

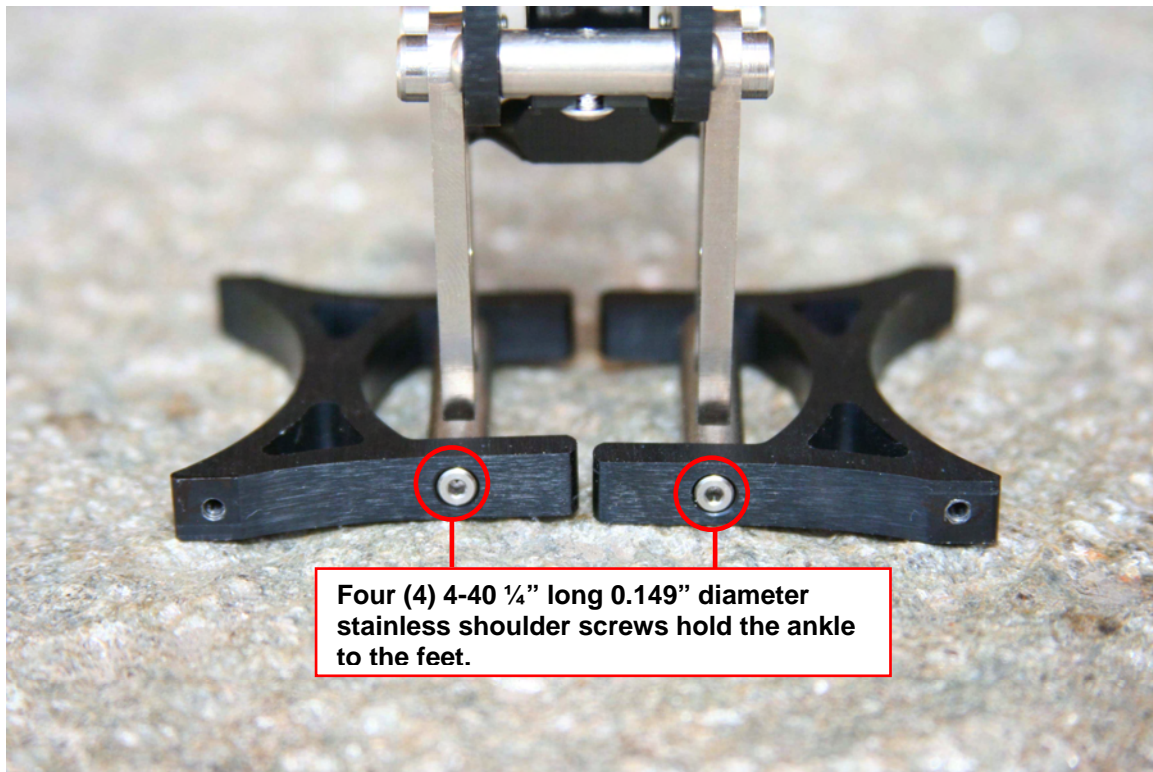
### Step 6: Mount Penguin feet to the ankles

The Penguin kit has (4) 4-40 1/4" long, 0.149" diameter stainless shoulder screws which are used to attach the feet to the ankles. The head of these screws provides a bearing surface for the ankle so it may rotate freely within the foot when Penguin leans from side to side.

Each foot has an additional 2-56 threaded hole where the Penguin's ball joints mount for the threaded rod which connects to the tilt servo (the ski poles). These threaded holes denote the front of the foot.

Carefully drop the ankles into the foot. This is a close-tolerance fit; the ankle will only fit into the foot if it is inserted squarely. Next, use the 1.5 mm hex key to tighten the 4-40 long 0.149" diameter stainless steel shoulder screws into the ankle.

The Penguin will now stand up without assistance.



### Step 7: Screw 2-56 ball links into feet

The Penguin kit contains two different sizes of ball links. The 2-56 threaded ball links are used in this step (the 1/16" ball links are used in a subsequent step). Open the package and thread the 2-56 ball link post into the front of each foot. You can tighten them using a 3/16" socket or small wrench. Be careful not to scratch the feet as you tighten the ball links. The threaded portion of the ball link will not screw all the way into the foot because it has a small non-threaded portion between the threads and the hex-shaped post. Don't force it beyond the point at which the ball link is easily screwed into the foot.



### Step 8: Attach plastic ball sockets to 2-56 threaded rod

Now you're ready to thread the four (4) plastic ball sockets onto each end of the 2-56 threaded rod. Twist both ends on evenly until the rod length is about 3.4" long. If this is too difficult to do with your hands, consider carefully holding the threaded rod with pliers. Use a small rag to prevent it from being scratched.



### Step 9: Drill a 1/16" hole in the servo horn

Each servo package includes an assortment of servo horns. We'll use the widest servo horn in this step. If you make a mistake it's okay because there's a second one in the other servo package.

Put on your safety goggles. Place the #55 drill bit in your handheld drill, drill press, or vise. Very carefully enlarge the two outermost holes on the servo horn. If you are using a drill, run it very slowly to prevent it from feeding into the hole too quickly. If you run it too fast the drill will plunge into the plastic and you'll crack the servo horn. Take your time and use a low drill speed. If you have secured the drill bit in a vise, gently twist the servo horn onto the bit to enlarge the hole. Do not press down, and be careful not to injure your hands.



**Step 10: Connect the 1/16" ball links to the servo horn**

Install the two 1/16" ball links on the servo horn. Tighten carefully but don't deform the plastic.



**Step 11: Attach the servo horn to the tilt servo**

Press the assembled servo horn onto the tilt servo, positioning it cross-wise to the Penguin body. Do not over-tighten the screw; you may need to take off the horn and re-center the servo if it gets moved during the next step.

