

C O N T E N T S

01 – BILL OF MATERIAL

02 – REQUIRED TOOLS

03 – BUILD PREPARATION

04 – ASSEMBLY PROCESS

05 – OPTIONAL HD CAMERA MOUNT INSTALLATION

QUANTITY	PART DESCRIPTION
4	Arm Perimeter Brace (3mm CF)
4	Arm Perimeter Brace (4mm CF)
2	Arm (Type 1) (2.5mm CF)
1	Arm (Type 2) (2.5mm CF)
1	Arm (Type 3) (2.5mm CF)
1	FPV Camera Mount Plate (1mm CF)
1	Vtx Mount Plate (1mm CF)
1	Fuselage Box Bottom Plate (1mm CF)
4	Motor Mount (Black Anodized Aluminum)
4	Fuselage Box Bracket (Black Anodized Aluminum)
2	Rollbar Standoff (Black nylon M3 thread x 45mm long)
4	Plastic Spacer (Black plastic M3 hole x 7mm OD x 5mm long)
4	Plastic Spacer (Black plastic M3 hole x 7mm OD x 2mm long)
1	FPV Camera Mounting Nut -Type 1 (M3 x stainless steel)
2	FPV Camera Mounting Nut - Type 2 (1-72 x stainless steel)
1	FPV Camera Mounting Washer - Type 1 (M3 x aluminum)
2	FPV Camera Mounting Washer - Type 2 (#2 size x steel)
1	FPV Camera Mounting Button Head Screw (M3 x 5mm long x steel)
2	FPV Camera Mounting Socket Head Screw (1-72 x 3/16" long x steel)
4	Hex Standoff 'Female – Female' (Black plastic M3 thread x 10mm long)
4	Hex Standoff 'Female – Female' (Black plastic M3 thread x 12mm long)
4	Hex Standoff 'Male – Female' (Black plastic M3 thread x 8mm long)
2	Phillips Head Screw (Black plastic M3 thread x 12mm long)
2	Phillips Head Screw (Black plastic M3 thread x 14mm long)
8	Button Head Screw (M3 x 8mm long x blue 7075 aluminum)

24	Socket Head Screw (M3 x 8mm long x blue 7075 aluminum)
32	Socket Head Screw (M3 x 6mm long x blue 7075 aluminum)
16	Socket Head Screw (M3 x 4mm long x stainless steel)
1	Velcro Lipo Strap – Catalyst Machineworks
1	Stigg GoPro Camera Mount (Black 3D Printed TPU) - <i>*Optional - Not Included. Sold separately*</i>
1	Stigg Xiaomi Yi Camera Mount (Black 3D Printed TPU) - <i>*Optional - Not Included. Sold separately*</i>
1	Stigg Mobius / Runcam Camera Mount (Black 3D Printed TPU) - <i>*Optional - Not Included. Sold separately*</i>
1	Stigg GoPro Session Camera Mount (Black 3D Printed TPU) - <i>*Optional - Not Included. Sold separately*</i>

QUANTITY	TOOL DESCRIPTION
1	File (not required but suggested)
1	Sandpaper (not required but suggested)
1	2mm allen driver or allen wrench
1	2.5mm allen driver or allen wrench
1	5.5mm socket driver
1	Small phillips head screw driver
1	Needle Nose Pliers
1	Open face wrenches (5.5mm) and (6.5mm), or adjustable
1	Loctite
3	Adult beverage of choice or apple juice if you are under 21

Build preparation involves rounding off the corners of sharp carbon fiber edges which may come into contact with wiring. This is not absolutely necessary to fly your Stigg, but it is highly recommended and standard practice among top builders and racers. Catalyst Machineworks carbon fiber plate parts are cut by state of the art CNC machines. Cutting the raw material could leave a sharp edge on parts and it is possible this edge could rub against wiring insulation, resulting in wiring shorts against the frame. Rounding the edges is quite easy to do, but does take some time as the process must be done with caution. Take your time and do it right, scratches on the flat surface will show. Keep that carbon fiber looking good! To round the edge of the carbon fiber simply take a file or sanding block and hold the sanding edge at a 45° angle to the sharp edge. Work the sanding surface along the edge of the part until the sharp edge is gone. You want a smooth, rounded edge along the entire interior perimeter of the hole. You don't need to concern yourself with sanding all carbon fiber edges. Only the locations where wiring will be present. The following areas are of concern:

1. ESC pass-through slot – There is one slot in each arm of the Stigg where the main power / signal wires for the ESC are run through the arm and into the center fuselage box. Sand this slot in each arm (blue highlighted edge below).
2. Bottom edge of each arm – The wiring running from the motor and along each arm should be run under the arm riding the trailing edge of the arm. Sand this bottom 'trailing edge' of each arm (blue highlighted edge below).
3. Main Lipo Pigtail exit – The wire pigtail for the main lipo exits the bottom of the craft through two slots in the ' Fuselage Box Bottom Plate'. Sand these slots (blue highlighted edge below).



WARNING: WEAR A PROTECTIVE FACE MASK WHEN SANDING CARBON FIBER. IT IS TOXIC TO YOUR LUNGS!

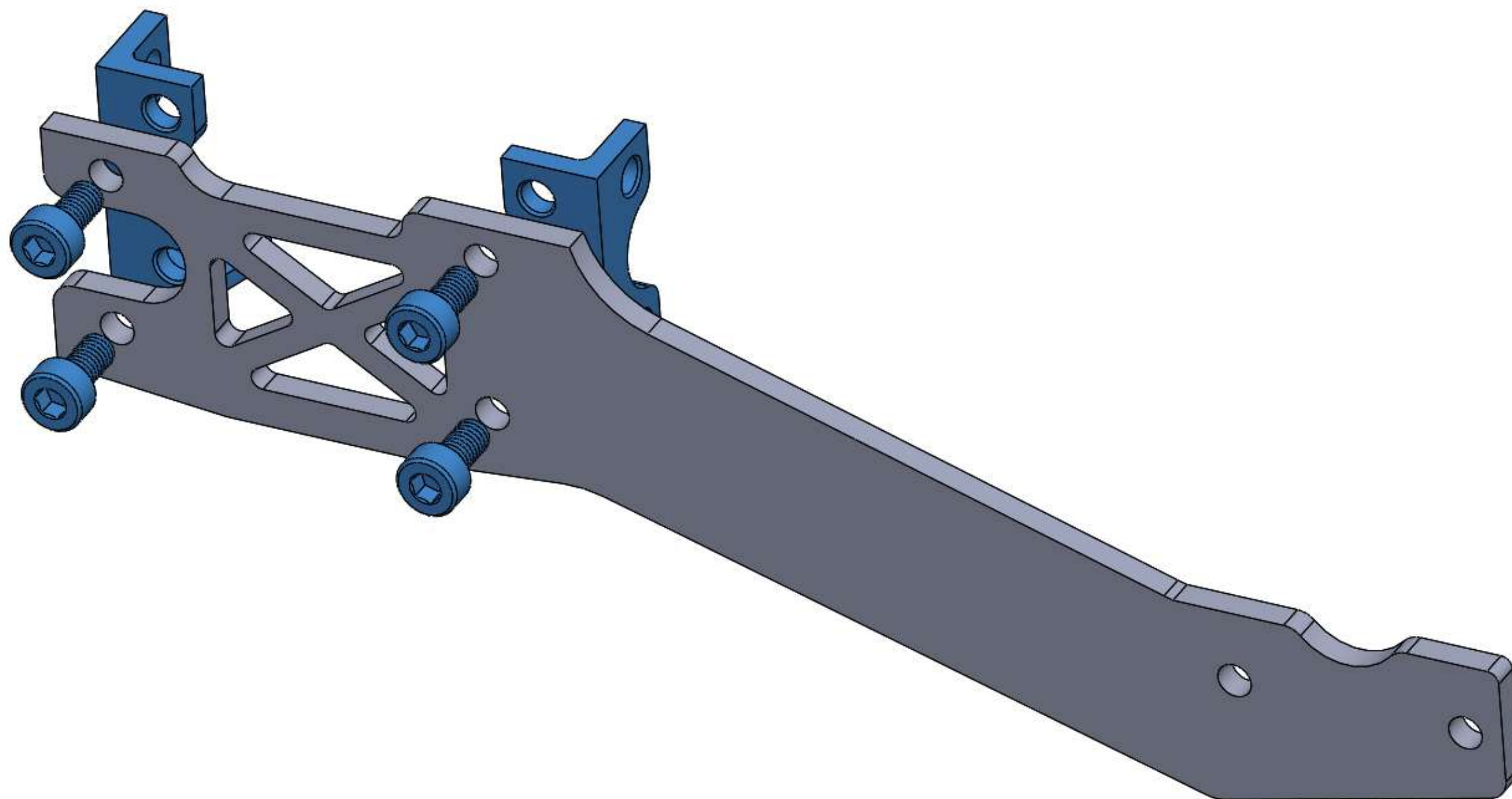
STEP 1

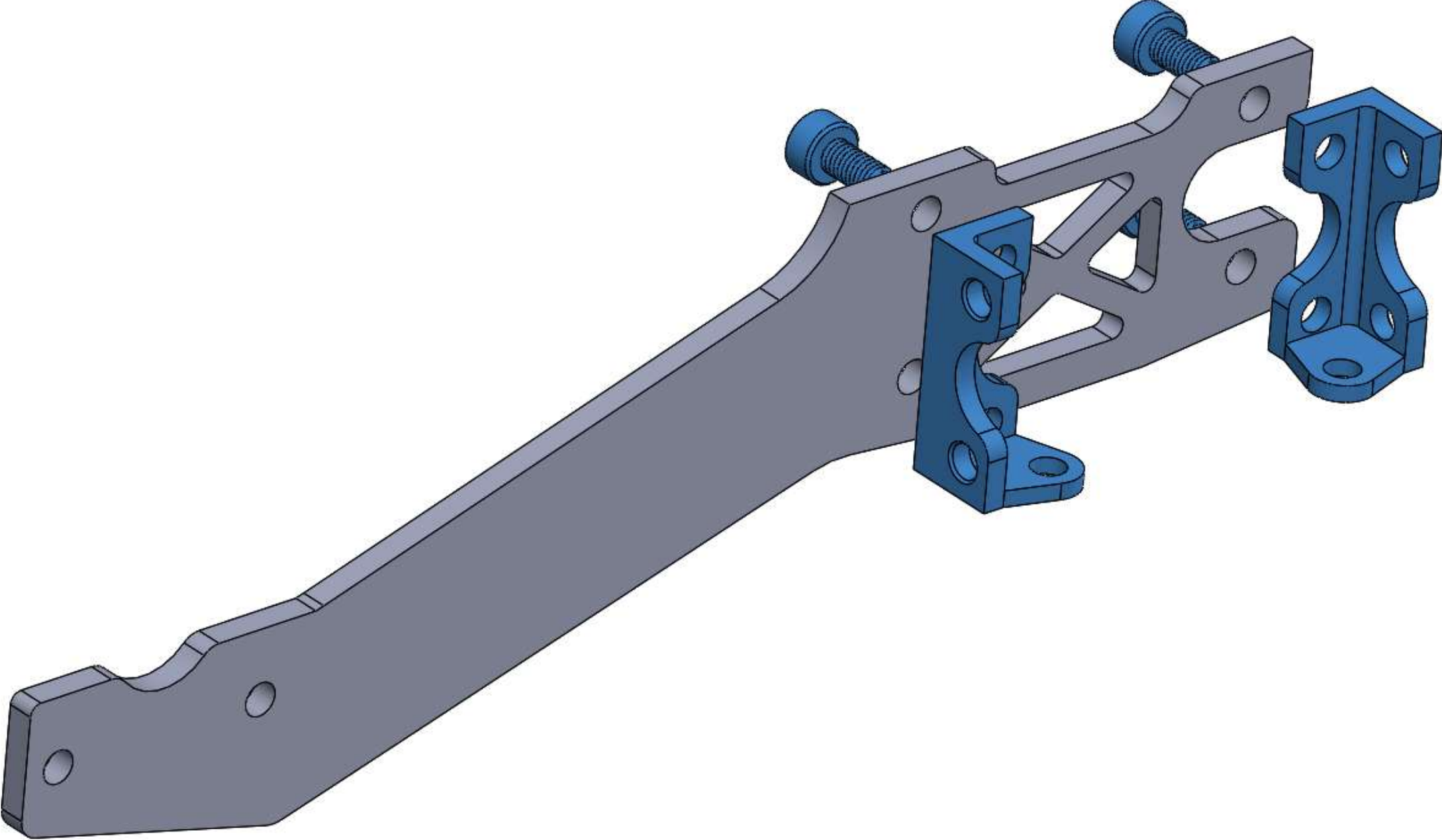
Parts Required:

