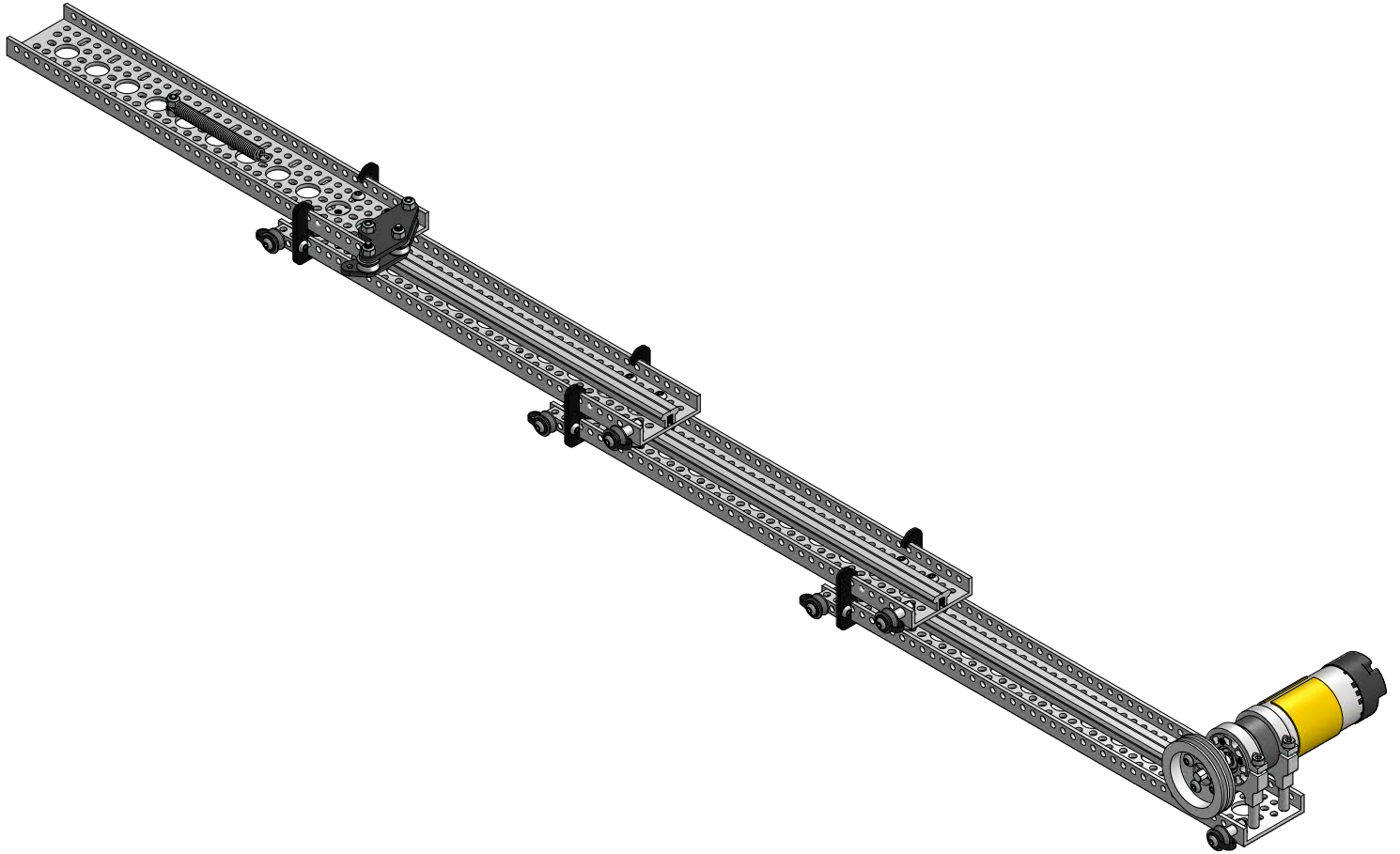


# Assembly Instructions for goBILDA® Cascading Low-Side U-Channel Kit 3210-0001-0001



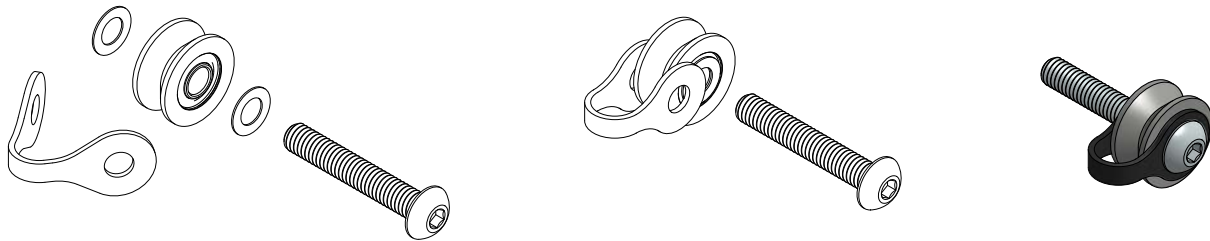
## Prerequisites

To add configurability in terms of speed and stroke length, the 3210-0001-0001 does NOT include a motor, motor mounts, Low-Side U-Channel or V-Guides. These components however are necessary to build and rig your kit. The BOM below shows what components are used in this guide. This represents a common setup and can be used as a buyer's guide if you are unsure of what supporting parts to purchase.

QTY	SKU	DESCRIPTION
1	5202-0002-0005	5202 Series Yellow Jacket Planetary Gear Motor
