



SENTINEL DYNAMICS

D-71 | Assembly Manual





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SUMMARY

The D-71 is a modular, 3D-printed quadcopter airframe engineered for strength, serviceability, rapid prototyping, and field-ready performance. Designed with hobbyists, developers, and UAV builders in mind, the D-71 provides a lightweight yet durable platform capable of supporting a wide range of configurations.

Built around replaceable 3D-printed arms and an impact-resistant body structure, the D-71 is optimized for fast maintenance and low-cost repairs, making it ideal for pilots who value experimentation, iterative tuning, and crash-friendly resilience. The airframe is compatible with common 7-inch propeller setups, and offers generous internal space for various flight controllers, and FPV setups.

With the ability print the frame in PLA+, ASA, Nylon, or carbon-reinforced materials, users can tailor durability and heat resistance to mission requirements. This platform empowers makers to customize, adapt, and innovate, turning raw filament into a fully functioning aerial system.



3D PRINT FILES

1. Top Plate

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (15)

Infill (Grid): 80%

Print Orientation: Face Down



2. Bottom Plate

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (15)

Infill (Grid): 80%

Print Orientation: Face Down



3. Support

Quantity: (4) *PLA+, ASA, PETG*

Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (5)

Infill (Grid): 100%

Print Orientation: Vertically





3D PRINT FILES

4. Arm

Quantity: (4) *PLA+, ASA, PETG*

Print Settings:

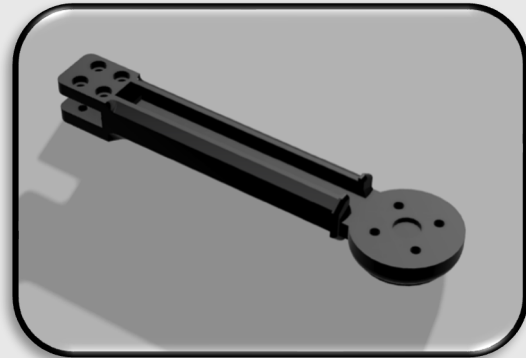
Standard PLA+ 0.2mm Profile

Wall Count: (16)

Infill (Grid): 80%

Print Orientation: Face Up

Supports: Yes / Tree / 30° / On
build plate only



5. Arm Cover – 1,4

Quantity: (2) *PLA+, ASA, PETG*

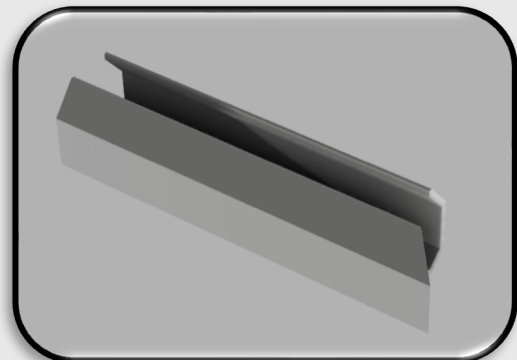
Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (5)

Infill (Grid): 100%

Print Orientation: Flat side down.



6. Arm Cover – 2,3

Quantity: (2) *PLA+, ASA, PETG*

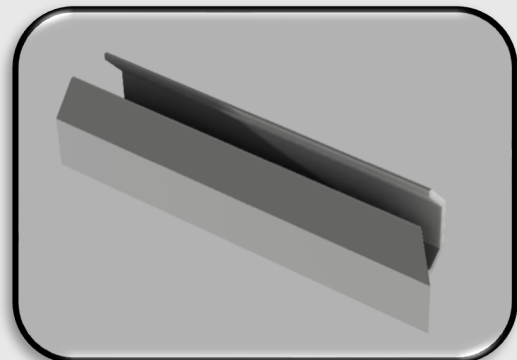
Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (5)

Infill (Grid): 100%

Print Orientation: Flat side down.





3D PRINT FILES

7. Battery Mount Rear

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (8)

Infill (Grid): 80%

Print Orientation: Face Up

Supports: No



8. Battery Mount Front

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

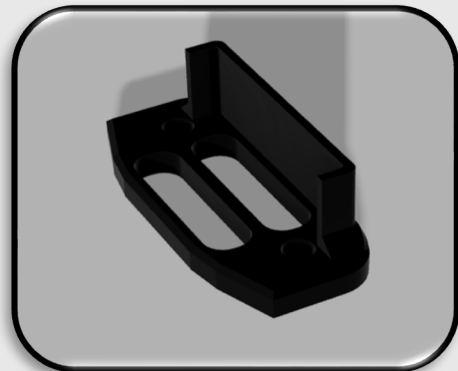
Standard PLA+ 0.2mm Profile

Wall Count: (8)

Infill (Grid): 80%

Print Orientation: Face Up

Supports: No



9. FC Dust Cover

Quantity: (1) **TPU!!!**

Print Settings:

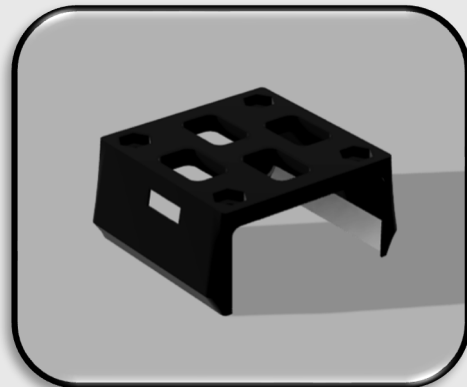
Standard PLA+ 0.2mm Profile

Wall Count: (5)

Infill (Grid): 100%

Print Orientation: Flat side down.

Supports: Yes / Normal





3D PRINT FILES

10. GPS Mount Arm

Quantity: (1) *PLA+*, *ASA*, *PETG*

Print Settings:

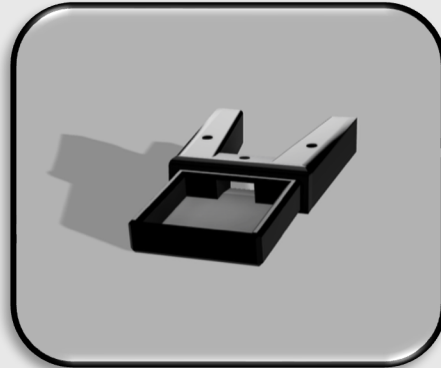
Standard PLA+ 0.2mm Profile

Wall Count: (8)

Infill (Grid): 100%

Print Orientation: Flat side down.

Supports: Yes / Tree / 30° / On build plate only



11. Left VTX Ant Mount

Quantity: (1) *PLA+*, *ASA*, *PETG*

Print Settings:

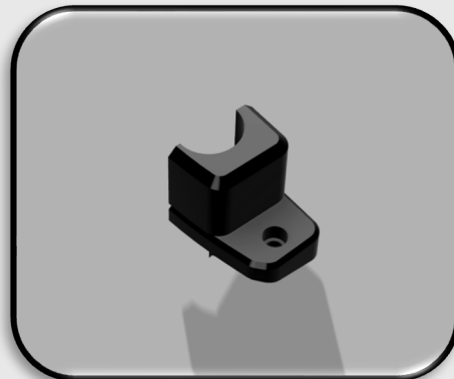
Standard PLA+ 0.2mm Profile

Wall Count: (8)

Infill (Grid): 100%

Print Orientation: Flat side on build plate.