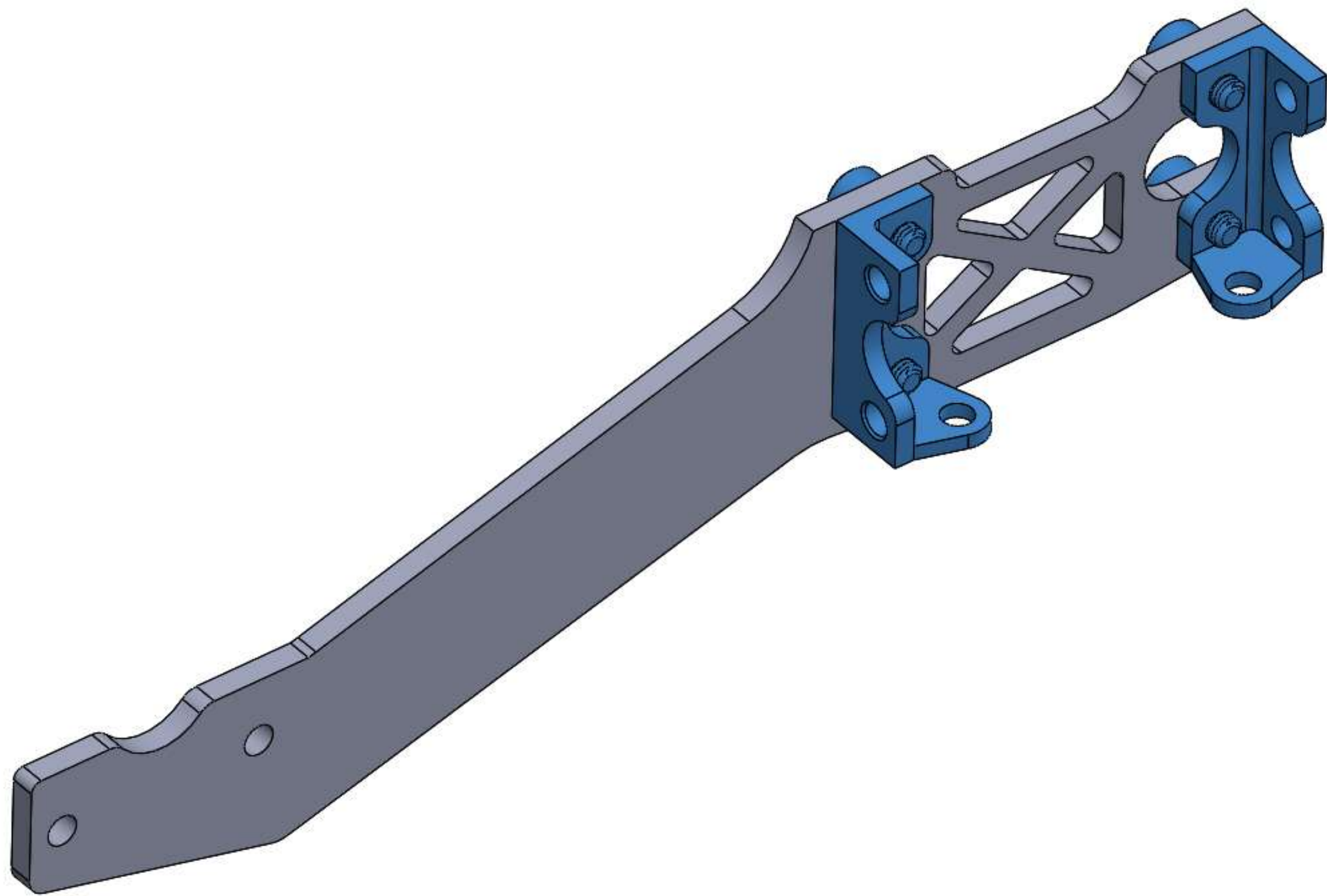
Quantity	Part Description
2	Arm (Type 1) (2.5mm CF)
1	Arm (Type 2) (2.5mm CF)
1	Arm (Type 3) (2.5mm CF)
4	Fuselage Box Bracket (Black Anodized Aluminum)
16	Socket Head Screw (M3 x 6mm long x blue 7075 aluminum)

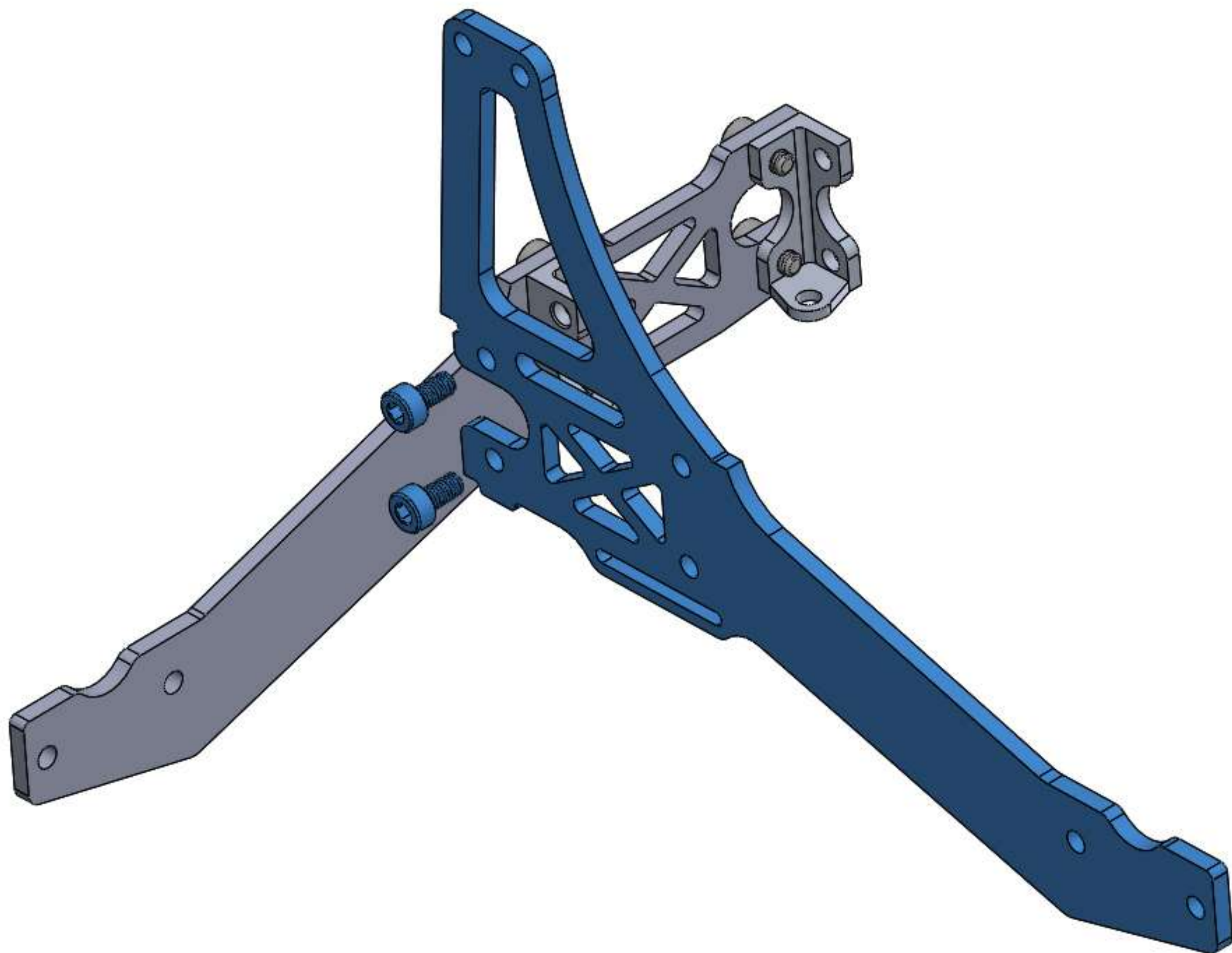
Assembly Process:

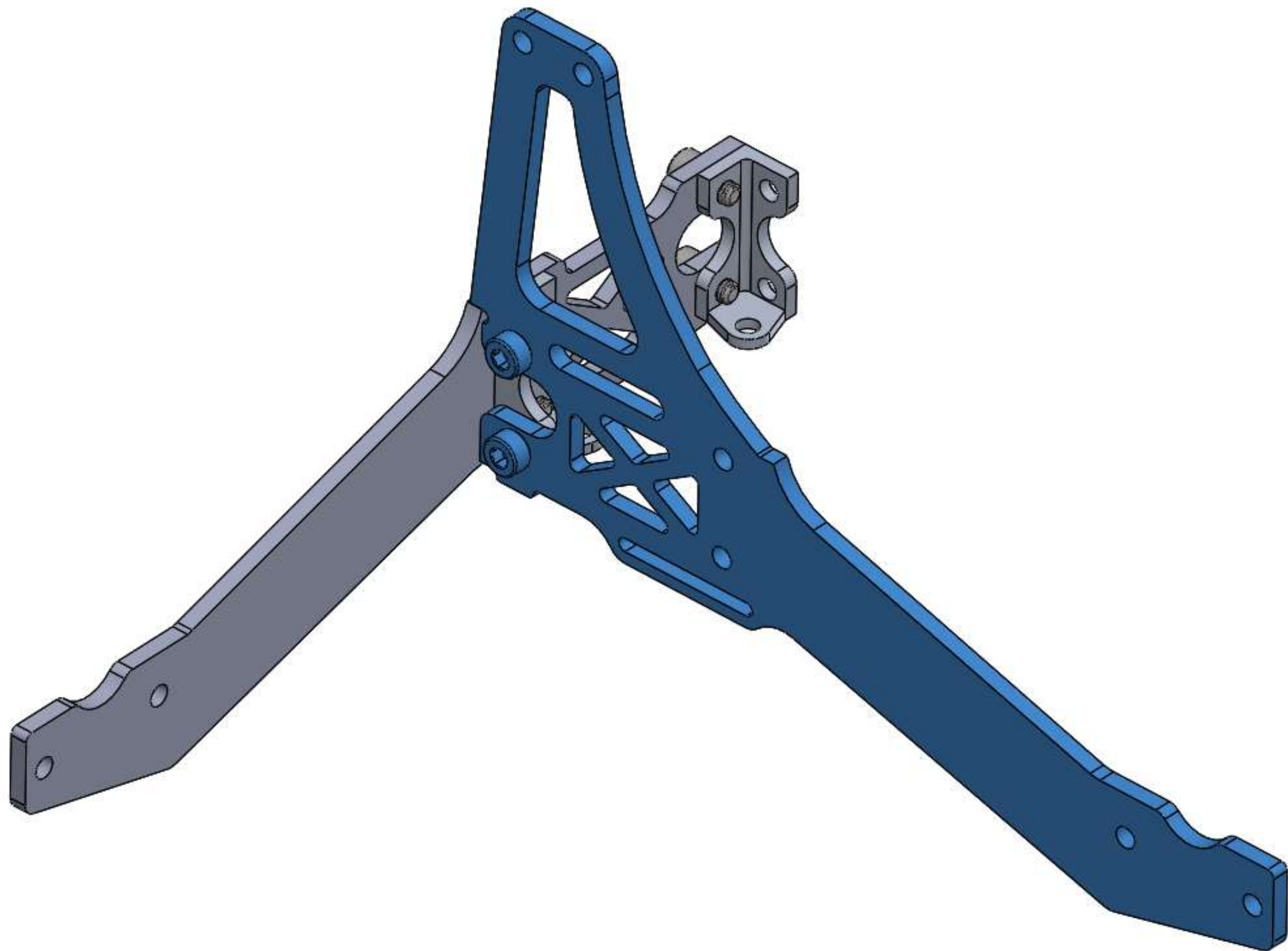
Join the arms, brackets, and screws together per the procedure below. We suggest against using loctite on the screws here, but make sure to torque screws down tight. Please be aware that for most of the interfaces where a screw runs through a hole in a carbon fiber part you will find a tight fit. Assembly may require some force to get the screw through the hole. **This is by design.** The reason for this tight fit relates to crash resilience of the machine. During a crash parts can shift if there is 'slop' between fastener/hole interfaces. We want The Stigg to come out of a crash exactly as it came into the crash, with all parts sitting exactly where they should be. Nothing shifted or misaligned.