2	1400-0032-0032	1400 Series 1-Side, 2-Post Clamping Mount (32mm Bore)
3	1121-0011-0288	1121 Series Low-Side U-Channel (11 Hole, 288mm Length)
1	1121-0013-0336	1121 Series Low-Side U-Channel (13 Hole, 336mm Length)
3	3700-0145-0288	3700 Series 14.5mm V-Guide (288mm Length)
one 4 Pack	1502-0006-0160	1502 Series 4mm ID Spacer (6mm OD, 16mm Length)

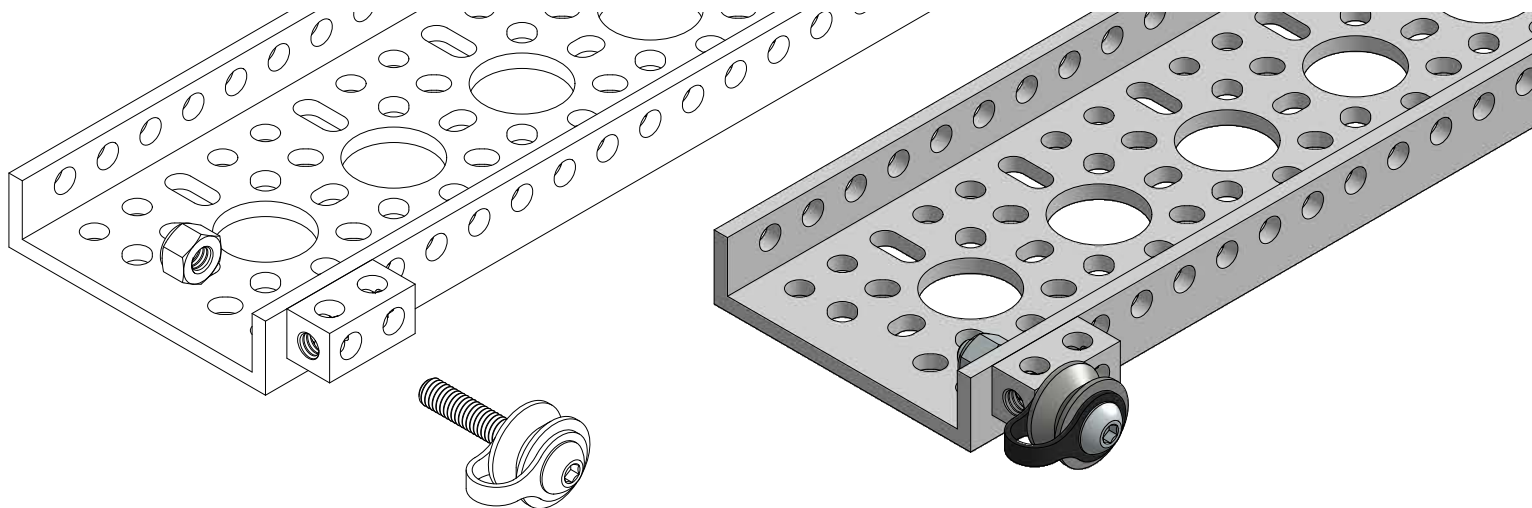
## STEP 1

Sandwich a V-Groove Ball Bearing between two 0.25mm Shims. Hold this assembly between your index finger and thumb and slide it into a v-groove bearing shield. Then insert a 25mm length screw through the bores.