Supports: Yes / Normal



12. Right VTX Ant Mount

Quantity: (1) *PLA+*, *ASA*, *PETG*

Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (8)

Infill (Grid): 100%

Print Orientation: Flat side on build plate.

Supports: Yes / Normal





3D PRINT FILES

13. ELRS Bracket

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

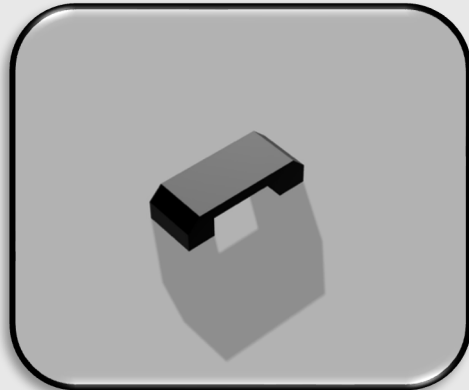
Standard PLA+ 0.2mm Profile

Wall Count: (5)

Infill (Grid): 100%

Print Orientation: Legs facing on build plate.

Supports: Yes / Normal



14. Camera Frame

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

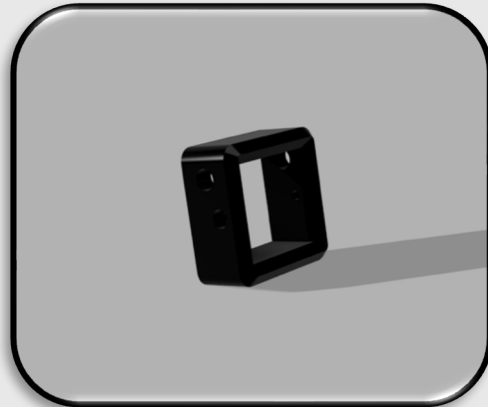
Standard PLA+ 0.2mm Profile

Wall Count: (5)

Infill (Grid): 100%

Print Orientation: Flat side facing down.

Supports: No



15. Camera Mount

Quantity: (1) *PLA+, ASA, PETG*

Print Settings:

Standard PLA+ 0.2mm Profile

Wall Count: (6)

Infill (Grid): 100%

Print Orientation: Vertical, flat side down.

Supports: Yes / Tree / 30° / On build plate only





3D PRINT FILES

16. GPS Cover

Quantity: (1)

Print Settings:

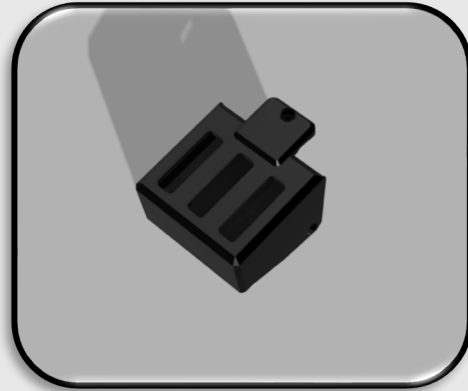
Standard PLA+ 0.2mm Profile

Wall Count: (6)

Infill (Grid): 100%

Print Orientation: Open end facing up.

Supports: No



16. VTX Mount

Quantity: (1) **ASA!!!**

Print Settings:

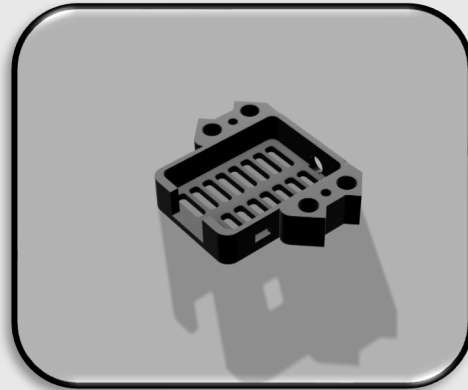
Standard PLA+ 0.2mm Profile

Wall Count: (6)

Infill (Grid): 100%

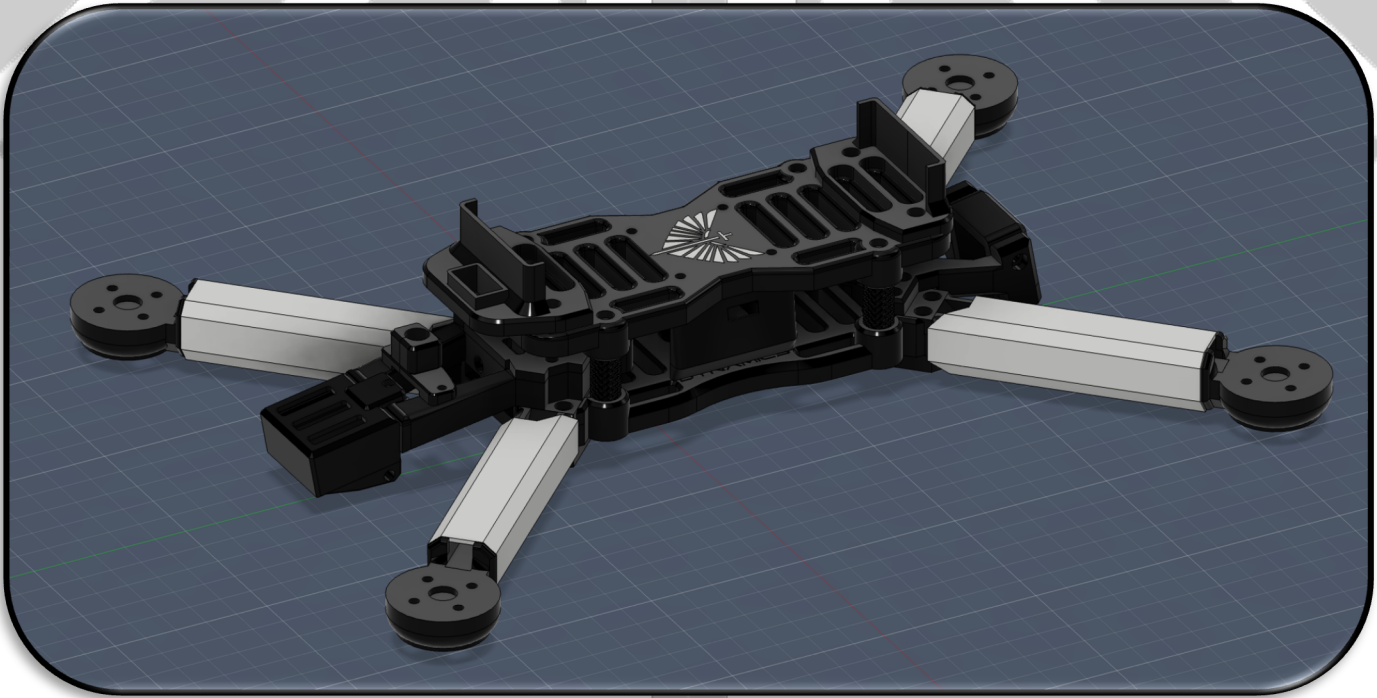
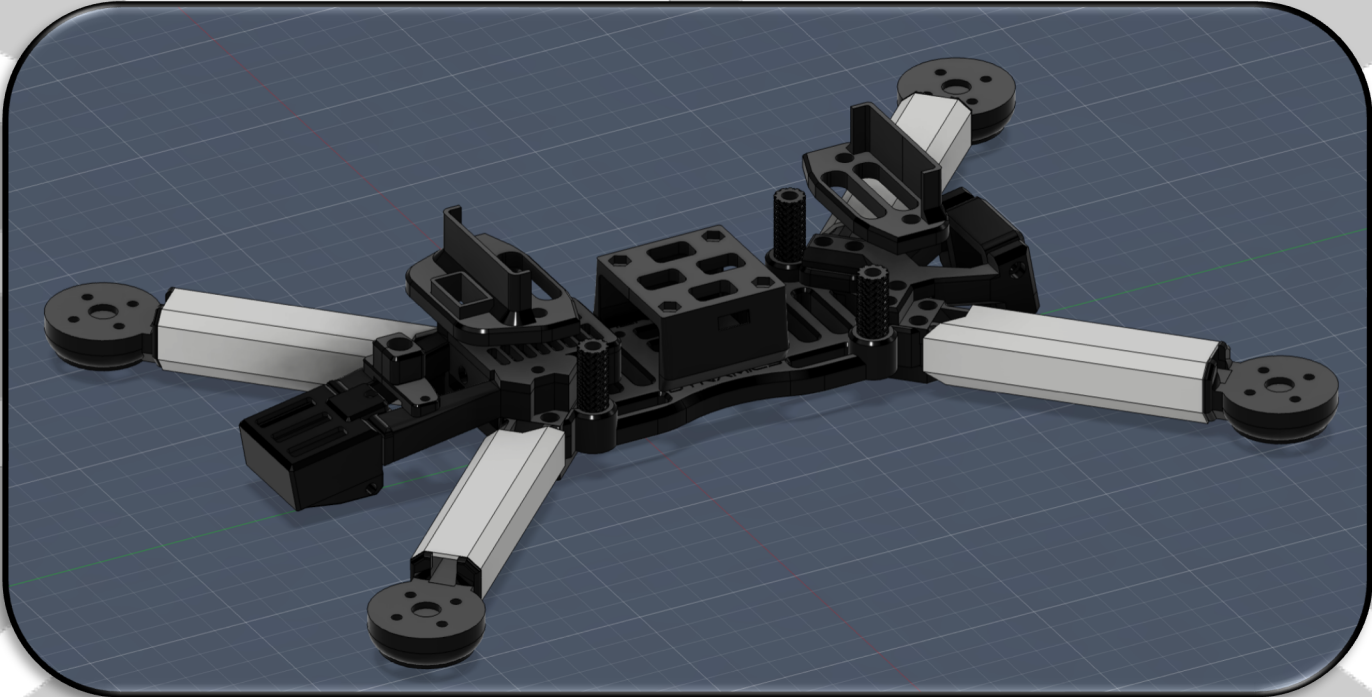
Print Orientation: Open end facing up.