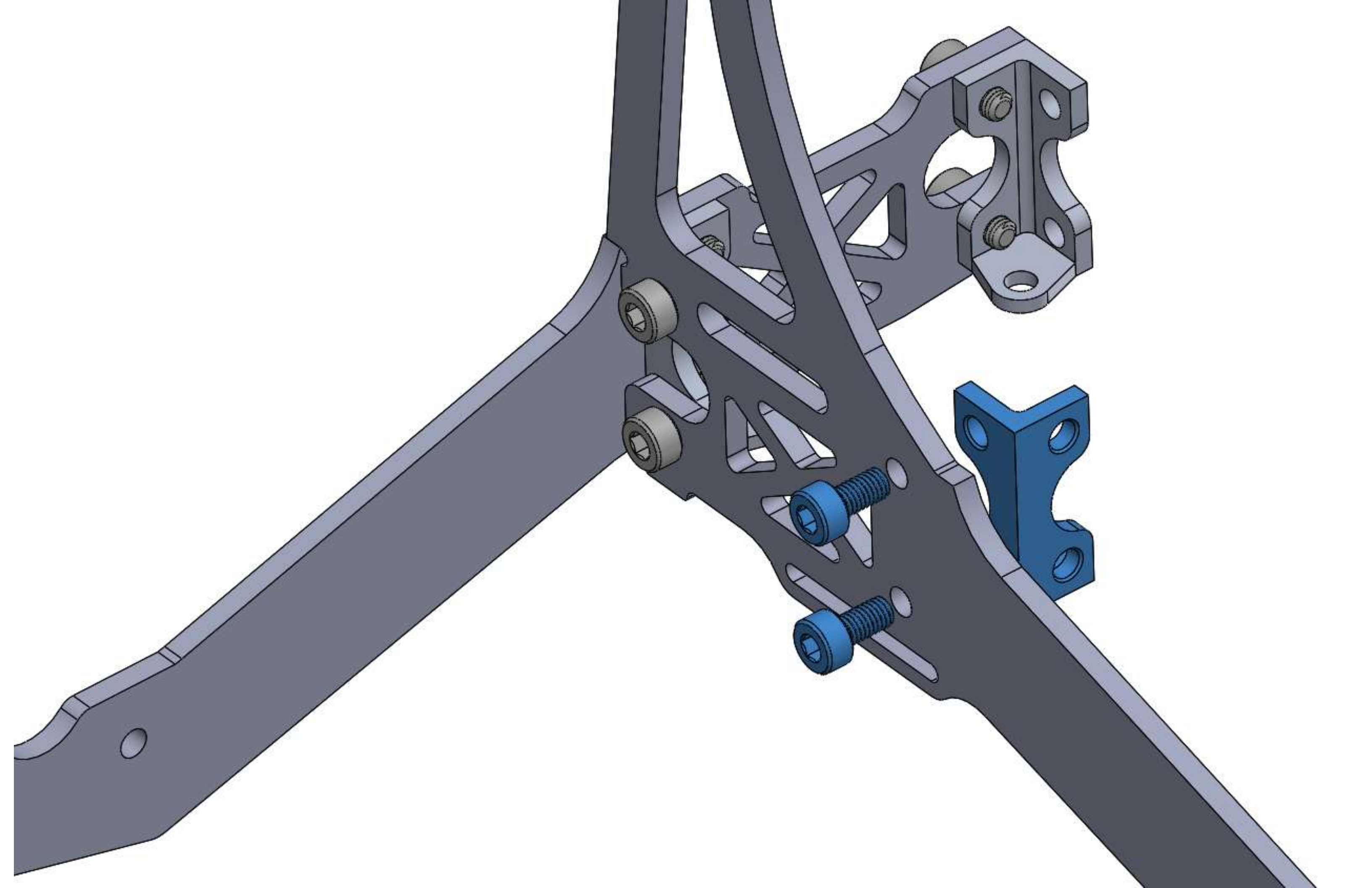


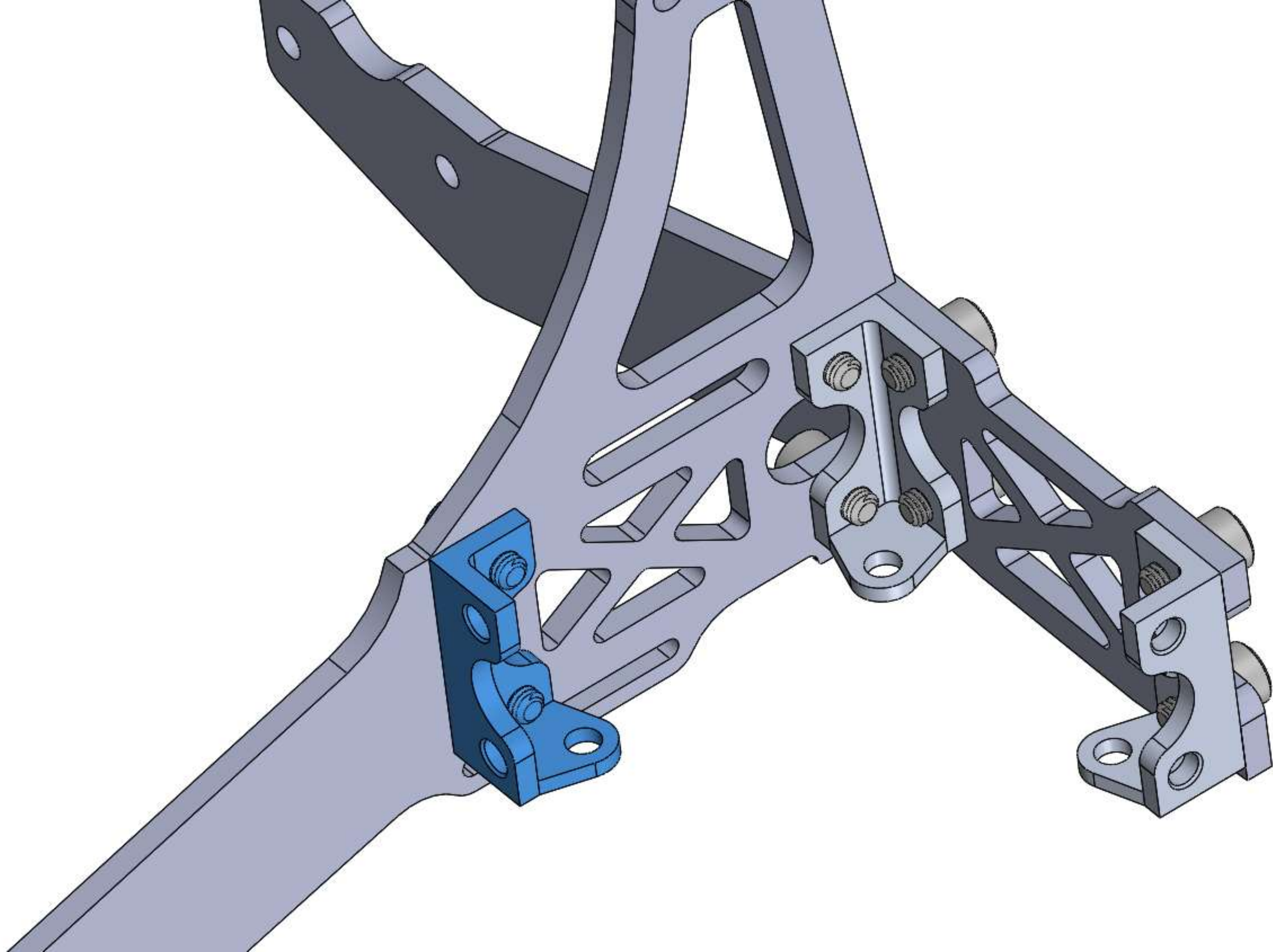


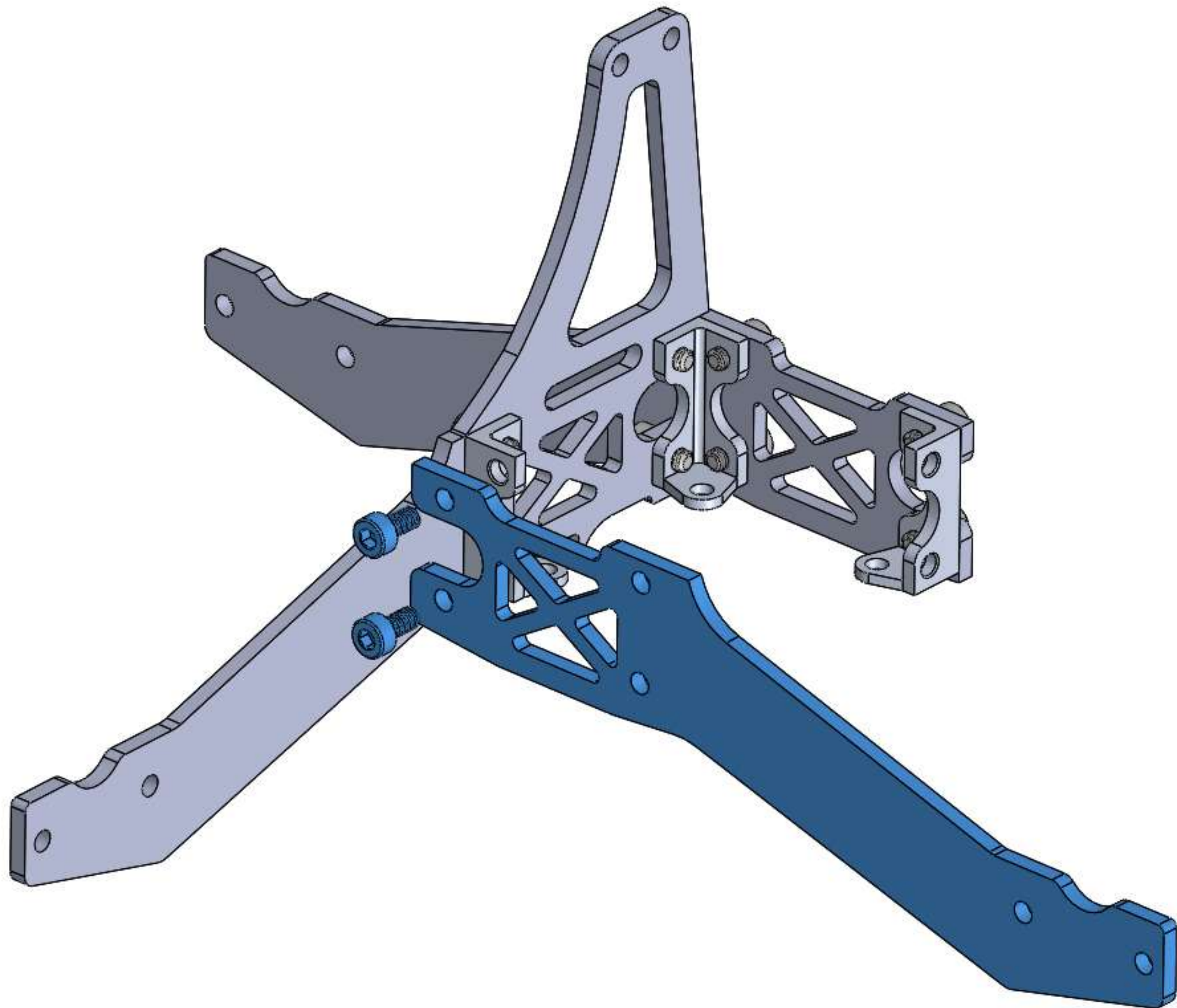


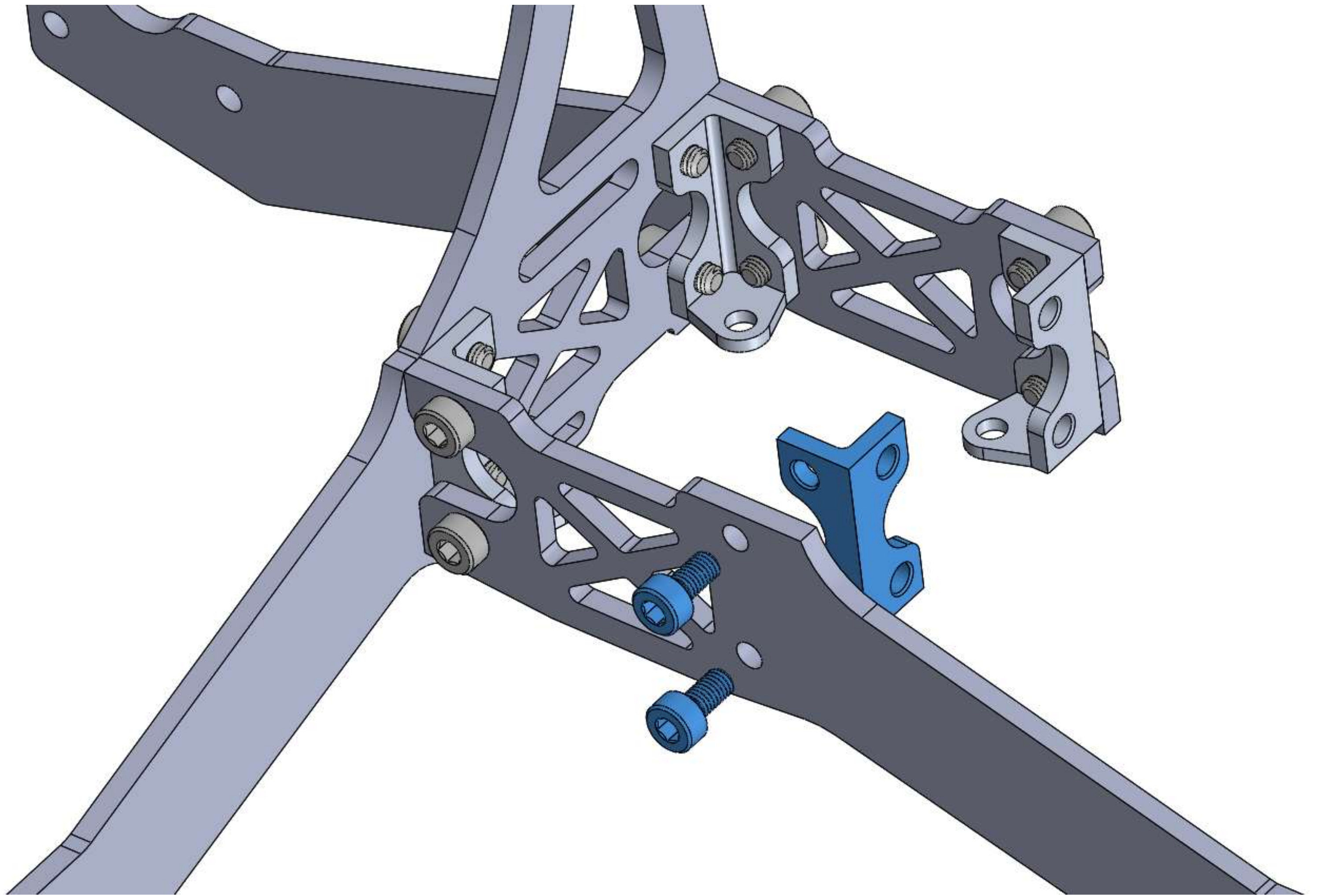












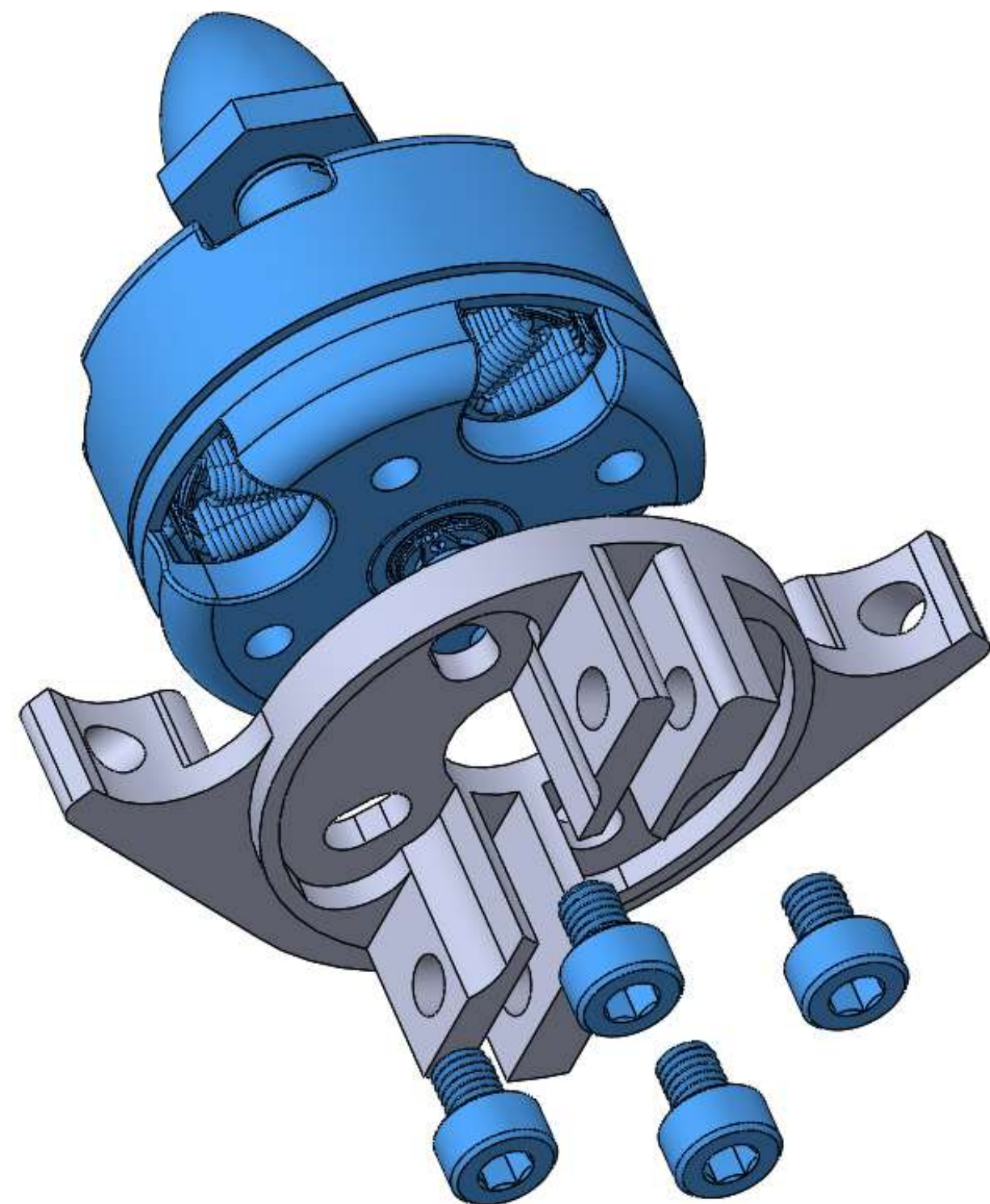
STEP 2

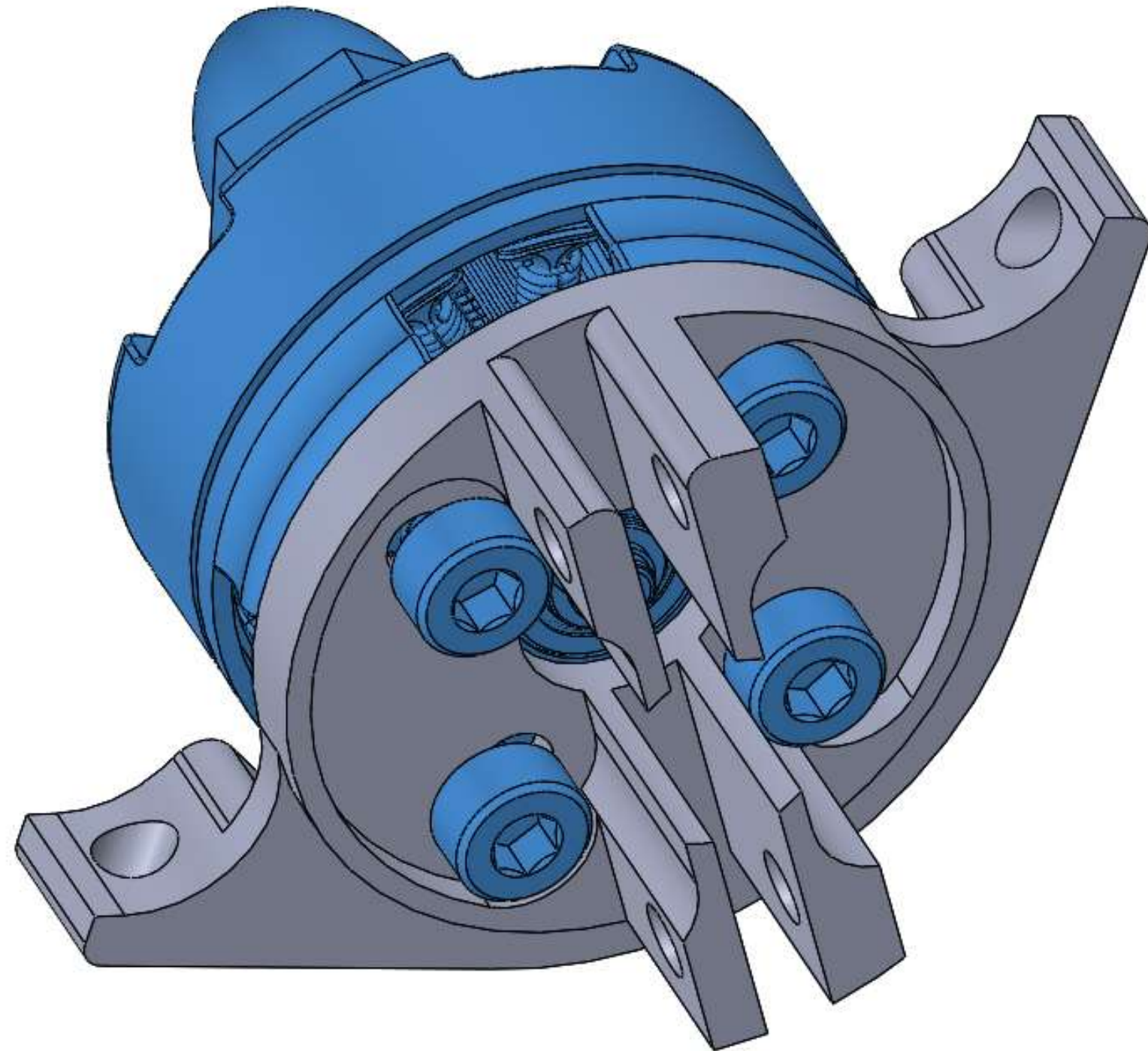
Parts Required:

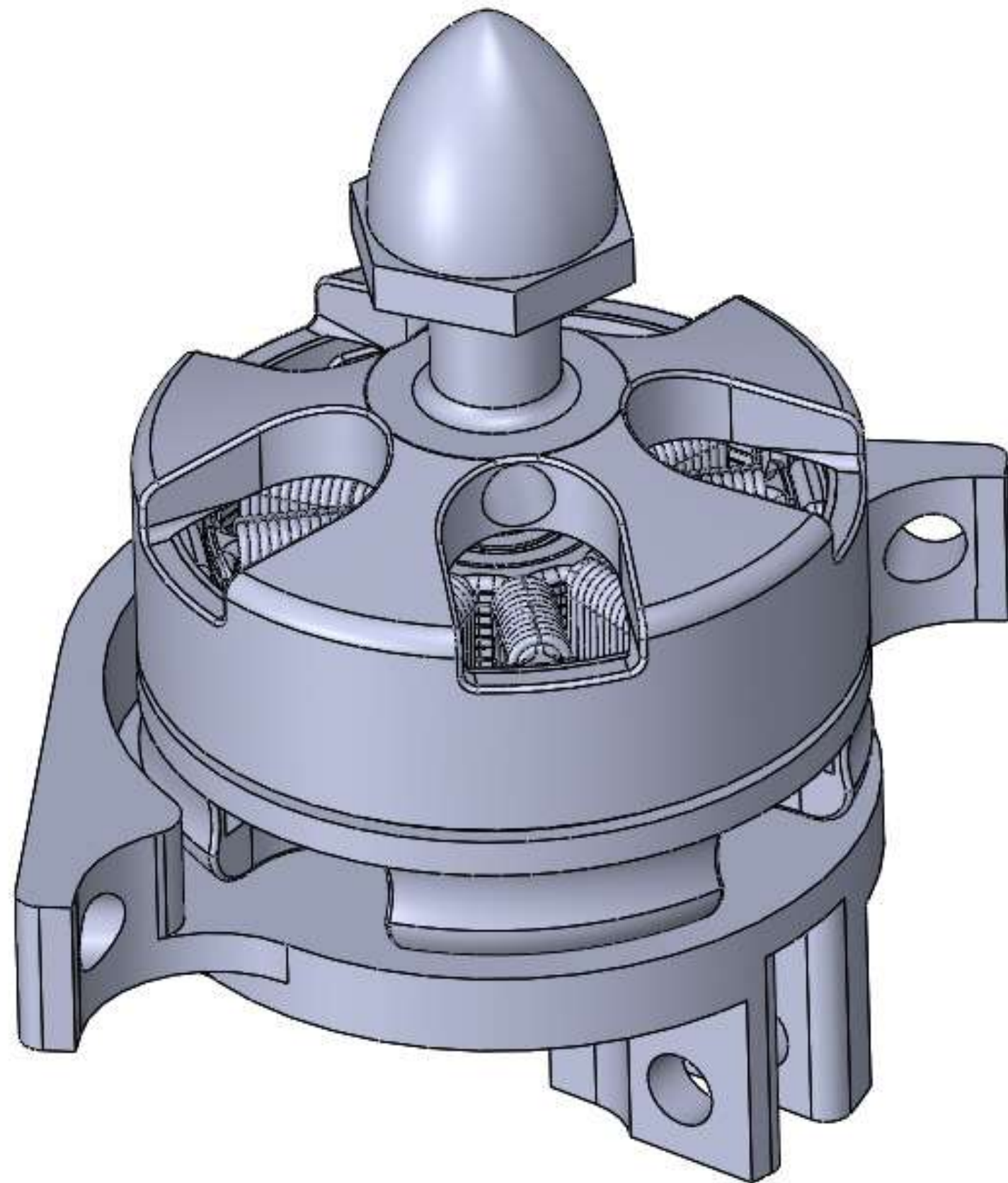
<i>Quantity</i>	<i>Part Description</i>
4	Motor (sold separately)
4	Motor Mount (Black Anodized Aluminum)
16	Socket Head Screw (M3 x 4mm long x stainless steel)

Assembly Process:

Position the motor on the mount such that its wire pigtail exits toward the inside corner of the mount (towards the center of the craft). Use 4 screws per motor. You can choose to use loctite on the screws but this is not required. Please note the wire pigtail is not pictured below. **Do not** cut down your motor's wire pigtail. Leave it uncut and hanging loose. To save weight you can use only 2 screws per motor if you prefer, but motor mount crash toughness will be reduced.