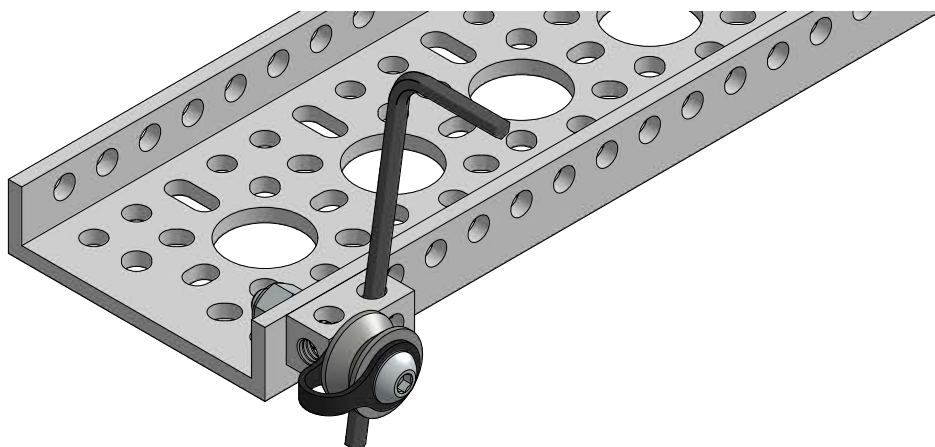
## STEP 2

Use a locknut and the pulley assembly you just made to attach a Square Beam to the side of the longest (13 hole) Low-Side U-Channel.



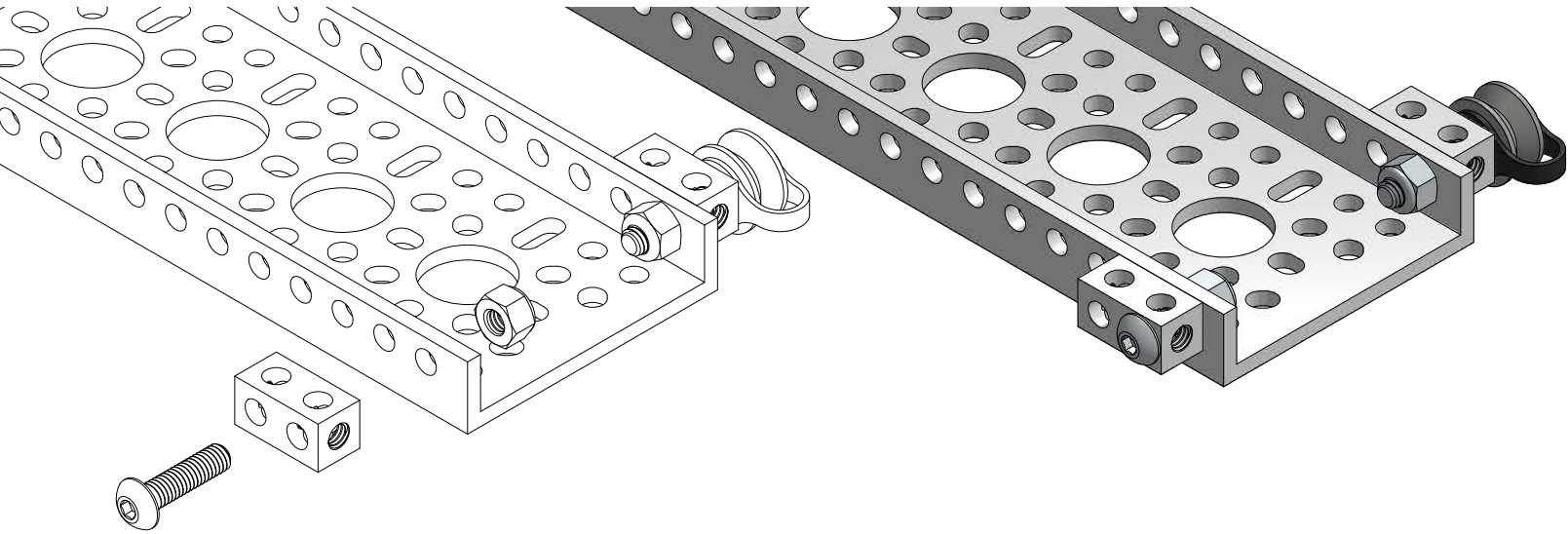
## TIP

After you tighten down the screw, you can adjust the angle of the Square Beam by using a hex key.