Supports: No





REFERENCE IMAGES





Necessary Hardware

M3 Bolts (8) - 8mm (16) - 12mm (8) - 16mm (4) - 20mm (4) - 24mm	M3 Heat Inserts (14)	
M2 Bolts (5) - 4mm (2) - 6mm	M2 Heat Inserts (7)	
M3 Washers (16)	CA Glue Small amount of CA glue.	
M3 Nuts (20)	Soldering Iron With a (M2, M3) heat insert tip is preferred.	
Hex Bit M2, M3 hex bits/screwdriver.		

Bolt, Nut, Washer Assortment

CA Glue



Recommended Components

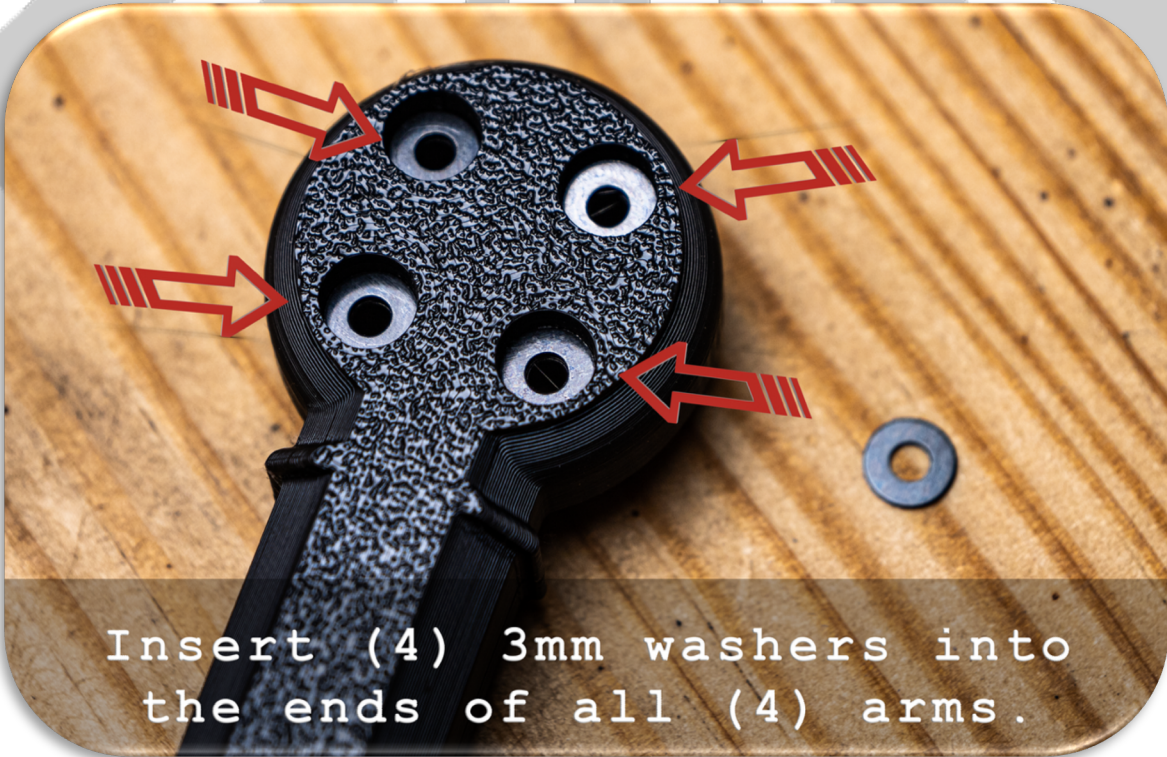
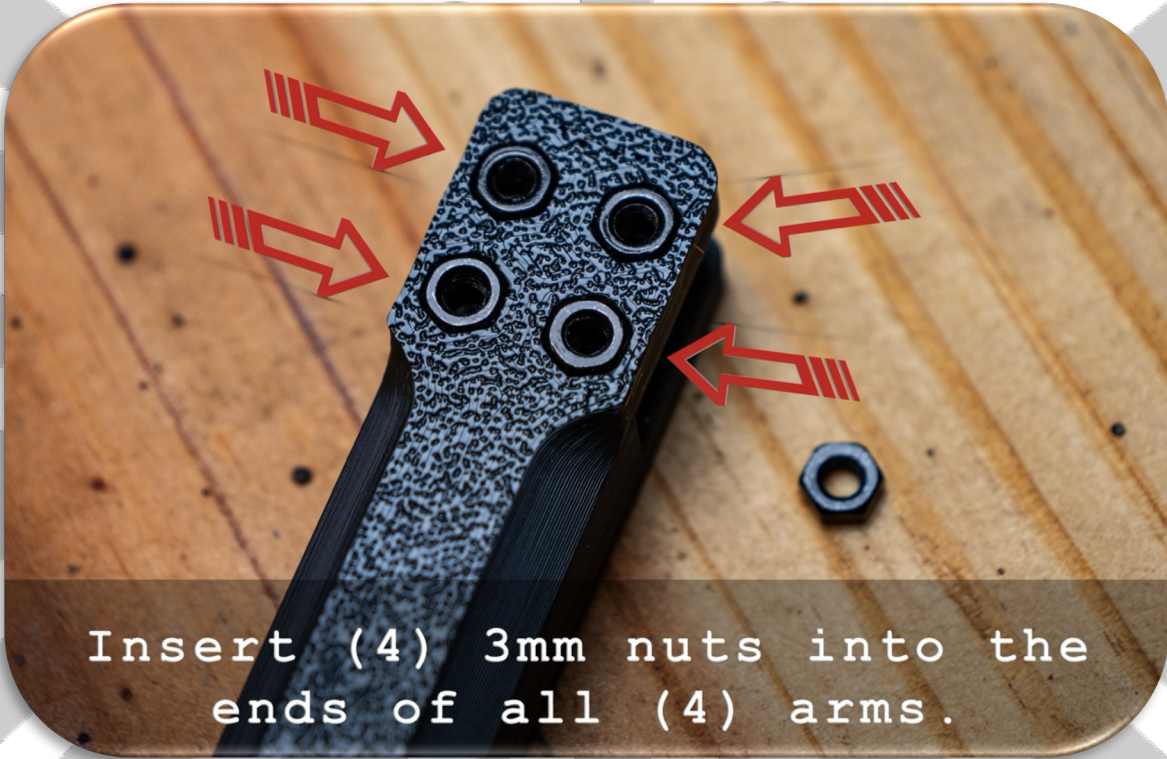
Component	Model
Flight Controller	TBS Lucid H7, Speedy Bee F405, 30mmx30mm Mounting Holes
ESC	55A 4-in-1, Rotor Riot Brave, TBS Lucid 30mmx30mm Mounting Holes
GPS	BZ-251, 25mmx25mmx8mm MUST BE SIMILAR SIZE TO FIT
Motors	2807, 1500kv or similar (4)
Video Transmitter	TBS Unify Pro32 - NDAA version Antenna hole is aligned left, only available with NDAA version.
Video Antenna	TBS Airscrew 5.8Ghz
Camera	FatShark Aura
Receiver	RP1 ELRS RX or similar
Battery Straps	20mmx300mm straps or similar
Filament	PLA+, ASA - (Frame) TPU - (FC Dust Cover)
Antenna Adapter	SMA Female to MMCX Male