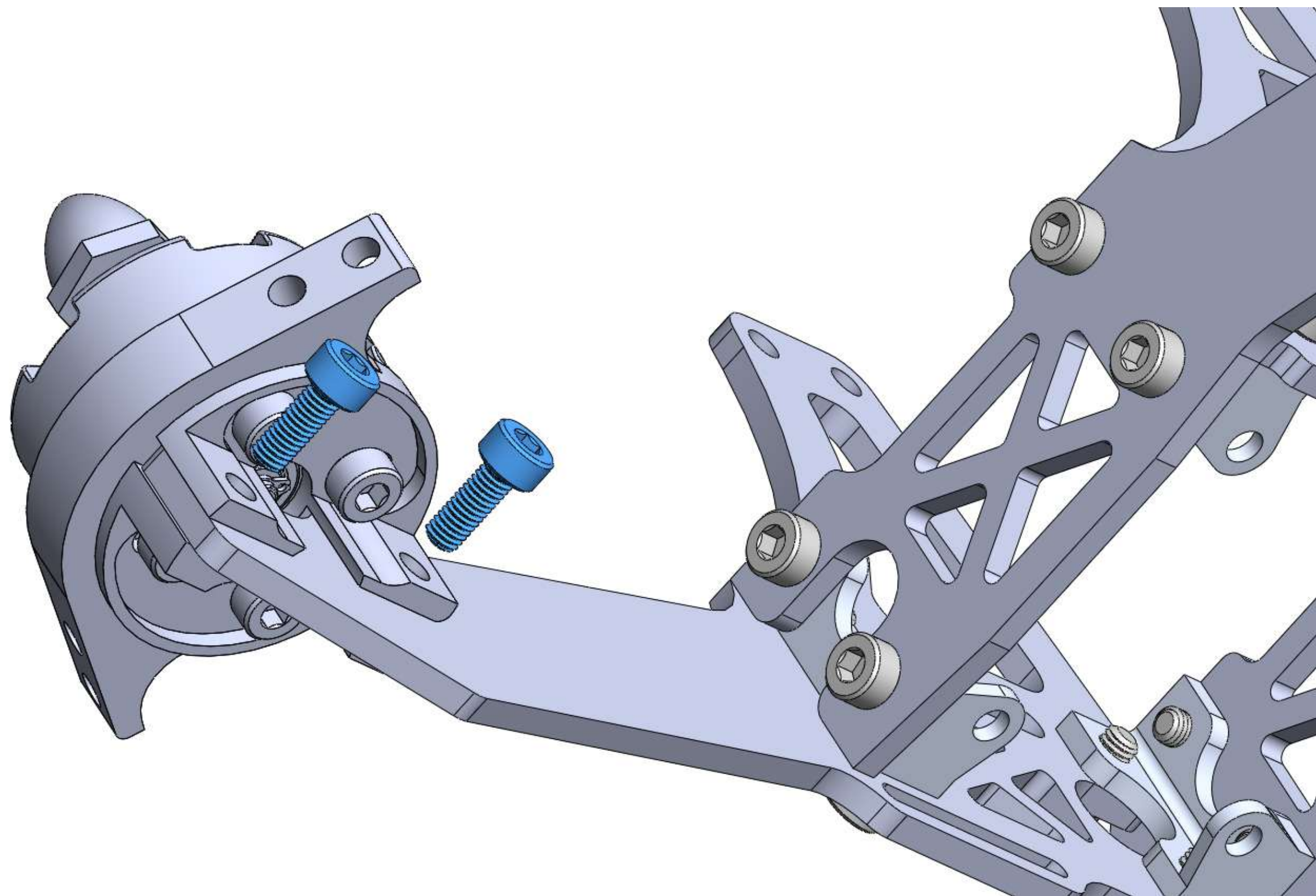
STEP 3

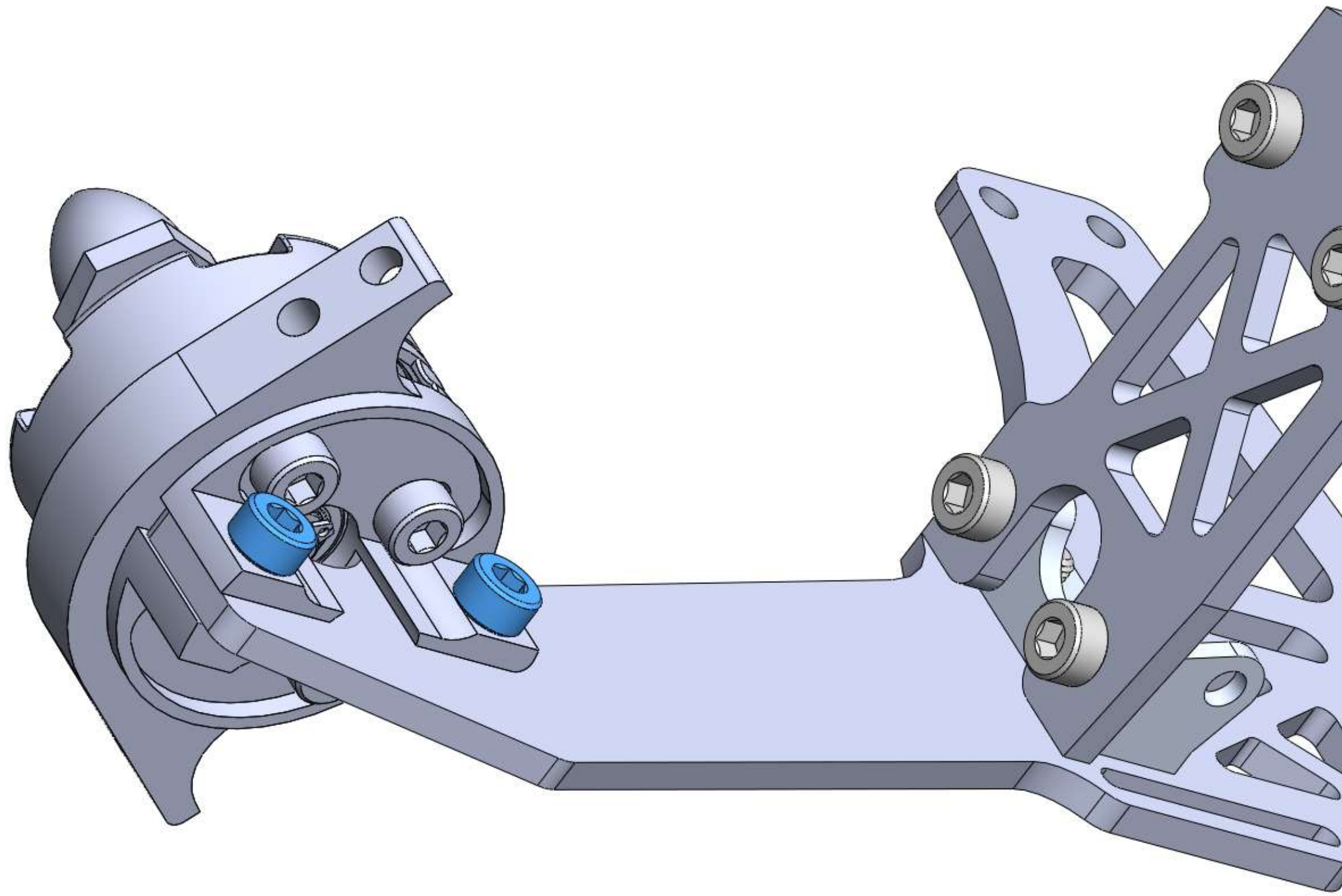
Parts Required:

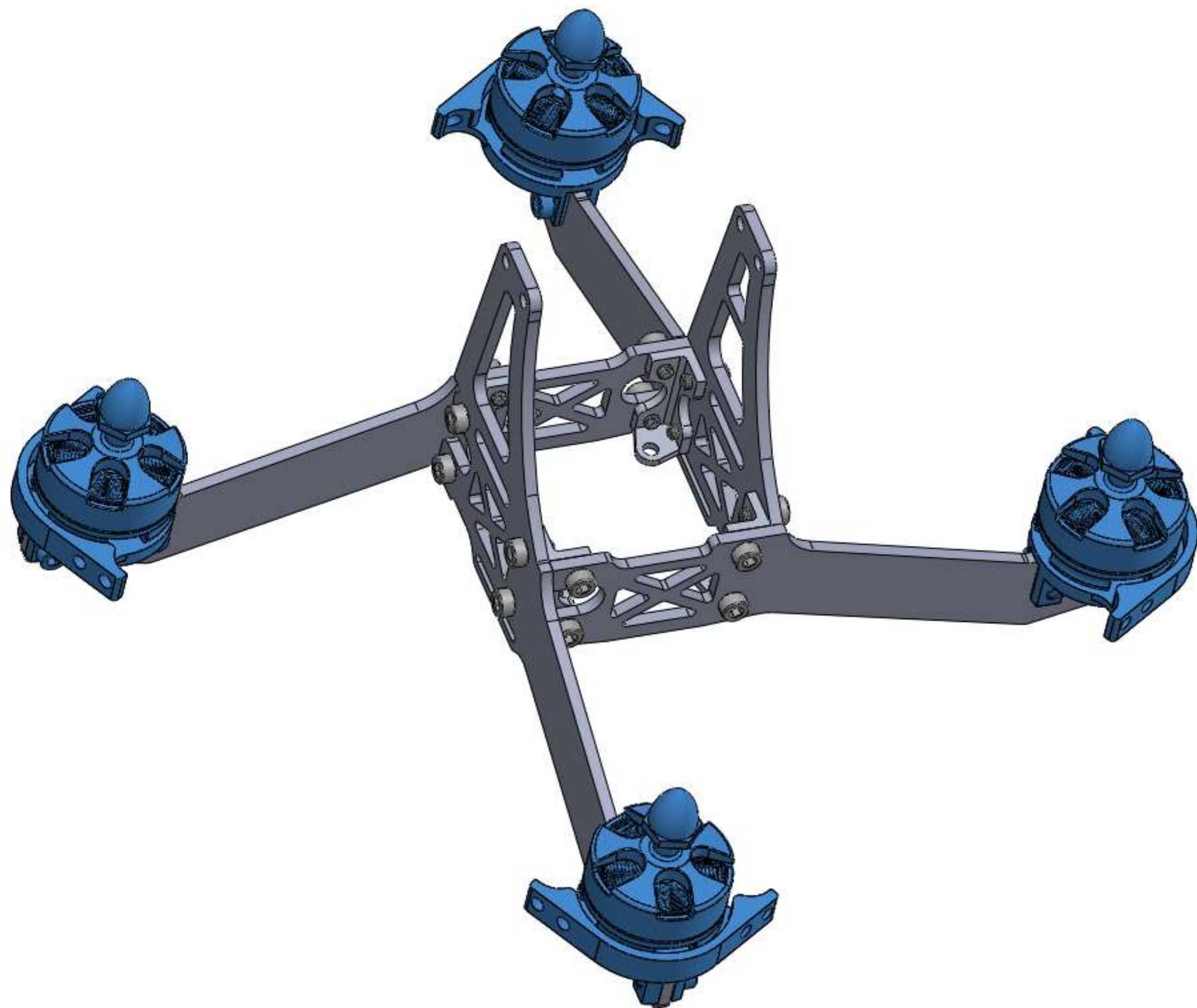
Quantity	Part Description
4	Completed Motor Mount Assembly (from previous step)
8	Socket Head Screw (M3 x 8mm long x blue 7075 aluminum)

Assembly Process:

Join the completed motor mount assemblies from the previous step to the ends of the arms. Two screws are used per mount. Make sure these screws are tight.







STEP 4

Parts Required:

Quantity	Part Description
4	Arm Perimeter Brace (3mm CF) – option 1
4	Arm Perimeter Brace (4mm CF) – option 2
16	Socket Head Screw (M3 x 6mm long x blue 7075 aluminum) – option 1
16	Socket Head Screw (M3 x 8mm long x blue 7075 aluminum) – option 2

Assembly Process:

At this point you need to decide which thickness of Arm Perimeter Brace to install. Two options are included with your kit, 3mm and 4mm thick. Thinner braces are better for all out racing applications where you need to go as fast as possible. Thicker braces are better for freestyle applications where speed isn't quite as important and durability and crash toughness become more important. Join the 3mm braces to the motor mounts using 6mm long screws. Use 8mm long screws for the 4mm braces. Make sure these screws are torqued down tight.

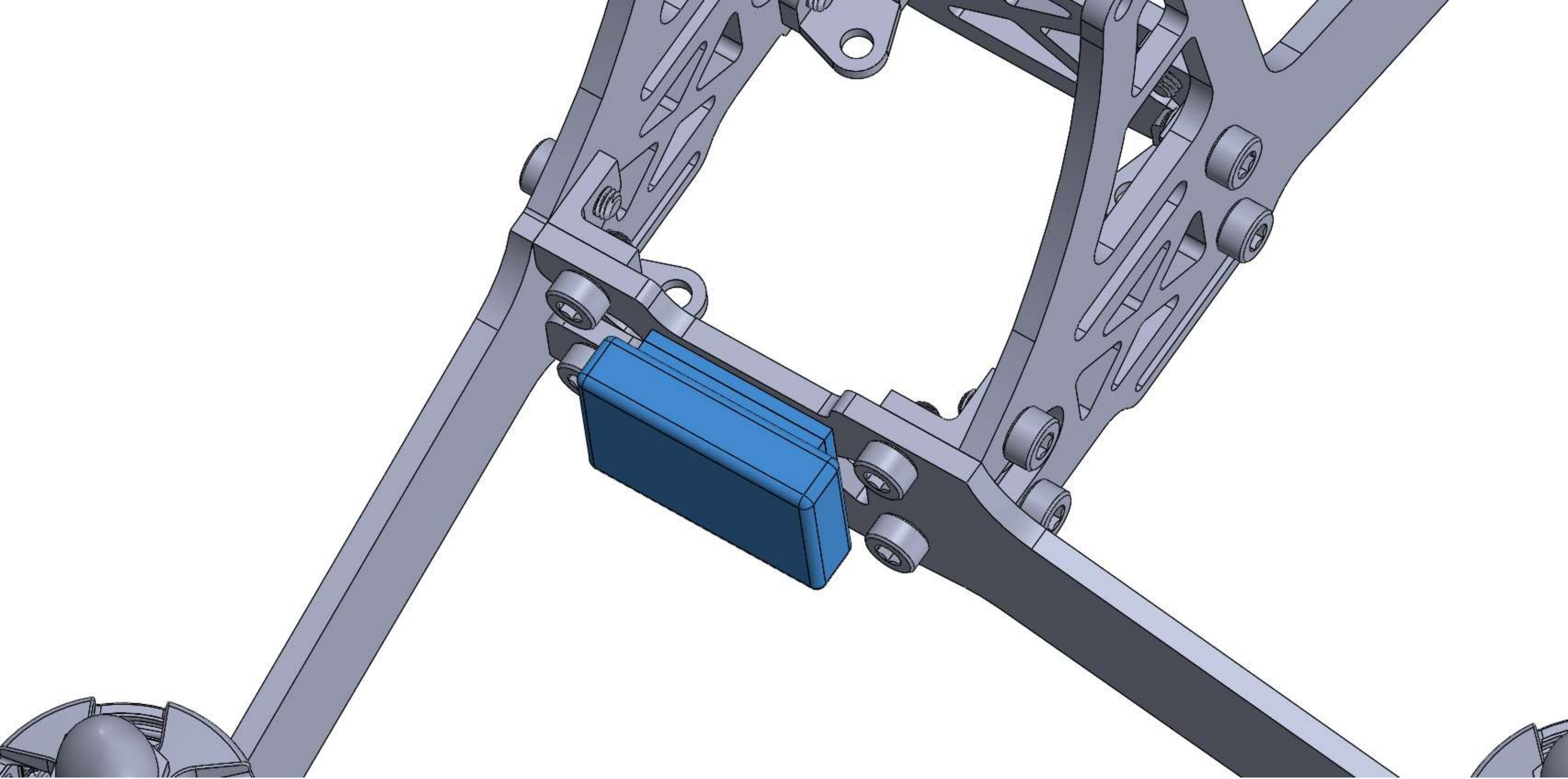
STEP 5

Parts Required:

<i>Quantity</i>	<i>Part Description</i>
4	Electronic Speed Controller (sold separately)
8	Double Sided Stick Tape Piece (sold separately)
12	Strips of shrink tubing (sold separately)

Assembly Process:

It is time to install your ESC's. Please keep in mind that for this purposes of this manual we have not produced a graphical representation of the motor wires. The motor wires should be routed on the underside of the arm and terminate at the ESC motor wire pads. The reason to route them under the arm is to keep the overall cross sectional area of the arm as thin as possible. If the wires are run on the side this increases the overall thickness of the arm. Keep in mind the entire design philosophy of the Stigg is to present minimal material in the line of thrust. To 'hold' the wires in position under the arm roll them into a spiral then use some strips of shrink tubing (3 per arm) to set wire location. Join the ESC to the side of the arm in the location pictured below. Use two pieces of double sided stick tape per ESC. Doubling up the tape sets the ESC away from the 4 socket head screws adjacent to the ESC. Power and signal wires should be left uncut and fed through the large hole in the side of the arm. Please see our build pics on the Stigg product page for visual aid.