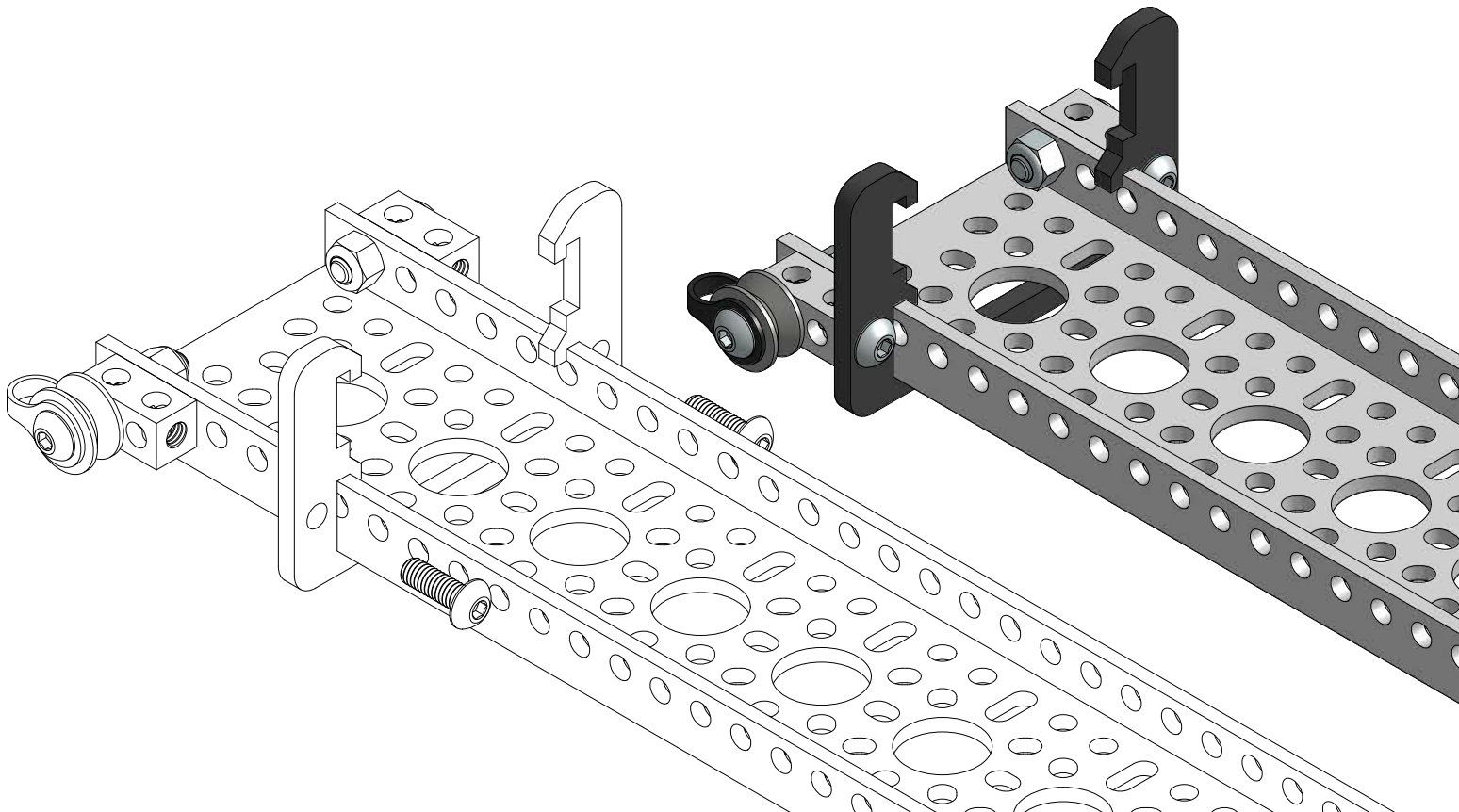
### STEP 3

Use a 16mm length screw and a locknut to attach another Square Beam to the other side. The goal is for both Square Beams to be completely parallel with the Low-Side U-Channel.