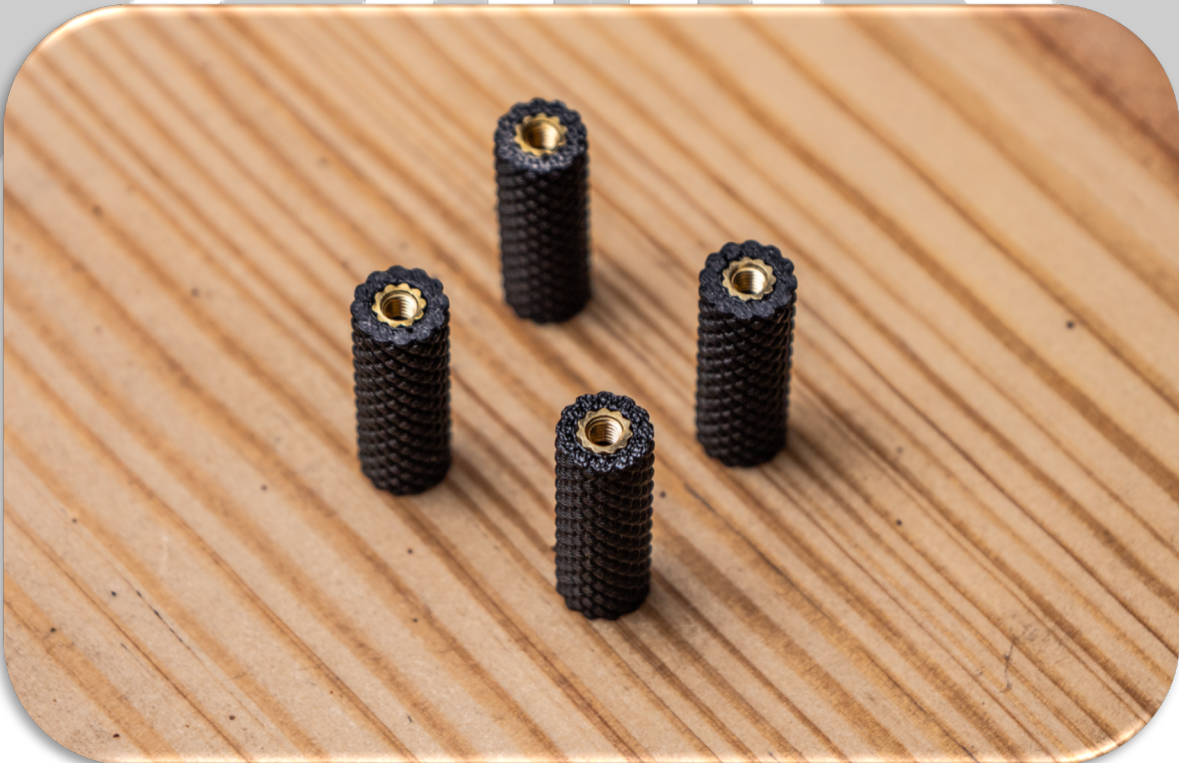
NOTE

The D-71 was built specifically with the listed components above in mind. If the components above are not used, there is no guaranteed fitment of substitute parts. Please consider that improper print settings might cause fitment issues and sanding/filing down specific pieces might be required.