STEP 6

Parts Required:

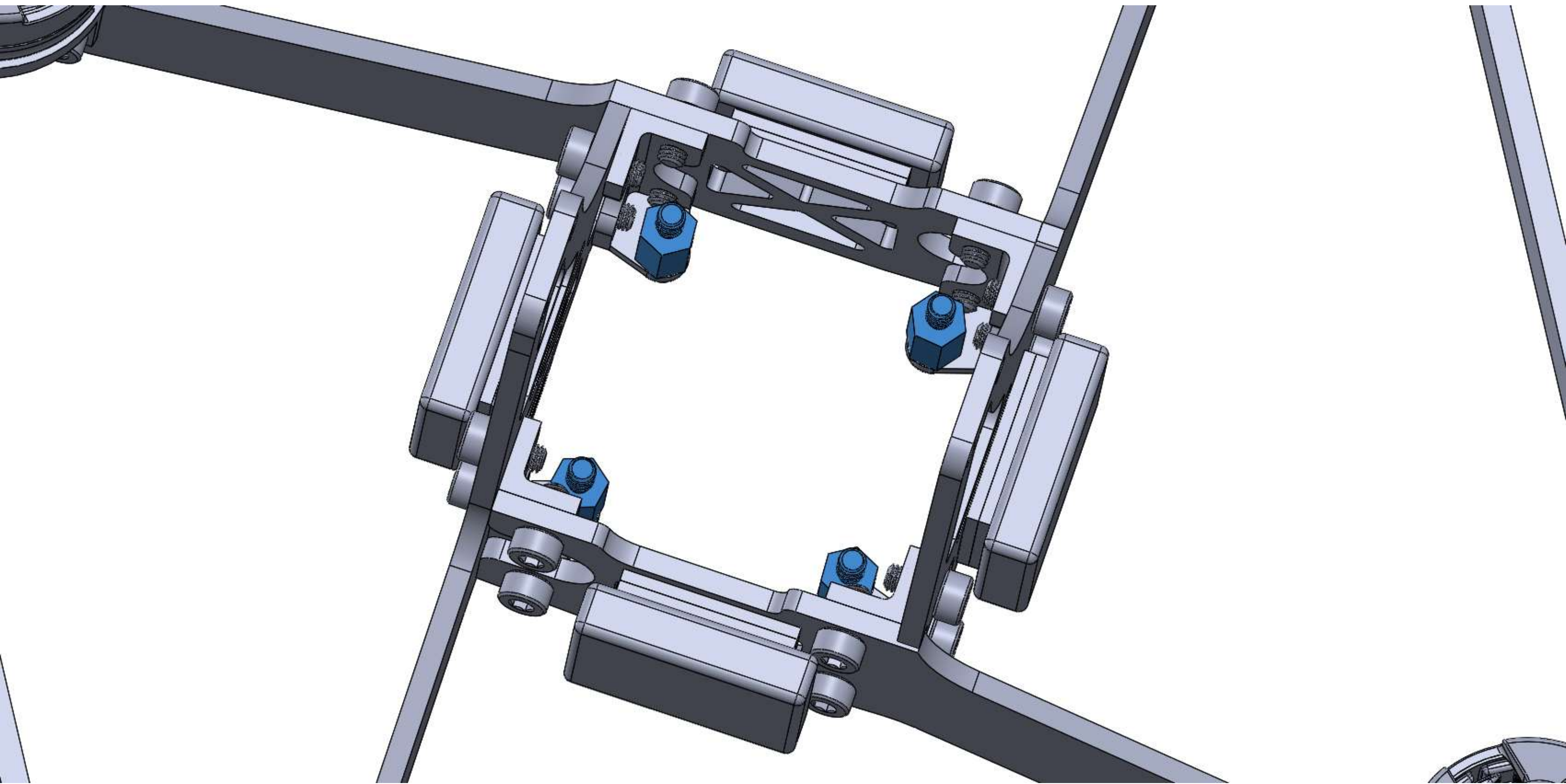
<i>Quantity</i>	<i>Part Description</i>
4	Hex Standoff 'Female – Female' (Black plastic M3 thread x 10mm long)
4	Hex Standoff 'Female – Female' (Black plastic M3 thread x 12mm long) – Optional
4	Hex Standoff 'Male – Female' (Black plastic M3 thread x 8mm long)
4	Button Head Screw (M3 x 8mm long x blue 7075 aluminum)
1	Power Distribution Board (sold separately)

Assembly Process:

Mount the PDB into the center fuselage box using 8mm long standoffs below and 10mm standoffs above. Use a **very small amount** of slow acting CA “superglue” on the end of the male threads of the 8mm long standoff. Quickly screw down the 10mm standoffs before the glue sets. **This is an important step and joins the two nylon standoffs together, allowing the fuselage box bottom plate screws to be removed without spinning the standoffs.** Be sure to allow the glue time to dry before attempting to run the FC screws into the standoffs later in the assembly process! Use 4 screws to temporarily join the lower standoffs to the brackets inside the box. Later in the assembly process you will remove those screws, install the fuselage box bottom plate, then reinstall the screws. Orientation of the PDB can vary based on the brand/type you have chosen and also your own personal preferences with regard to wire management. Take your time here and plan out how to orient the PDB. The layout of your flight controller will play a part in this decision so keep that in mind! Also, be aware the flight controller USB port should be facing to the 'front' once the Stigg is fully assembled. Soldier ESC power wires to the PDB before moving on to the next step. We suggest to soldier the ESC power

wires to the bottom of the PDB. This will keep wire management uncluttered in the area between the PDB and flight controller. Please see our build pics on the Stigg product page for visual aid.

Optional 12mm long standoffs - Included in the kit are 4 extra standoffs which are 12mm long. These can be used instead of the 10mm long standoffs to separate your PDB and FC in the event your particular setup doesn't afford enough room between the two boards. However we do suggest to use the 10mm standoffs if possible. While the 12mm long version will produce more room between the two boards it will also reduce space your FPV camera must exist in and could cause slight interference issues with the Stigg HD camera mount.



STEP 7

Parts Required:

Quantity	Part Description
1	Main Lipo Pigtail and XT60 Connector (sold separately)
1	Fuselage Box Bottom Plate (1mm CF)
1	RC Receiver (sold separately)
1	Catalyst Machineworks Velcro Strap

Assembly Process:

- Solder the main lipo pigtail to the bottom of the PDB. Keep in mind the pigtail needs to be routed and cut to length such that it exits the two slots in the corner of the ' Fuselage Box Bottom Plate'. It is helpful at this stage to temporarily place a lipo onto the craft to help determine proper lipo pigtail length.

- Use double sided stick tape to mount your receiver to the bottom of the PDB. Make sure to go ahead and route the receiver's power and signal wires up to the top of the PBD/FC stack **at this step**. Wires should be routed up between the PDB/FC stack and fuselage box walls. If you are using a Taranis TX we highly suggest the FrSky XSR receiver. If you plan to use the FrSky D4R-II or X4R you must 'de-pin' the receiver in order to make it fit. The Spektrum satellite receivers will fit. If you are unsure whether your receiver will fit just email us for advice.

- Install the Fuselage Box Bottom Plate then thread the velcro strap through the two slots located on the arms. Velcro strap / Lipo installation pictures can be located on our product page.

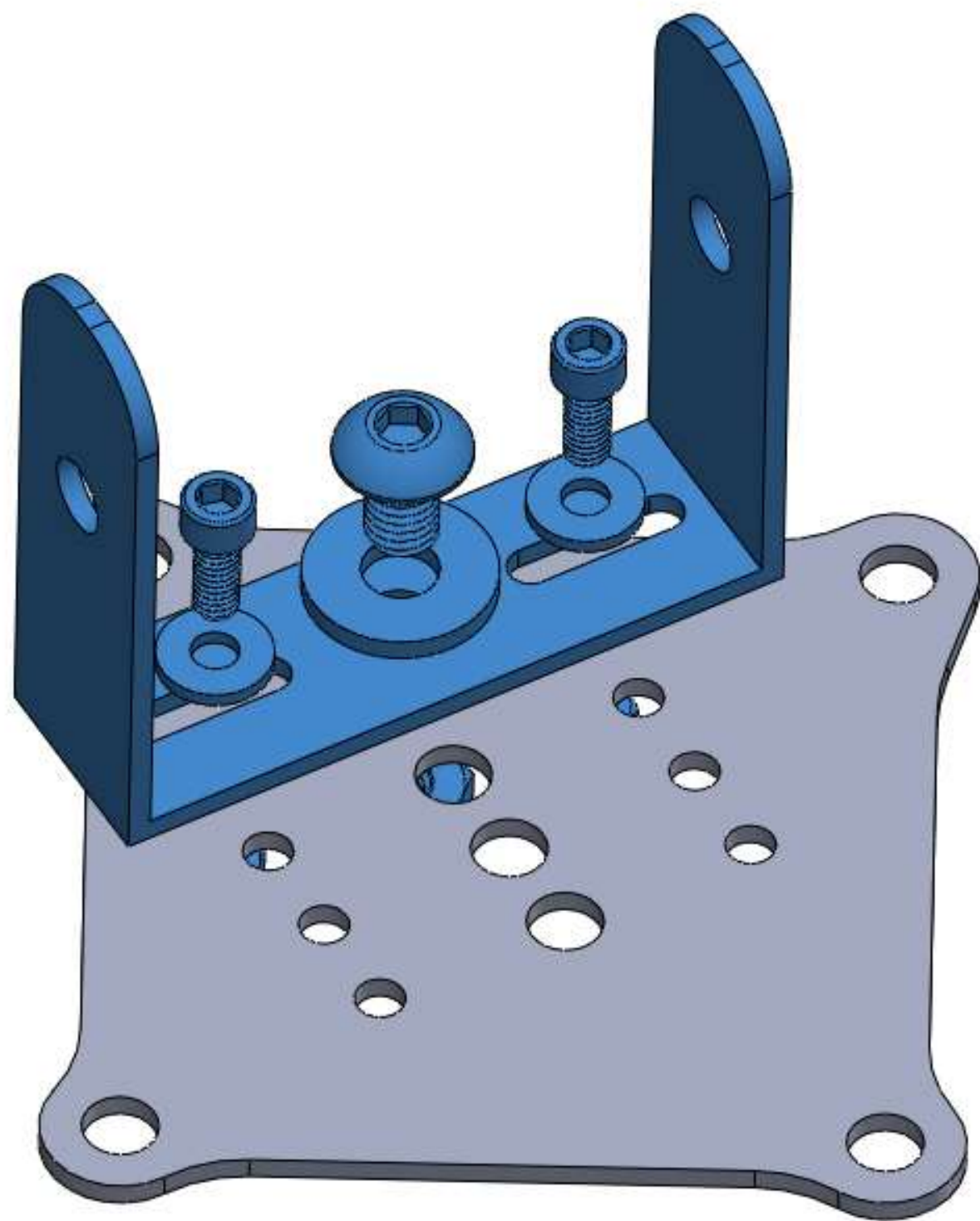
STEP 8

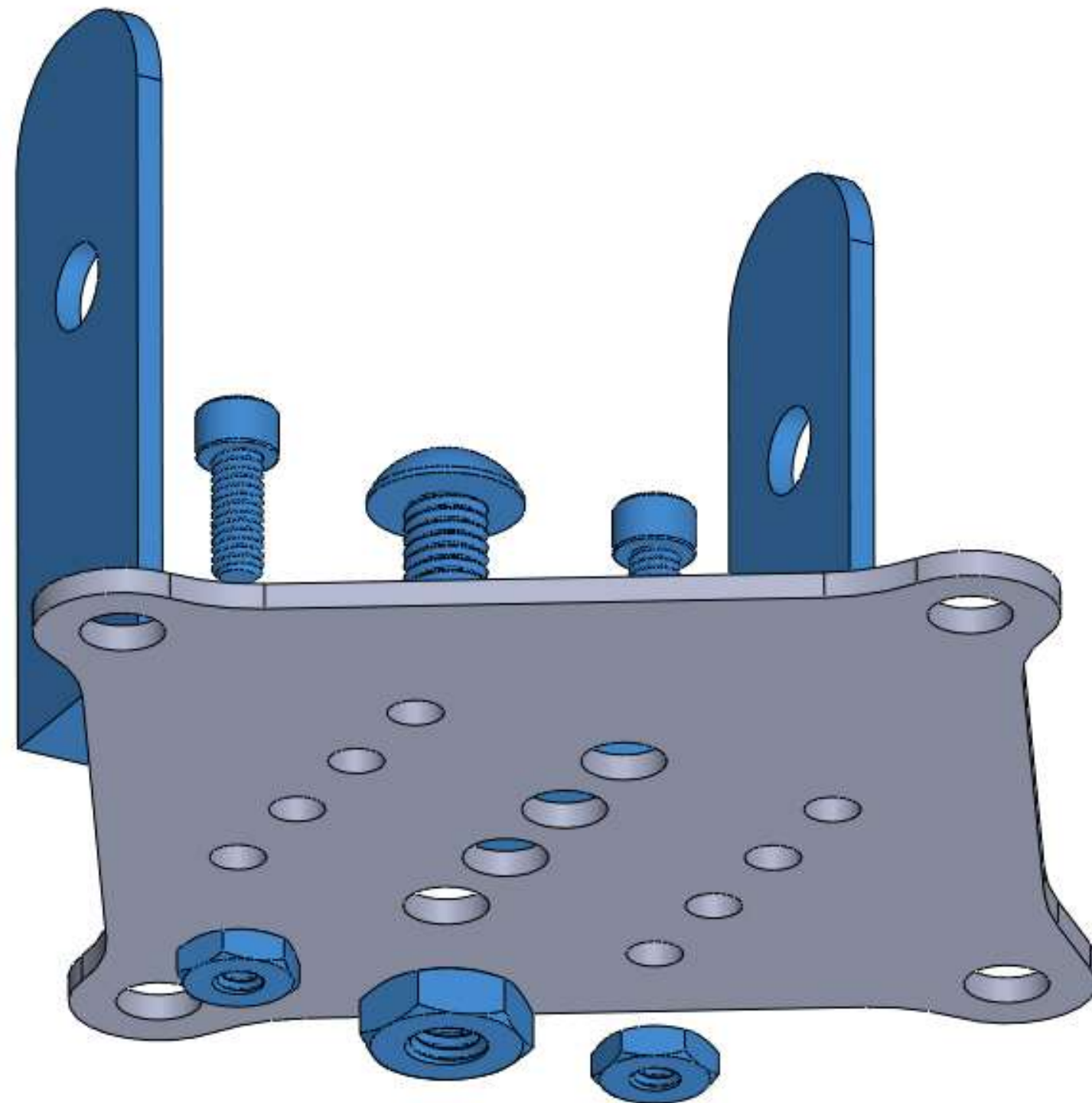
Parts Required:

