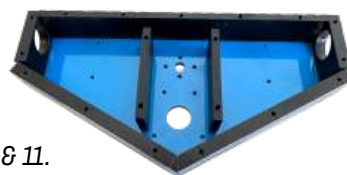


 Indicates to use threadlock

## FRAME

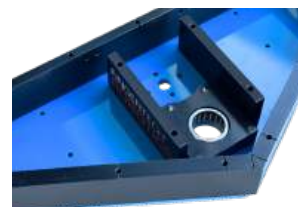
- 1** • Attach the 5x **Outer UHMW Walls** and 2x **Long Inner Spacers** to the Blue G10 **Baseplate** using 18x #6x1/2" screws from the **Screw Pack**.

\*Leaving 2 Short Inner Spacers (and remaining screws) for steps 5 & 11.



## WEAPON ASSEMBLY

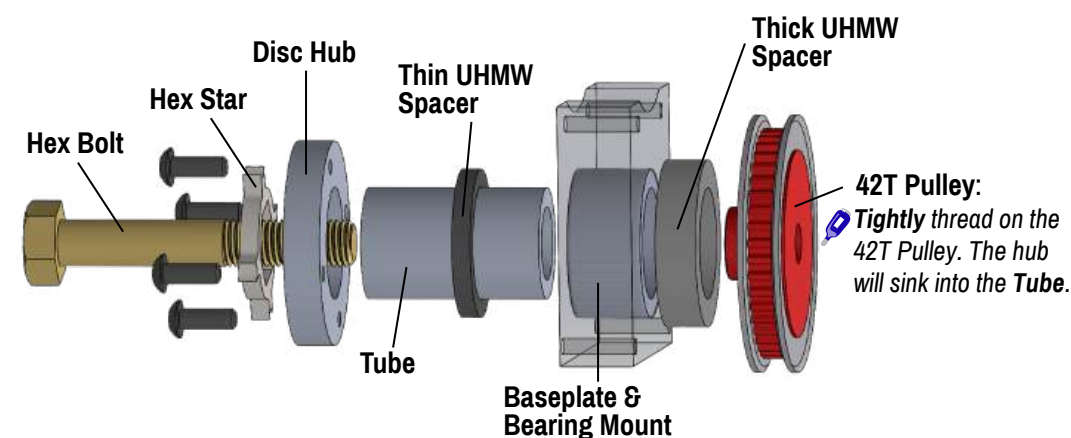
- 2** • Press the **Roller Bearing** into its **Mount** and attach it to the **Baseplate** using 4x #6x3/4" screws.



- 3** • Slide the **Disc Hub** over the 5/16-24x2.00" **Hex Bolt** and secure the **Hex Star** loosely using 4x 6-32x3/8" screws. This will ensure proper alignment.

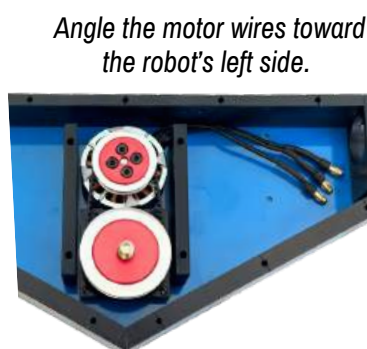


- Assemble the remaining parts as shown:



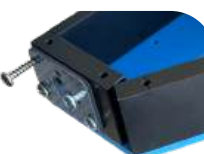
- 4** • Mount the **F4006 Motor** on the **Baseplate** using 4x **M3 screws** (from the Motor's box) and the 3/32" **Hex Wrench**.

- Slide the **67T Timing Belt** in place and fasten the **30T Pulley** to the weapon motor using the four remaining **M3 screws**.



## DRIVE MOTORS

- 5** • Fasten the 2x blue **Carbon Fiber Mounts** to the 2x **Outer Side Walls** using 2x #6x1/2" screws in the front holes, and 2x #6x1" screws in the rear holes sinking into the **Back Wall**.



Angle the motor's wires forward



We recommend trimming the shafts of the Mega Sparks so they don't extend past the Twist Hubs. Mark 23mm from the motor face and use a rotary tool or angle grinder with cutoff disc to cut and deburr the shaft.

- Insert the **Mega Spark Gearmotors** through the **Outer Side Walls** and fasten them to the blue **Carbon Fiber Mounts** with 8x **M3 screws** and the 3/32" **Hex Wrench**.
- Attach the 2x **Short Inner Spacer** to the baseplate using 4x #6x1/2" screws.