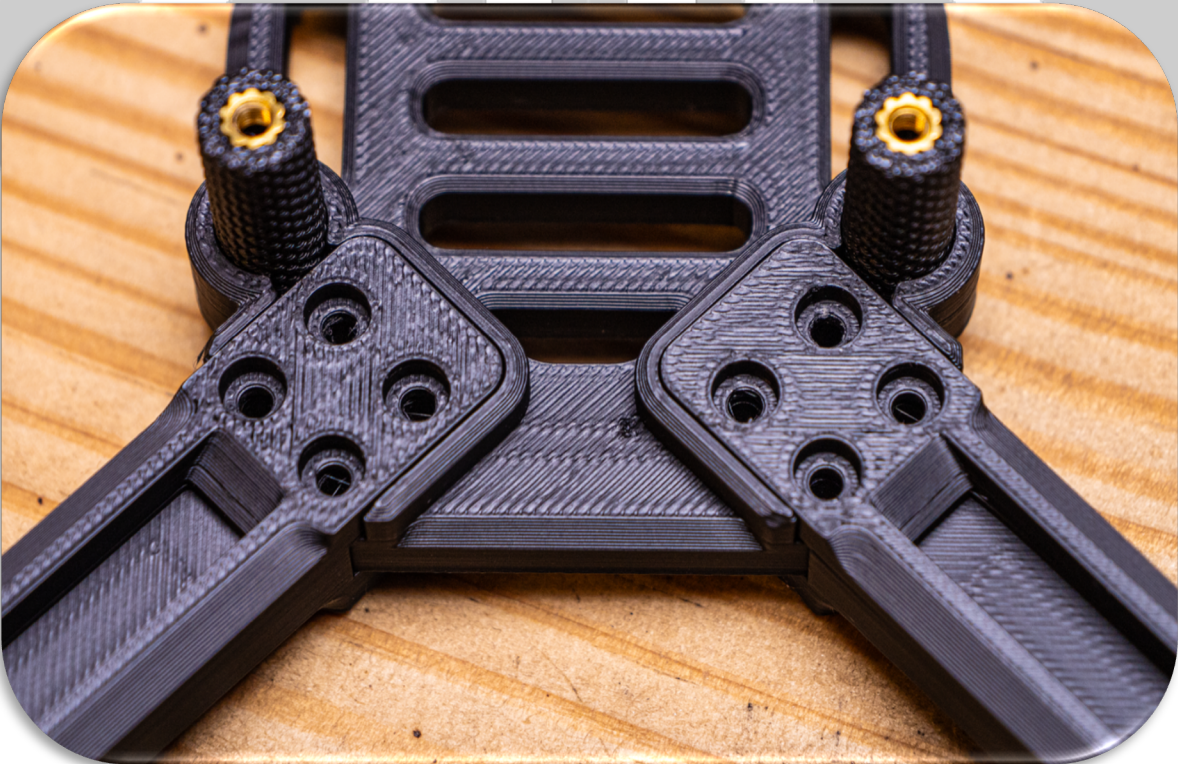
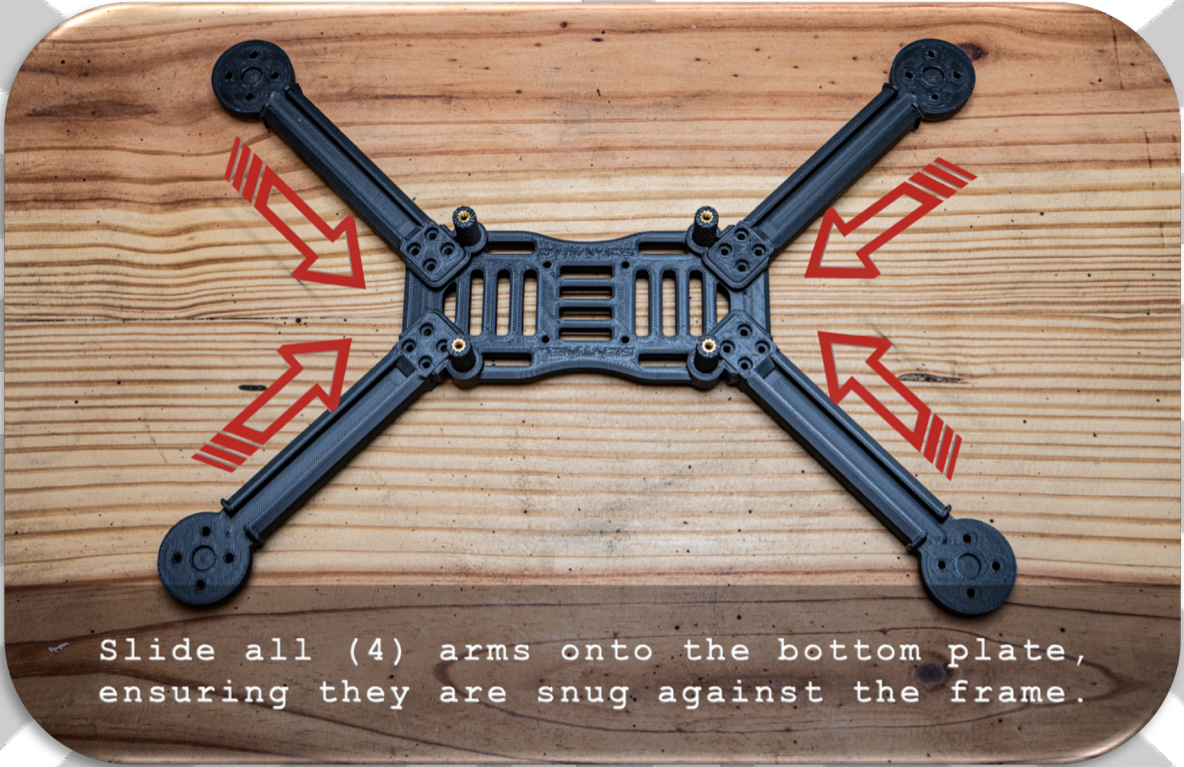