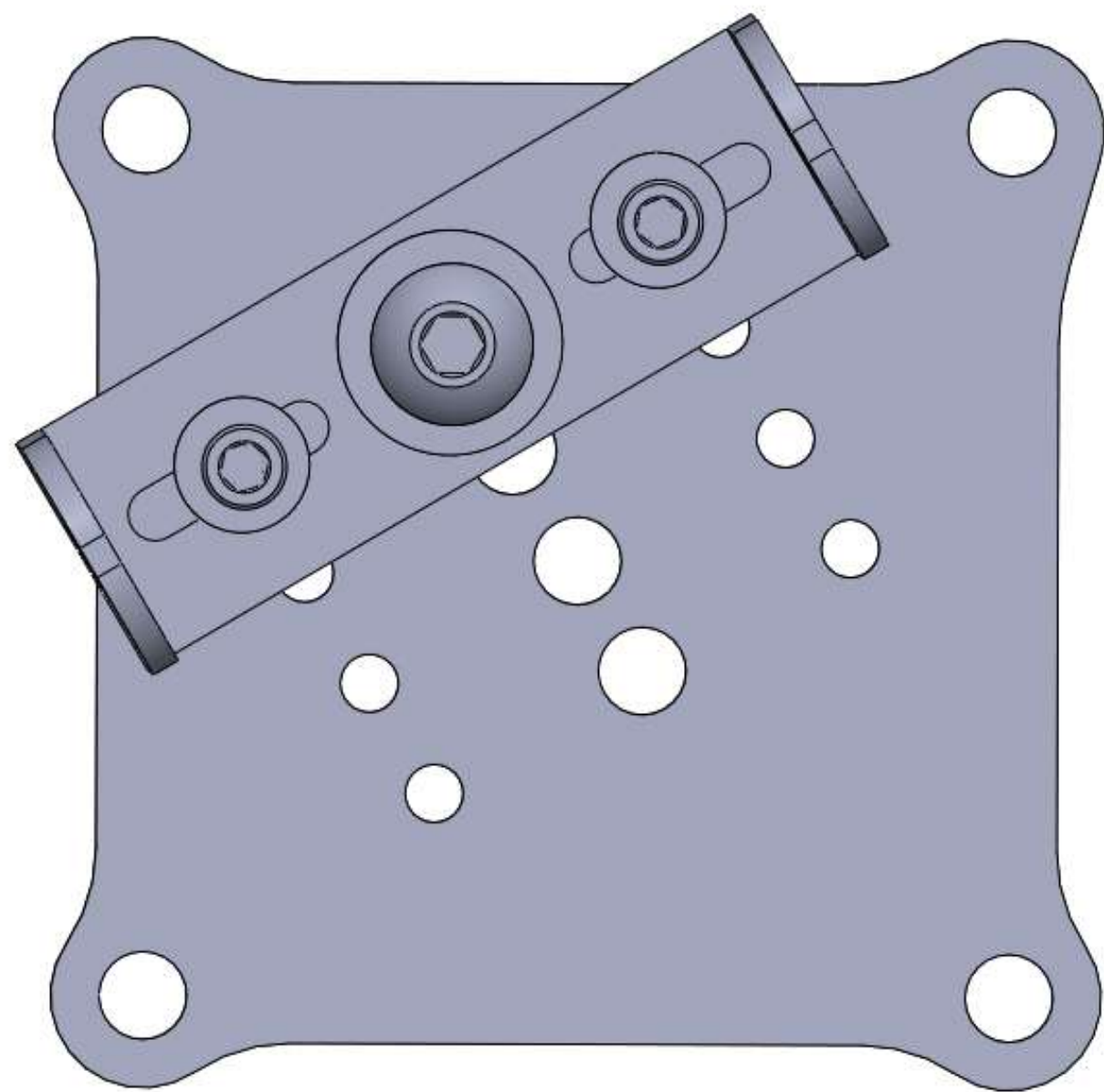
<i>Quantity</i>	<i>Part Description</i>
1	FPV Camera Mount Plate (1mm CF)
1	HS1177 FPV Camera, or equivalent (sold separately)
1	HS1177 FPV Camera Mounting Bracket, or equivalent (included with HS1177 camera)
2	HS1177 FPV Camera Bracket Screw (included with HS1177 camera)
1	FPV Camera Mounting Nut -Type 1 (M3 x stainless steel)
2	FPV Camera Mounting Nut - Type 2 (1-72 x stainless steel)
1	FPV Camera Mounting Washer - Type 1 (M3 x aluminum)
2	FPV Camera Mounting Washer - Type 2 (#2 size x steel)
1	FPV Camera Mounting Button Head Screw (M3 x 5mm long x steel)
2	FPV Camera Mounting Socket Head Screw (1-72 x 3/16" long x steel)

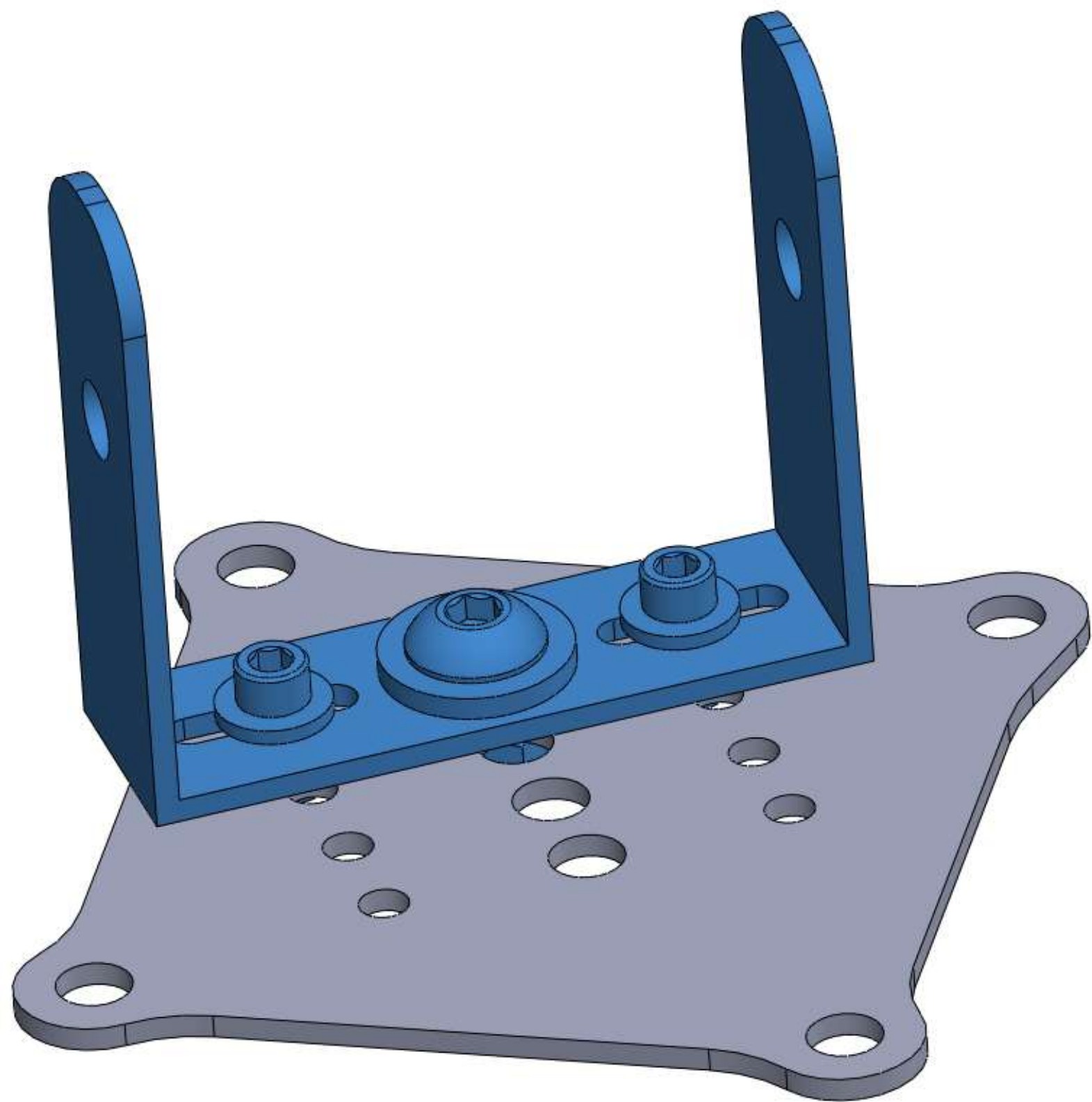
Assembly Process:

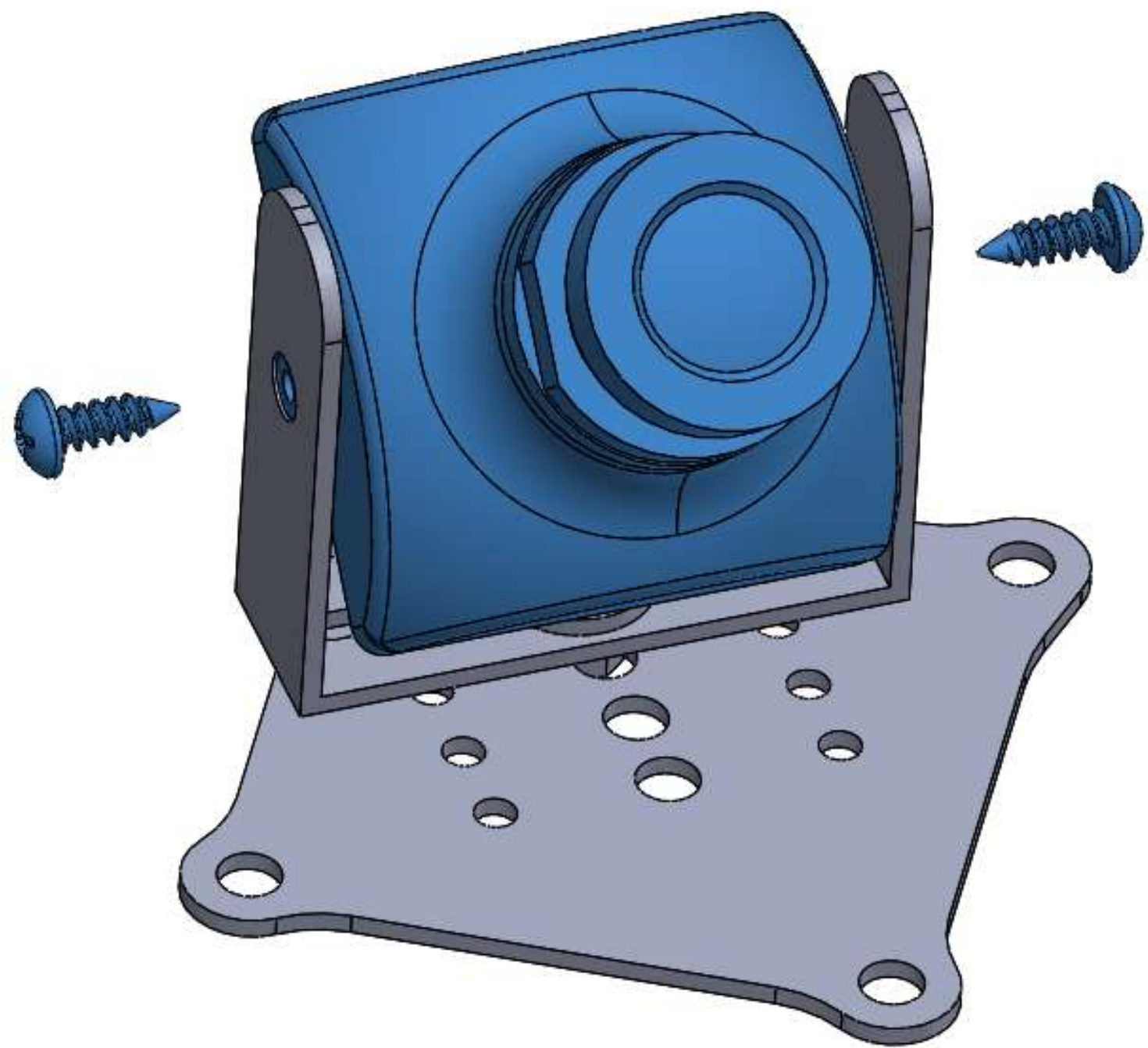
Locate the mounting bracket included with your HS1177 FPV camera. Fasten the bracket to the FPV Camera Mount Plate as pictured below. Use loctite on these fasteners. Default location on the plate is the rearmost set of holes. This location will allow for better protection of the camera during roll-over crashes. The rearmost location will allow for up to 45 degrees of camera tilt. Placing the camera farther forward will allow for up to 60 degrees of tilt but camera protection will be reduced. Please note that while The Stigg is designed with the HS1177 style camera in mind there are other cameras that will fit! If you are unsure whether your FPV camera will fit just email us for advice.