## WIRES & CONNECTIONS

- 6** • Cut the **RED 16ga wire** in half (10cm long), strip 5mm insulation and solder both to the **Mini Switch** tabs.
- Insulate both tabs with a 1.5cm length of **5mm Ø** (thinner) **heatshrink**.
  - Slide a second **heatshrink** (1.5cm long) on the red wire closest to the switch's screw head, and solder the open end to the (+) terminal of the **XT60 Battery Connector**.
  - Solder the **BLACK 16ga wire** to the (-) terminal of the **XT60 Connector**, cover with a heatshrink (1.5cm).



**Soldering tip:** Clamp the Mini Switch in a vice or "helping hands" clip, set your soldering iron up at 480C/900F, quickly tin both Mini Switch copper tabs, tin the wires, then while pressing the wire against the copper tab, re-melt the solder of the wire so that it flows into the solder of the tab. Remove the iron while holding the wire steady as the joint cools.



- Gather up all of the **ESCs**, the **UBEC5V Regulator** and the **Power Switch** and strip the insulation on all 10 power wires back ~1cm.
- Twist well the 5 **RED** wires together and solder the twisted bunch.
- Slide a 3cm length of **7mm Ø** (larger) **heatshrink** over that and heat it, using pliers to crimp flat the end.
- Repeat with the 5 **BLACK** wires.



- 7** • Using pliers and a small Phillips screwdriver, mount the **Power Switch** using 2x **M2x16mm Flat Head Phillips screws** and **M2 Nuts** to the back frame wall with wires toward the center of the robot, bending back the soldered bunch as shown.



## BATTERY

- 8** • The **1000mAh Galaxy Lipoly Battery** will fit in the right side of the robot with the power leads toward the front center.



- You might want to slice the battery's heatshrink around the balance wires so the leads fold over more easily.
- Leaving the battery in its packaging bubblewrap will provide a cushion when the robot is bouncing around the arena. If you have lost the bubblewrap, add some foam for padding on all sides.

## ELECTRONICS

- 9** • Plug the drive **ESCs** (Reversing) and weapon **ESC** (1-direction) into their motors.
- Plug the drive and weapon **ESCs** into the **receiver's** appropriate channels.
  - Plug the **UBEC5V** and the **Power LED** into any two other open channels. *The LED doesn't need to be mounted as it will be seen through the top.*
  - Tuck all the electronics into the left compartment. Route the **XT60's** black wire and the right drive **ESC** wires around the front of the robot.



Default Receiver Channels

- Left = CH2
- Right = CH1
- Weapon = CH3

- 10** • Plug the battery into the **XT60 connector** and power up the robot by turning the **Power Switch ON** with the 3/32" **Hex Wrench**, and check the direction of your drive motors and weapon motor.



- The weapon must spin clockwise looking down from the top. This ensures it tightens the weapon on impacts.
- If any motors spin backward, swap any two of its **ESC wires** to reverse its direction.



- 11** • Add the **Flat Washer** and 5/16" **Flanged Bearing** to the top of the **Hex Bolt**, then use 23x #6x1/2" screws to attach the **Top Plate**.
- Add the **Mini Switch ON/OFF sticker**.

## WHEELS

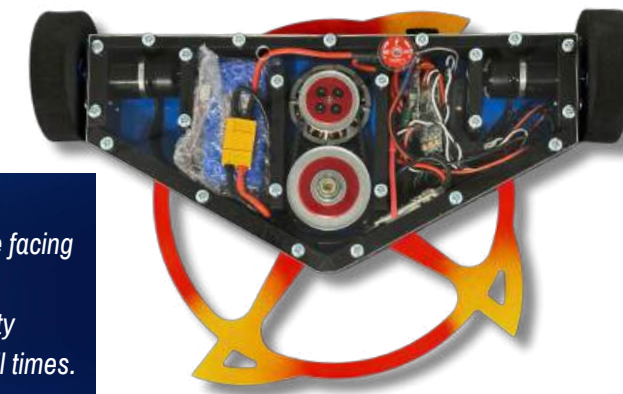
- 12** • Add threadlock to the setscrews of the **Twist Hubs**.
- Install the **2.75" Foam Wheels** into the **Twist Hubs** using the **Twist Hub Key**.
  - Install the **Twist Hubs** onto the motor shafts with the **Twist Washer** facing into the robot, using a 5/64" **Hex Wrench**. This direction is less vulnerable to **Twist Washer** damage.