ASSEMBLY MANUAL







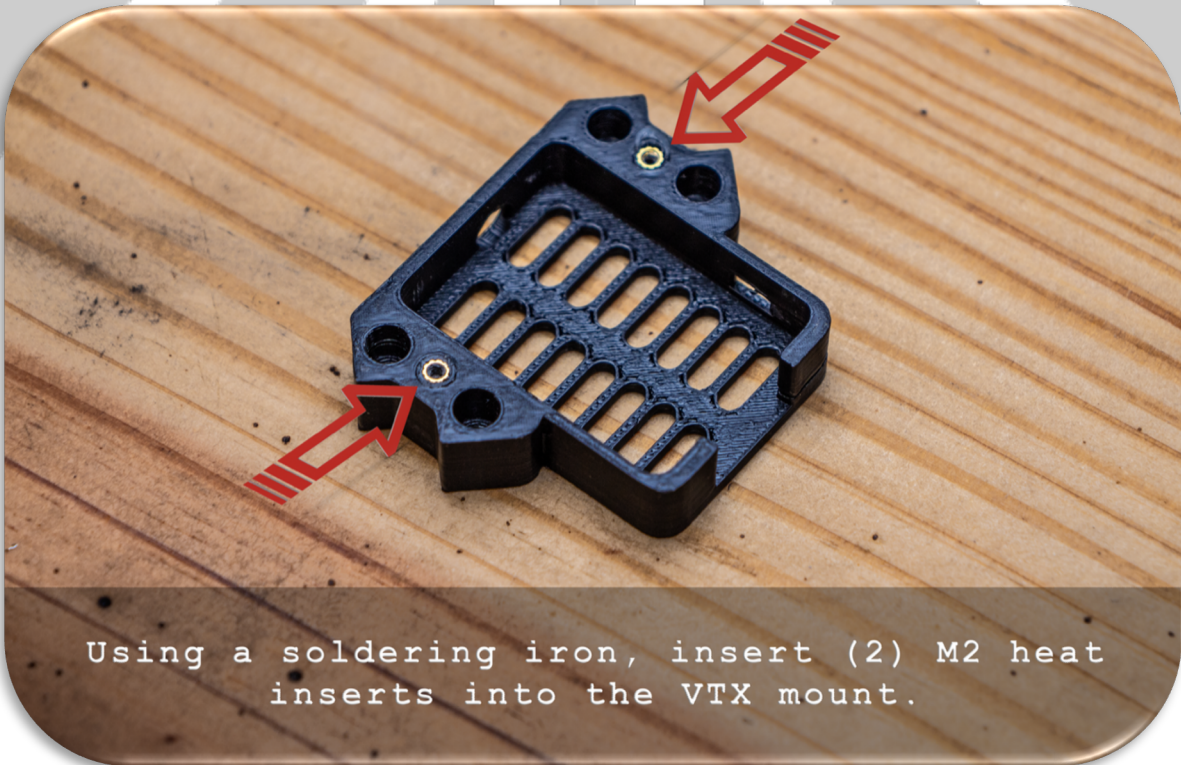


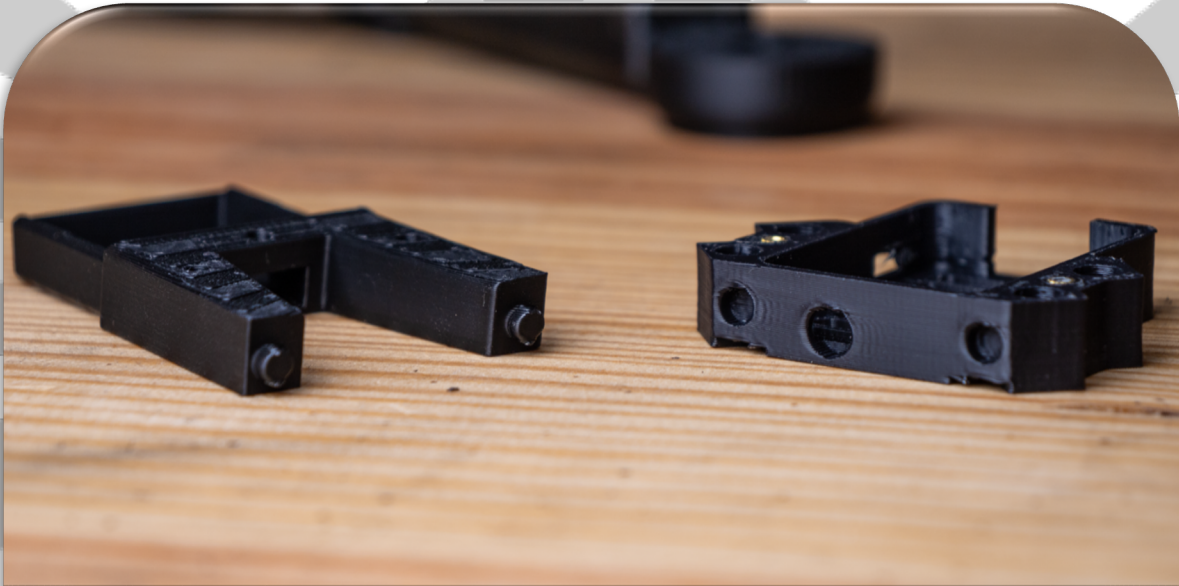


Fasten the camera mount to the frame using
(4) 20mm M3 bolts.

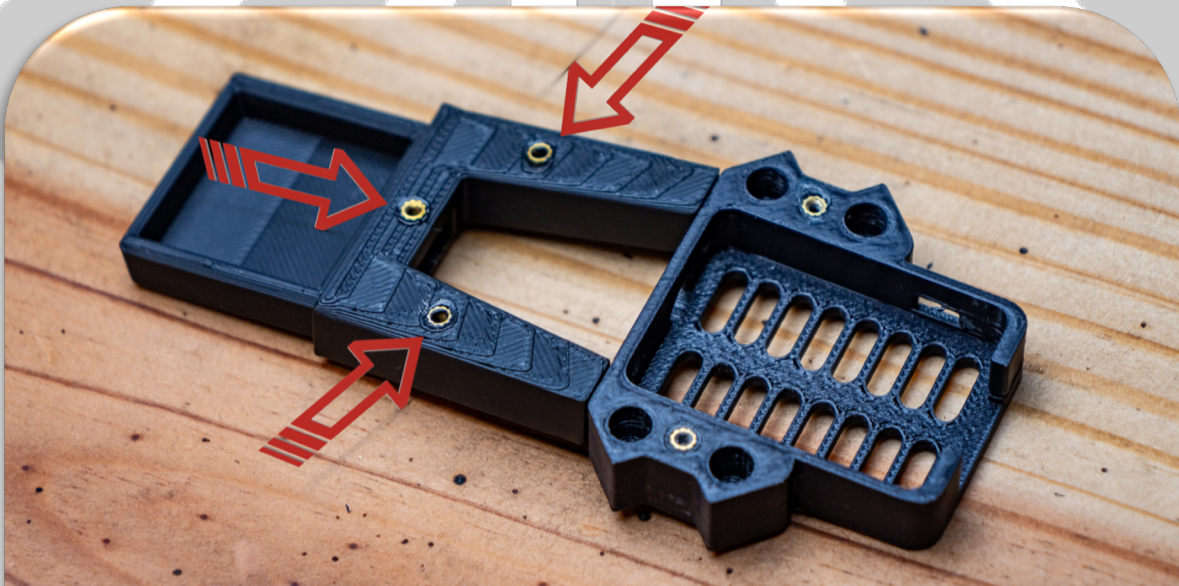


Finish fastening the arms to the frame
using (4) 16mm M3 bolts.

