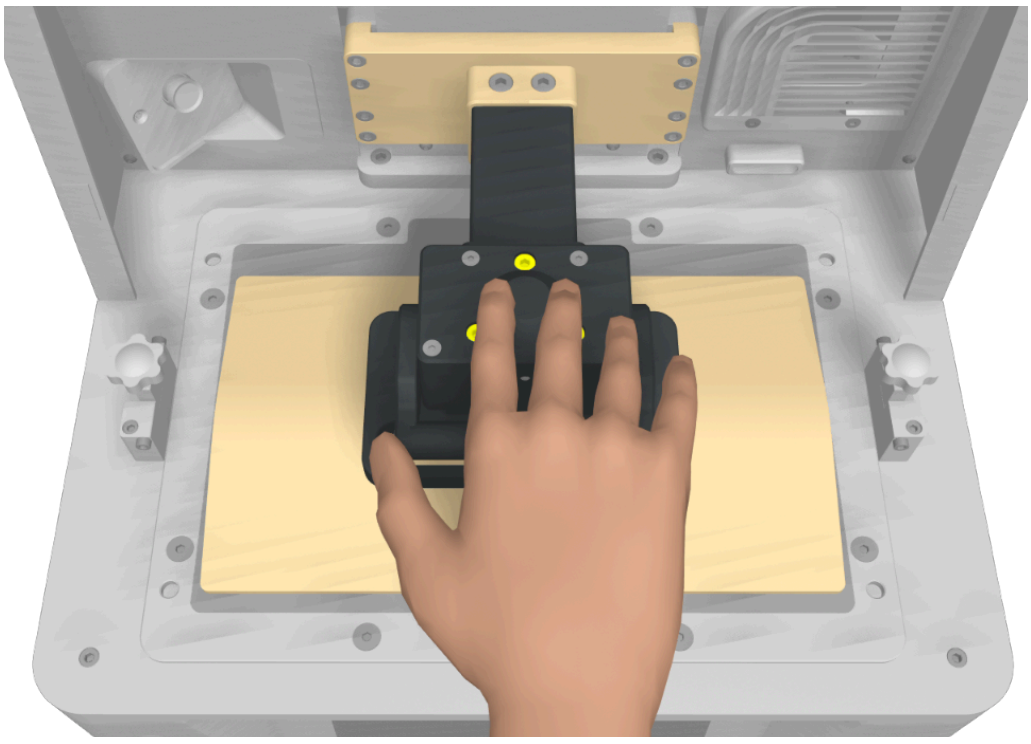
4. Lower the Plate to the LCD

Press **Floor** to lower the Z axis until the build plate rests flat on the LCD.