## BLADE

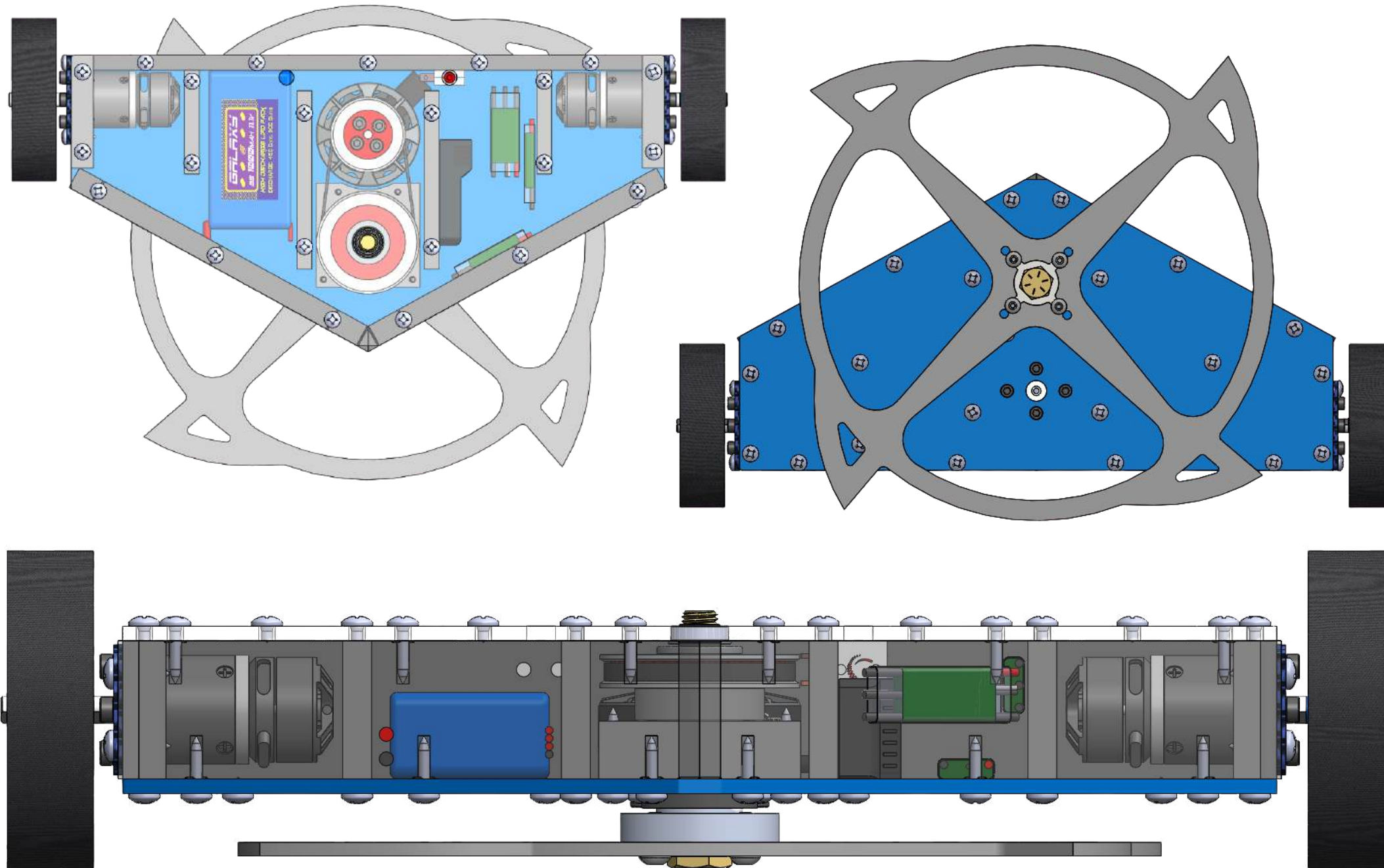
- 13** • Flip the robot upside down and remove the 4x 6-32x3/8" screws (step 3) from the **Disc Hub**, keeping the **Hex Star** in place.
- Slide the **Blade** onto the **Hex Star**, then fasten it using the 4x screws.



- Ensure the blade teeth are facing the clockwise direction.
- Remember to keep a safety clamp on the weapon at all times.



# NightWing



FingerTech  
**NightWing**  
3lb Undercutter Kit



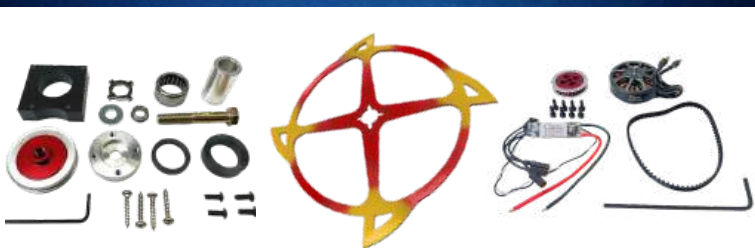
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## Weapon Assembly




## Frame Parts



## Electronics



## Recommended Tools

- Cordless Screwdriver with #2 bit (set at the lightest clutch)
- #00 Phillips Screwdriver
- Needle Nose Pliers
- Medium Threadlock - Look for this icon  for recommended use locations.