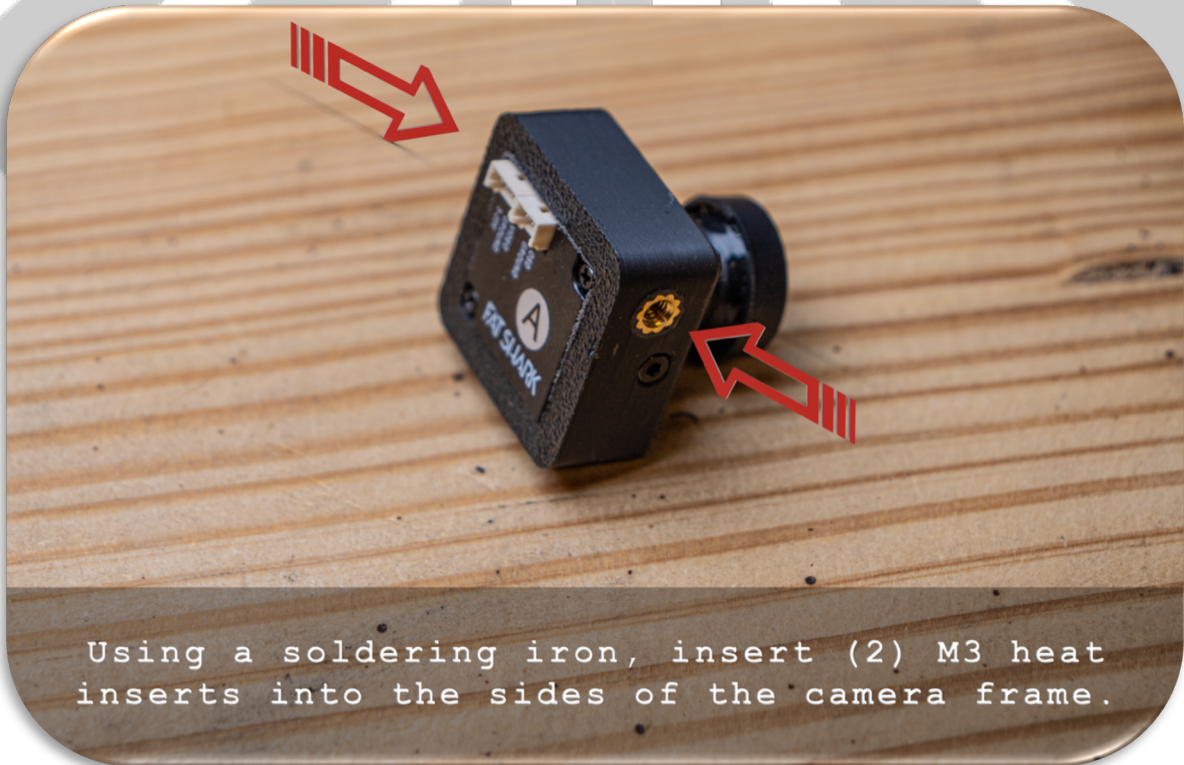
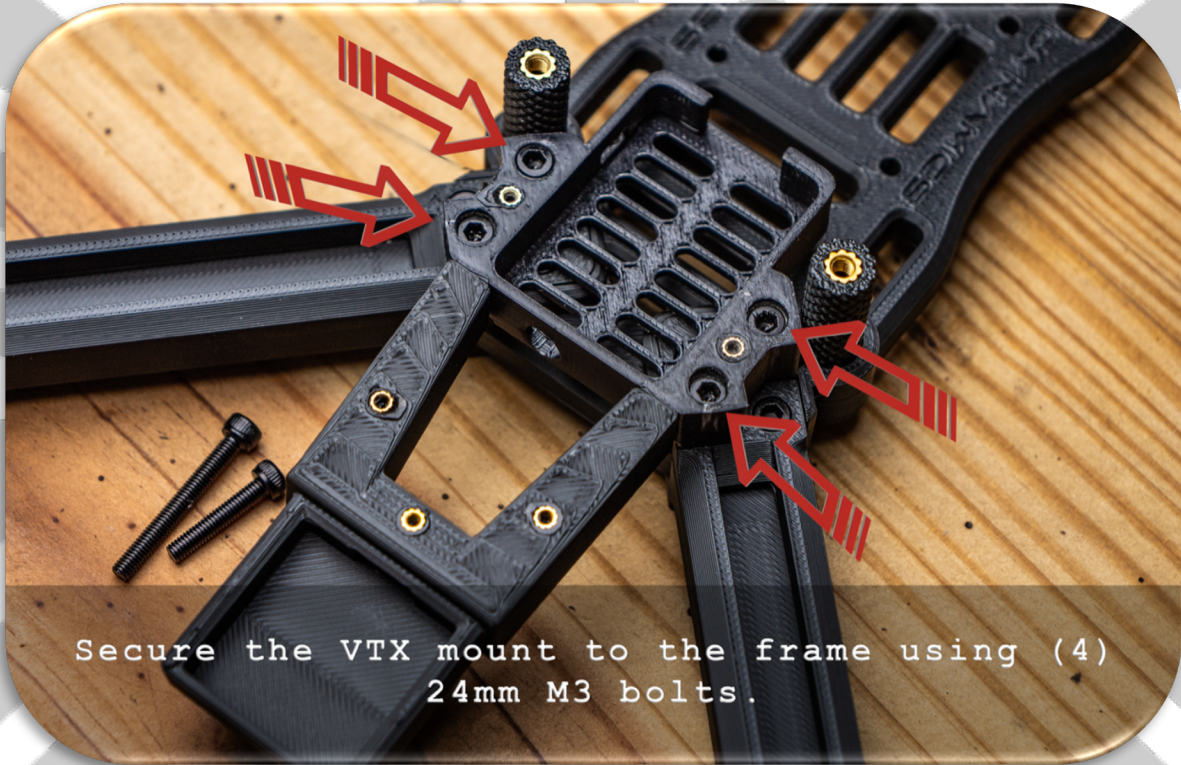




Attach the GPS arm/mount to the VTX mount by applying CA glue and then inserting the two pegs into the VTX mount.



Using a soldering iron, insert (3) heat inserts into these 3 locations on the GPS arm/mount.

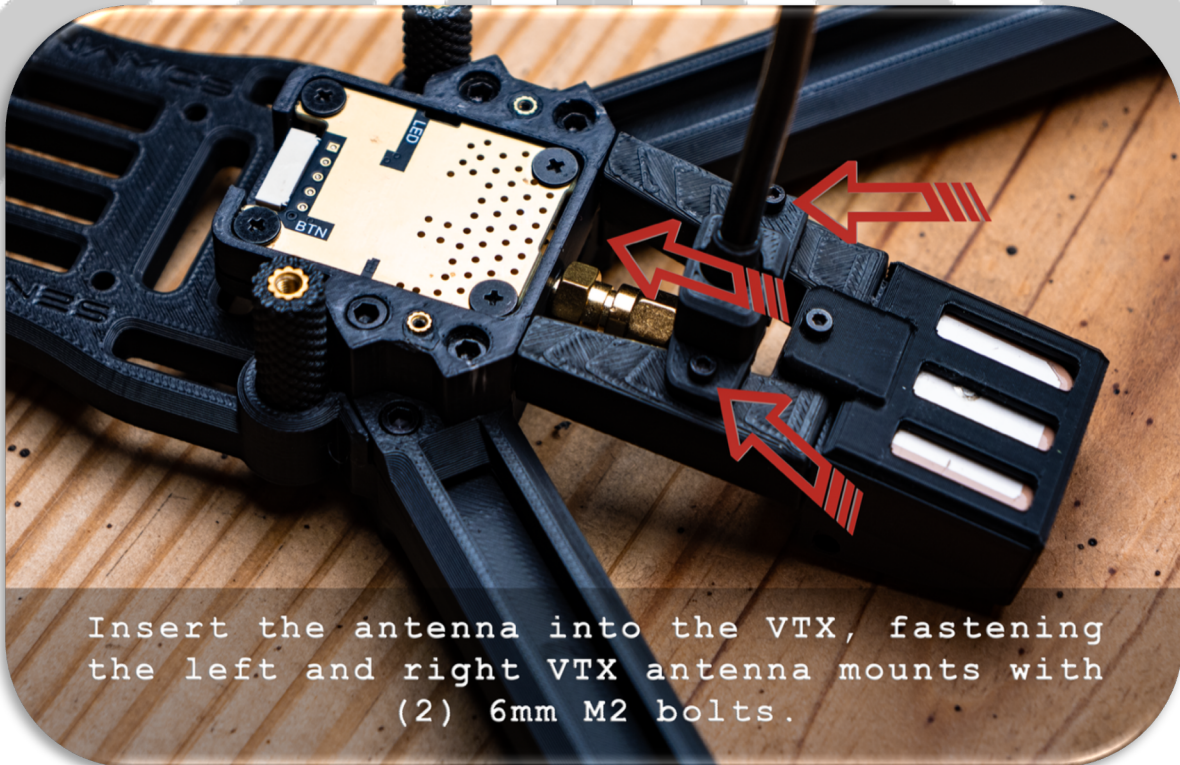




Fasten the camera frame to the camera mount using (2) 6mm M3 bolts.



Fasten the GPS cover onto the mount using (1) 4mm M2 bolt.