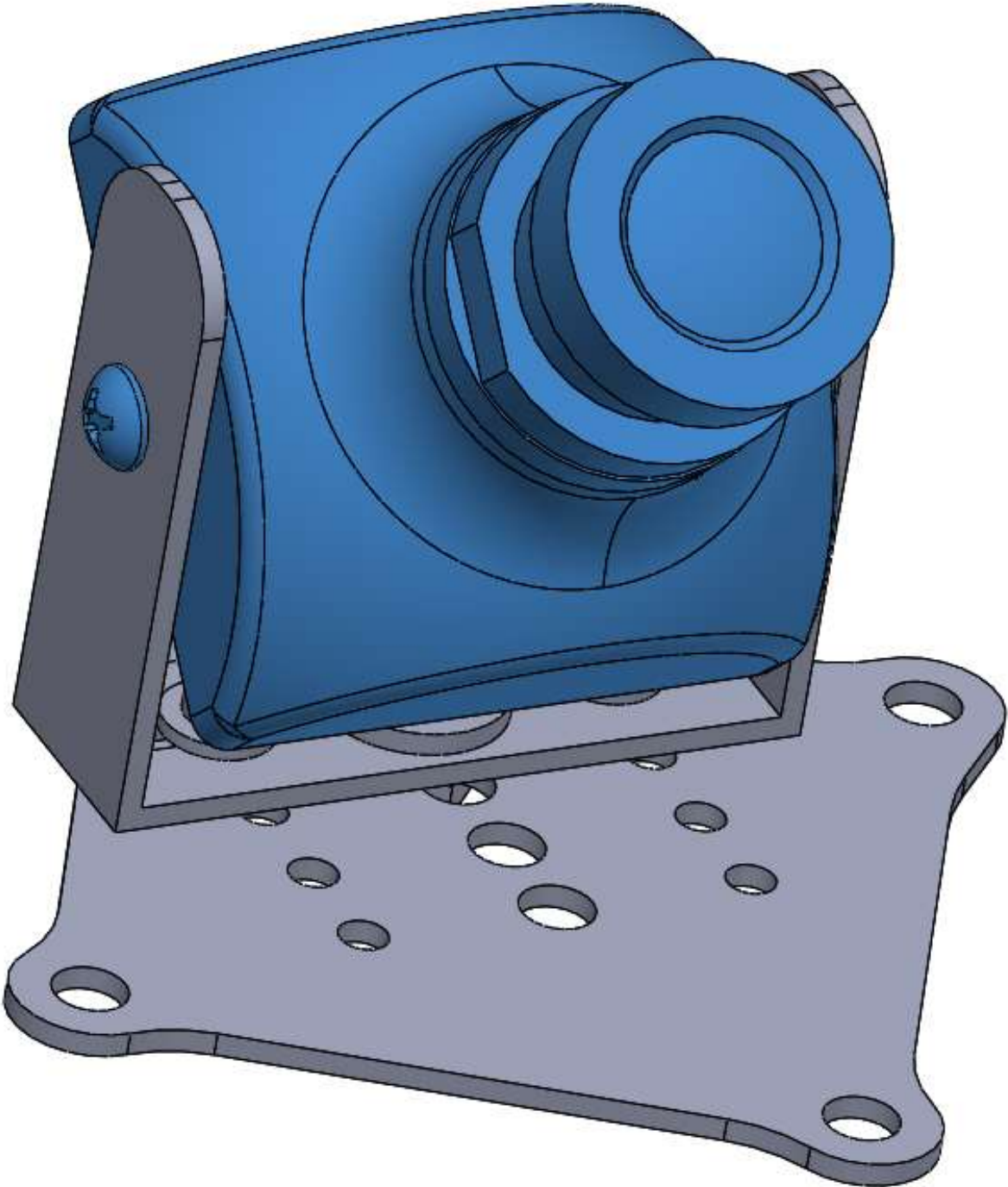


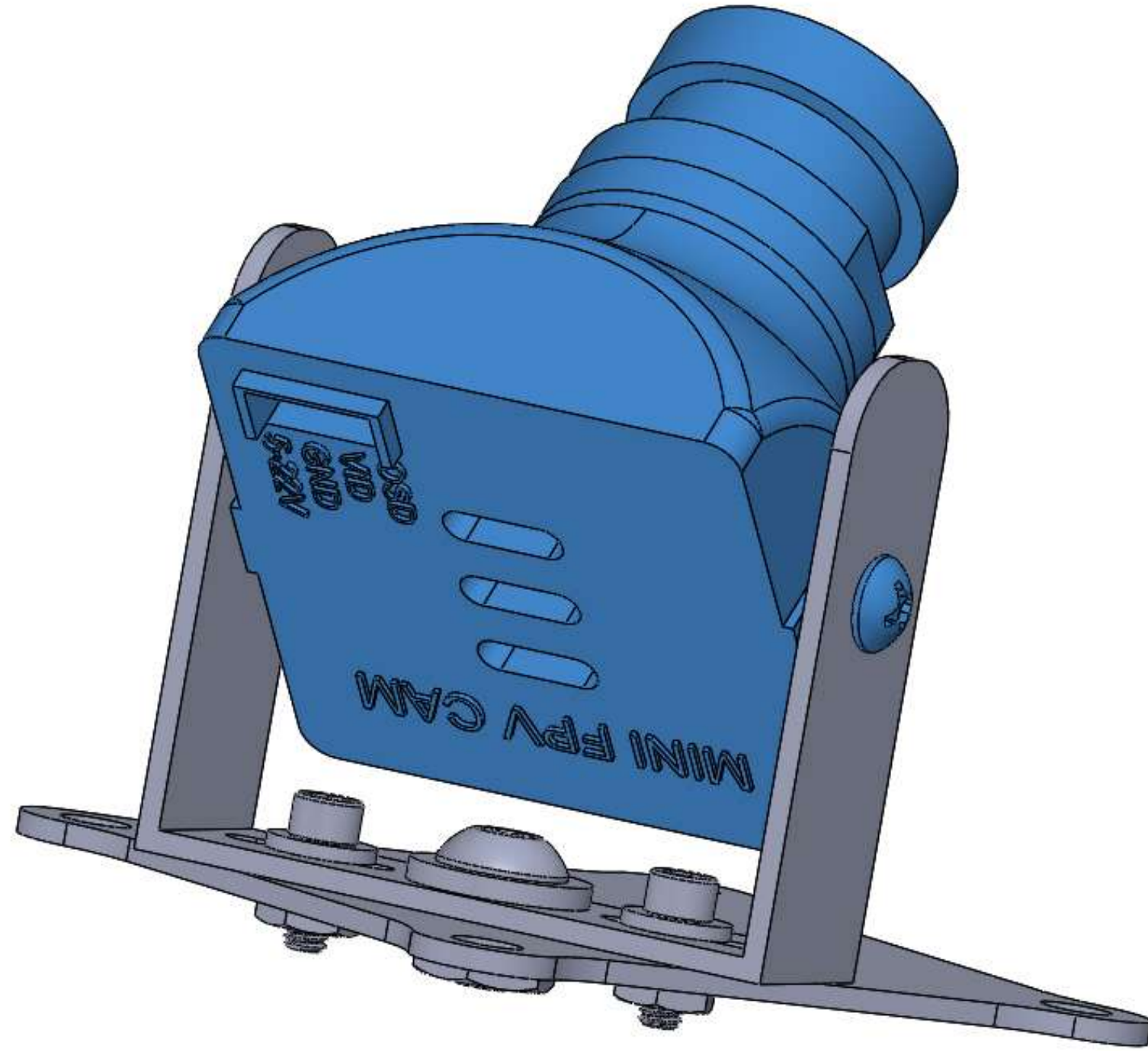












STEP 9

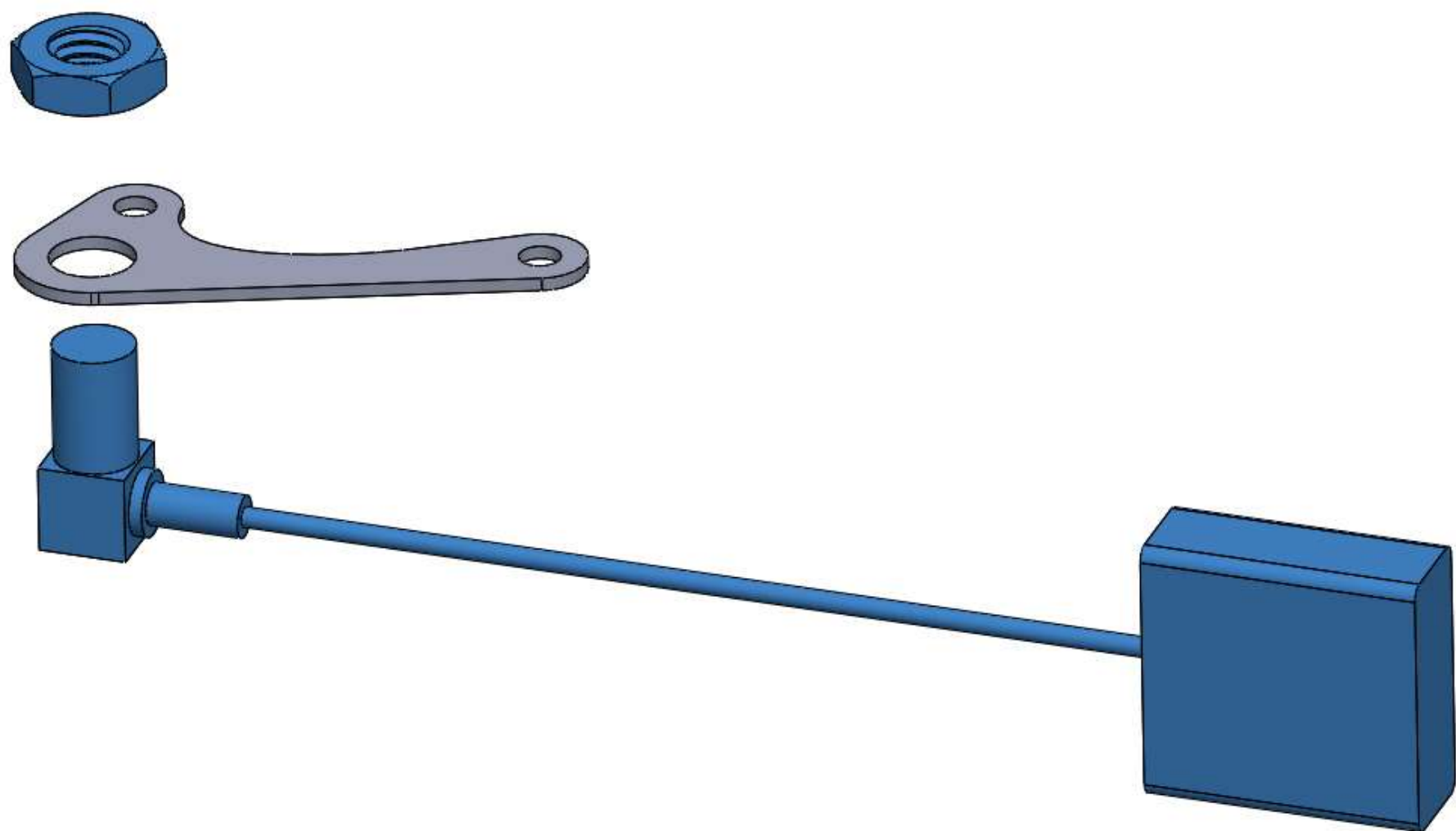
Parts Required:

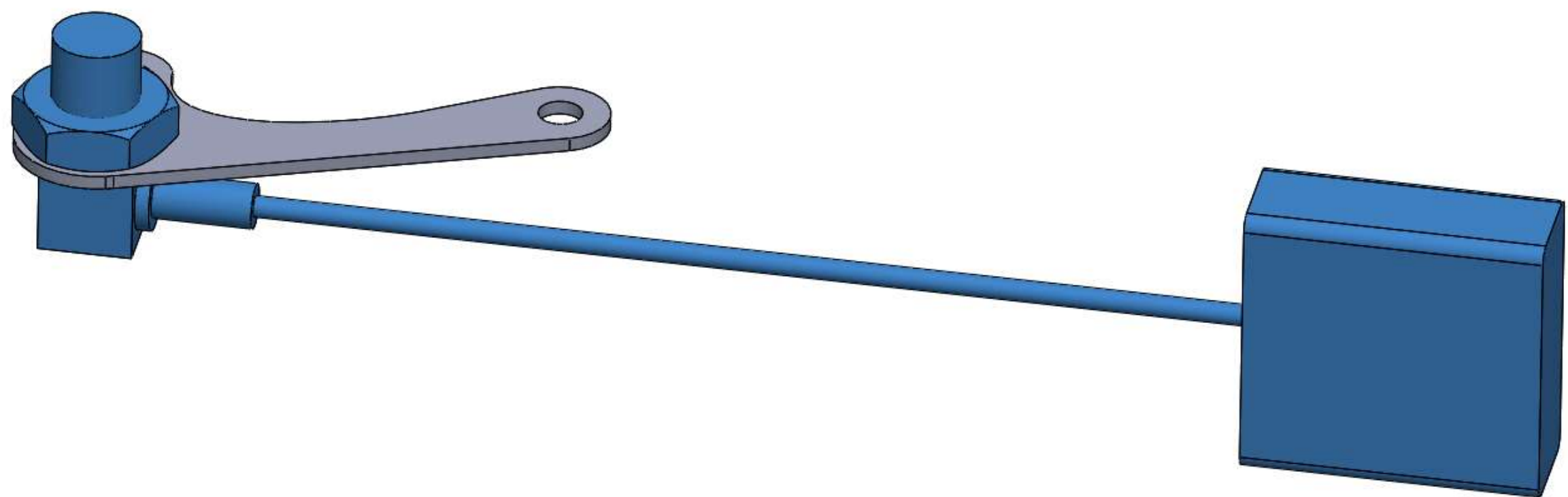
<i>Quantity</i>	<i>Part Description</i>
1	Vtx Mount Plate (1mm CF)
1	Hawkeye 200mW FPV Video Transmitter SMA or equivalent (sold separately)

Assembly Process:

The Stigg is designed to use the Hawkeye FPV video transmitter (or similar) with integrated right angle SMA pigtail, but other brands may fit. If you are unsure whether your Vtx brand/model will fit email us for guidance.

Fasten the SMA pigtail right angle fitting to the mount per the graphic below. Leave the video transmitter unit hanging free at this step.





STEP 10

Parts Required:

Quantity	Part Description
1	Completed Vtx Mount Assembly (from previous step)
1	HS1177 Camera / Mount Completed Assembly (from step 7)
2	Phillips Head Screw (Black plastic M3 thread x 12mm long)
2	Phillips Head Screw (Black plastic M3 thread x 14mm long)
4	Plastic Spacer (Black plastic M3 hole x 7mm OD x 5mm long)
2	Plastic Spacer (Black plastic M3 hole x 7mm OD x 2mm long)
1	Flight Controller (sold separately)

Assembly Process:

Make all the necessary electrical connections to the flight controller. It is also necessary at this step to connect the Vtx and FPV camera into the PDB. Once all the connections are made fasten down the flight controller, HS1177 assembly, and Vtx mount assembly, per the procedure below. The 12mm long screws are used on the two most forward holes on the FC. The 14mm long screws are used on the two rearward holes. To provide easy access to the flight controller's USB port position it towards the front of the craft.

Please note: Getting proper motor to ESC assignment on your flight controller can be somewhat tricky due to the Stigg's unorthodox arm layout. It is quite easy to plug the ESC's into the WRONG input locations if you aren't paying attention. Determine which motors are 1, 2, 3, and 4. Then trace from the motor to the corresponding ESC for each input on the FC!