5. Apply Downward Pressure

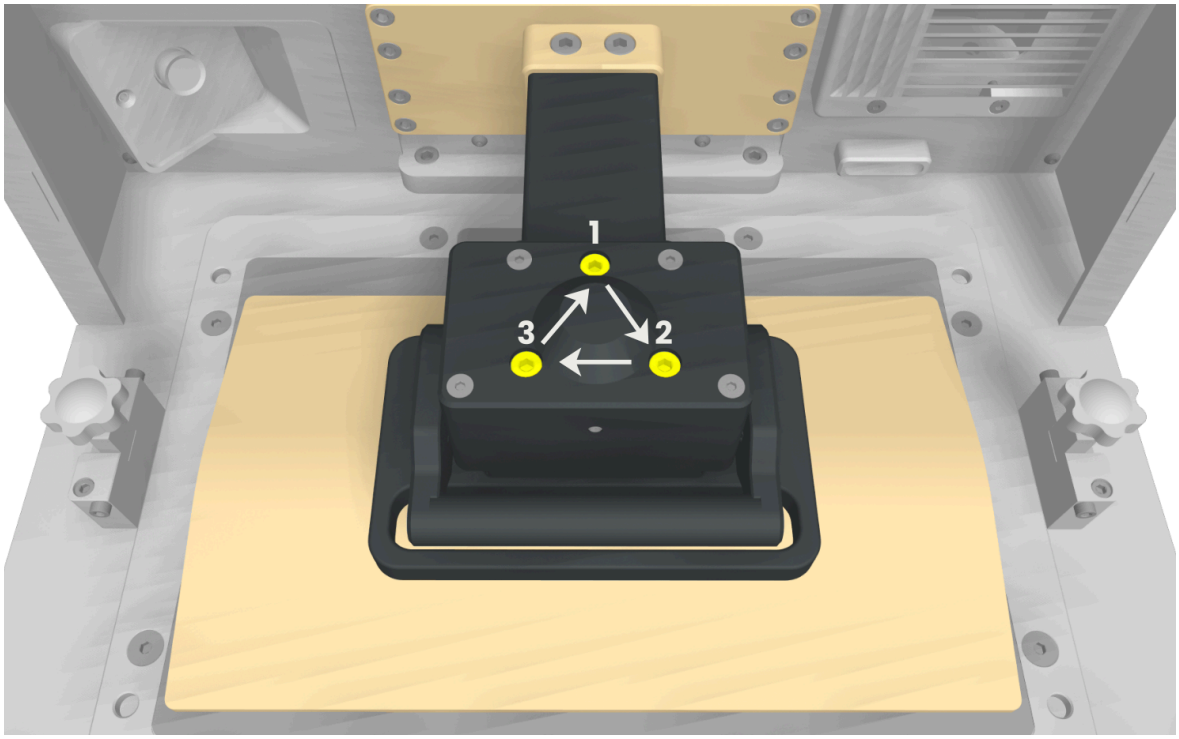
Apply **light to moderate, even pressure** to the **top cover of the build arm**.



6. Tighten Bolts Gradually

While maintaining pressure, Using the long ball end of the 3mm hex key:

- Tighten each bolt **no more than 1/8 turn at a time**
- Rotate evenly between bolts
- Expect **4-8 passes** before fully snug
- On the final pass, the bolts will be **very difficult to turn with the short end of the hex key**.



7. Initial Paper Check

Raise the Z axis by **about 300µm** using the touchscreen controls.

Slide a strip of plain paper between the LCD and build plate at each corner.

- You should feel **slight, even resistance** at all corners
- If the paper feels even and not too loose, proceed to **Step 9**
- If any corner is too tight or too loose, continue to **Step 8**.

8. Fine Adjustment

Fine adjustment is used to ensure all corners have the same, slight paper resistance.

⚠️Important:
*You must always adjust the **front two screws first** to correct left/right tilt, and only adjust the **rear screw last** if needed. **Do not loosen the screws. Only tighten clockwise to lower the build plate***

Step A – Establish a Reference Corner

- If the paper is too tight at any corner, raise the build plate in **10 µm increments** until the tightest corner allows the paper to slide with slight resistance.
- The corner with the **least gap** (the tightest acceptable resistance) becomes your **reference corner**.
- All other corners should be adjusted down to match this reference.

Step B – Adjust Front Screws First (Left / Right Tilt)

- Start with the **two front screws**:
    - **Screw #2** adjusts the **front right** side
    - **Screw #3** adjusts the **front left** side
- Tightening (clockwise) a screw **lowers the build plate near that screw**.
- Make **very small adjustments only**, about **1/16 of a turn** at a time.
- Use the **short end of the hex key** for more leverage.
- After each adjustment, recheck **all corners** with the paper test.

Do **not** loosen screws to increase the gap.
If more clearance is needed, raise the plate using the **10 µm Z increment** instead.

Step C – Adjust Rear Screw Last (Front-to-Back Tilt)
Refer to the diagram on step 6 for screw numbering.

- Once the left and right sides are even, check the **rear corners**.
- If there is too much gap at the back:
    - Tighten **screw #1** slightly clockwise to lower the rear.
- Make very small adjustments and recheck all corners after each change.

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9. Set Z Offset

Once the paper slides with slight, even resistance at all corners, the build plate is approximately **100 µm above the LCD**.

Since the vat film is approximately **150 µm thick**:

- Raise the Z Axis an additional **50 µm** using the touchscreen controls.
- Press **Z = 0** to store the offset

After Leveling

- Press the Home button
- Reinstall the resin vat
- Verify the vat is seated correctly and knobs are secure
- You are now ready to begin printing.

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