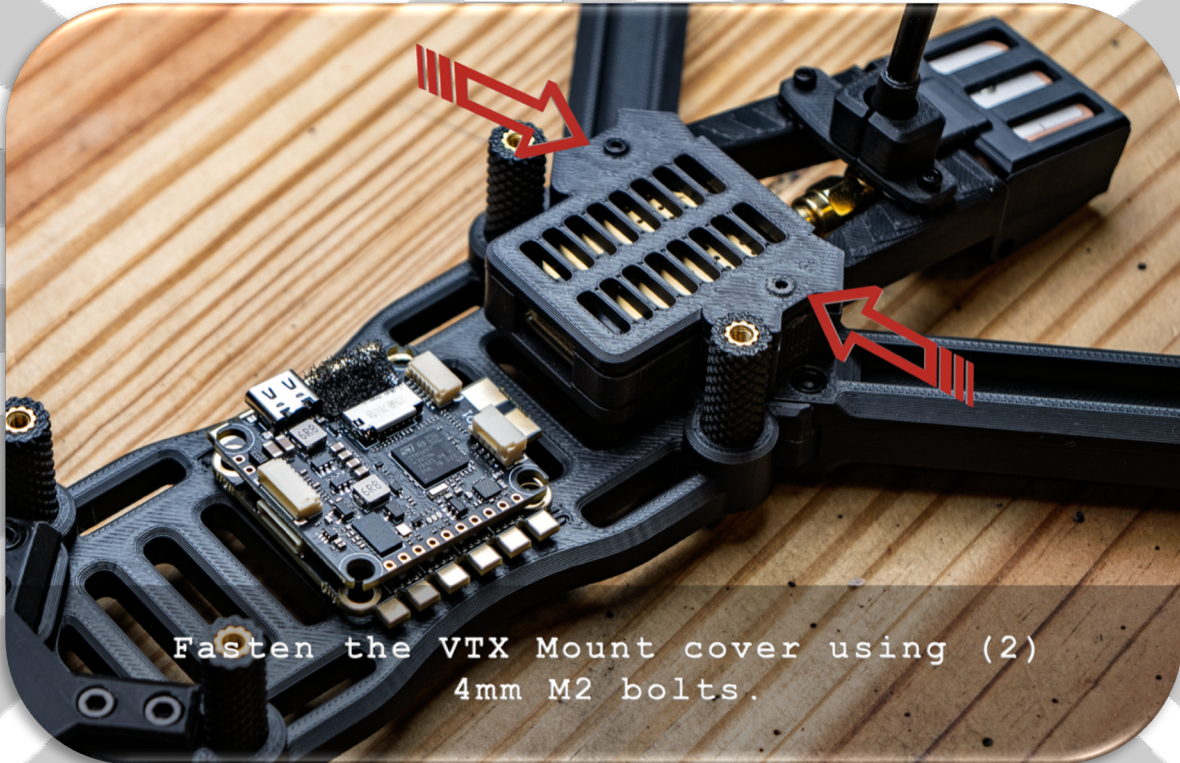




Fasten the Battery Mount (rear) and Battery Mount (front) to the Top Plate using (4) 8mm M3 bolts.



Install the battery straps of your choice. These straps are Lumenier Kevlar (20x300mm).



Fasten the VTX Mount cover using (2)
4mm M2 bolts.



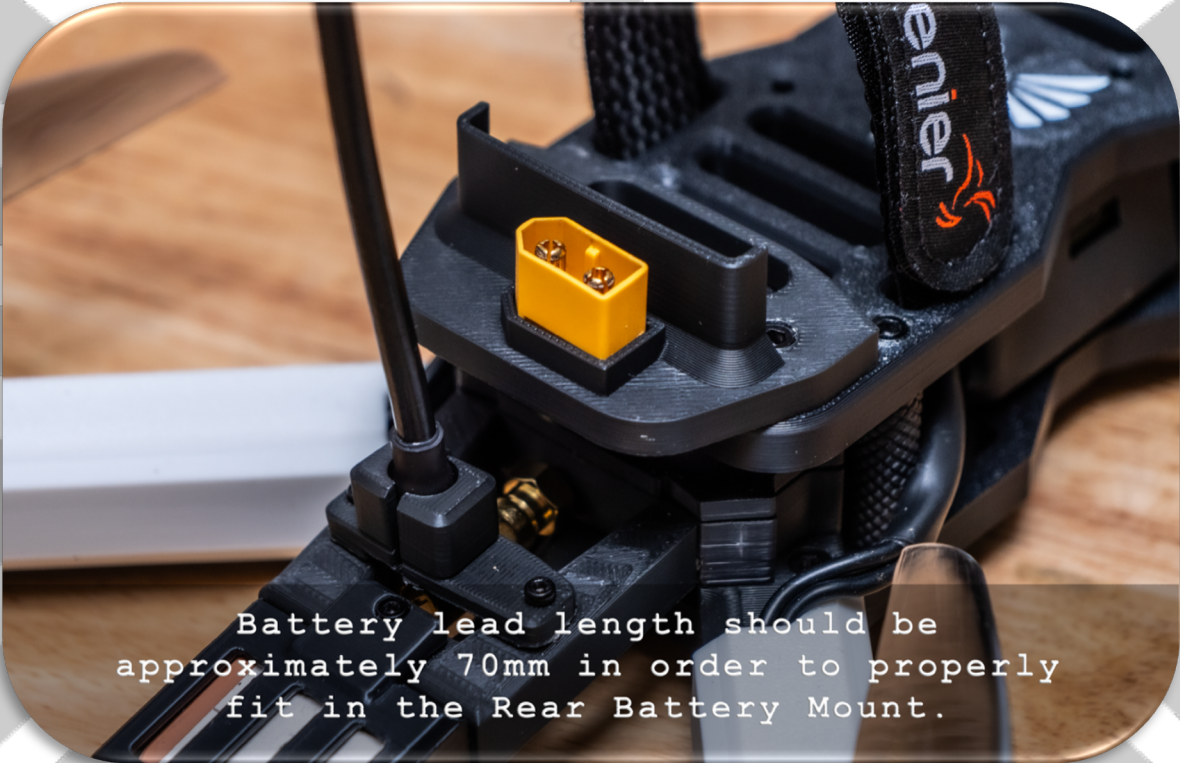
The frame has been assembled and you are
now ready to start installing the motors
and electronics.



Your ELRS antenna will fit snug inside the mounting bracket found under the GPS Mount.



This image shows the routing of the motor wires, capacitor location, and camera wires.



Battery lead length should be approximately 70mm in order to properly fit in the Rear Battery Mount.





Terms of Use

The D-71 airframe and associated design files are the property of **Sentinel Dynamics LLC**. By building, printing, or operating this platform, the user acknowledges and agrees to the following terms:

1. Non-Commercial Use

The D-71 design files are supplied for **personal and demonstration purposes only**. Users may print, assemble, and modify the D-71 for personal use; however:

- Commercial redistribution of files or physical prints is **not permitted**
- Files may not be shared, uploaded, copied, or distributed without written permission
- Selling frames, kits, or derivative models requires a separate commercial license

All rights remain with Sentinel Dynamics LLC.

2. Safety & Responsibility

Operation of any UAV carries inherent risk. By using this design, the user agrees to:

- Ensure safe operation in accordance with local and federal regulations
- Maintain visual line-of-sight unless operating under approved authorization
- Perform pre-flight inspections and build verification prior to flight
- Accept full responsibility for any damage, injury, or legal consequences

Sentinel Dynamics LLC is **not liable** for improper use, crashes, injury, property damage, or regulatory violations.

3. Modifications

The user may modify the design for fitment or personal customization.

However:

- Modified versions are **still subject to non-commercial restrictions**
- Derivative designs may not be sold or redistributed without licensing approval

4. Warranty Disclaimer

This product is provided **as-is**, without warranty of any kind, express or implied.

Performance may vary based on materials, printer settings, environmental conditions, and build quality.

5. Acceptance of Terms

Use of the design files, printing, or assembly of the D-71 constitutes agreement to this Terms of Use.

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