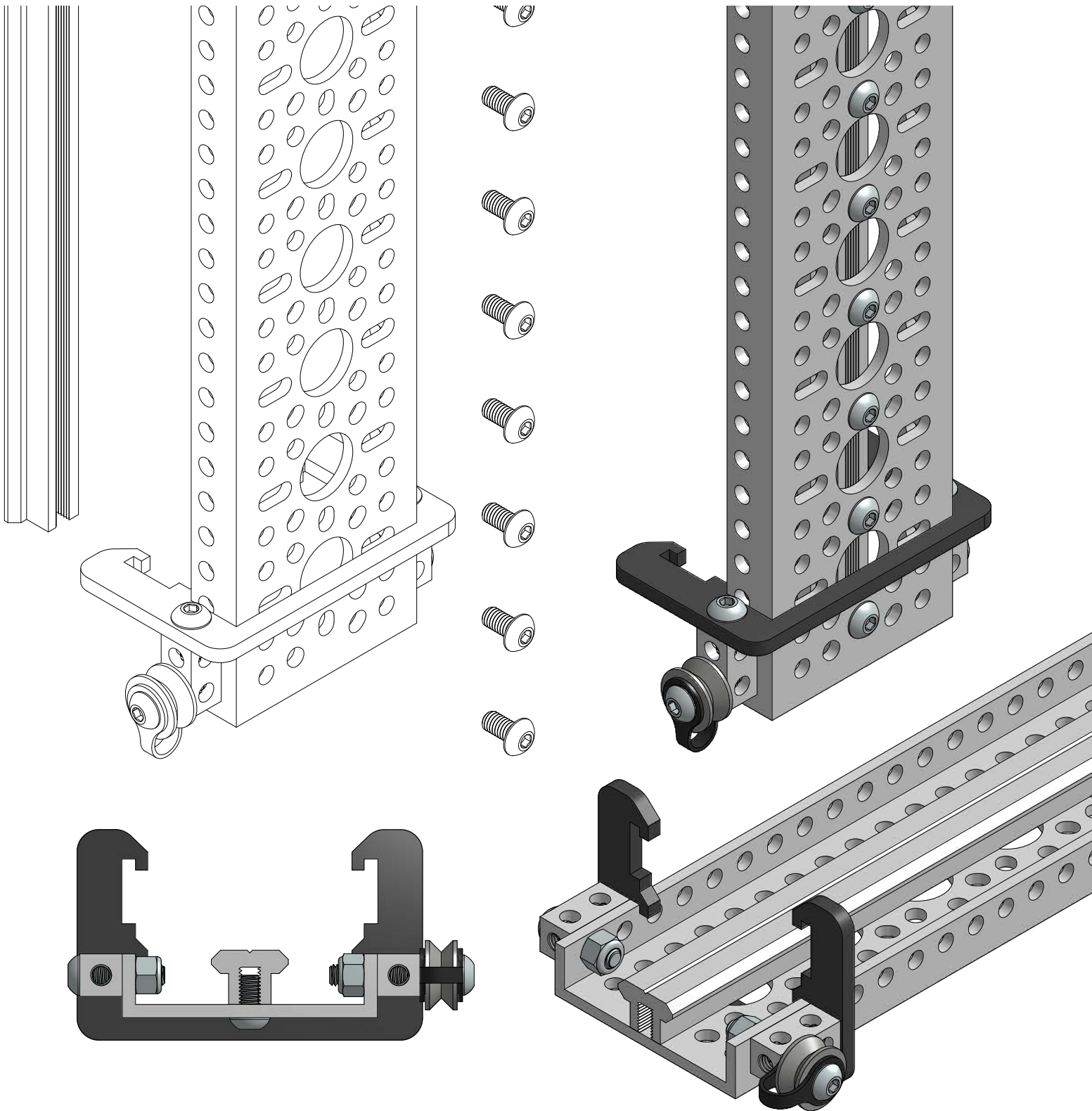
### STEP 4

Slide a Slide Guide Plate onto the Low-Side U-Channel as shown. Then fasten the plate to the Square Beams using two 12mm length screws.



## STEP 5

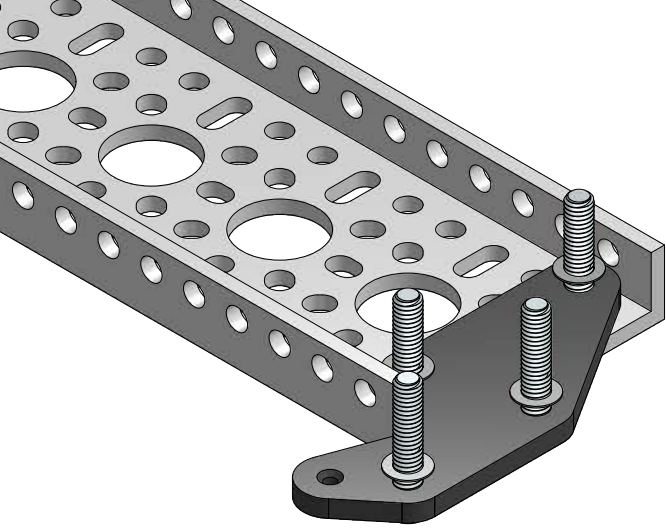
Stand the assembly up on your work surface as shown. Position it so that the plastic pulley shield is hanging off the edge of the work surface. Stand a V-Guide on the work surface next to it so that the ends of the V-Guide and Low-Side U-Channel are flush with one another. Fasten the V-Guide to the Low-Side U-Channel using twelve 8mm length screws.



## STEP 6

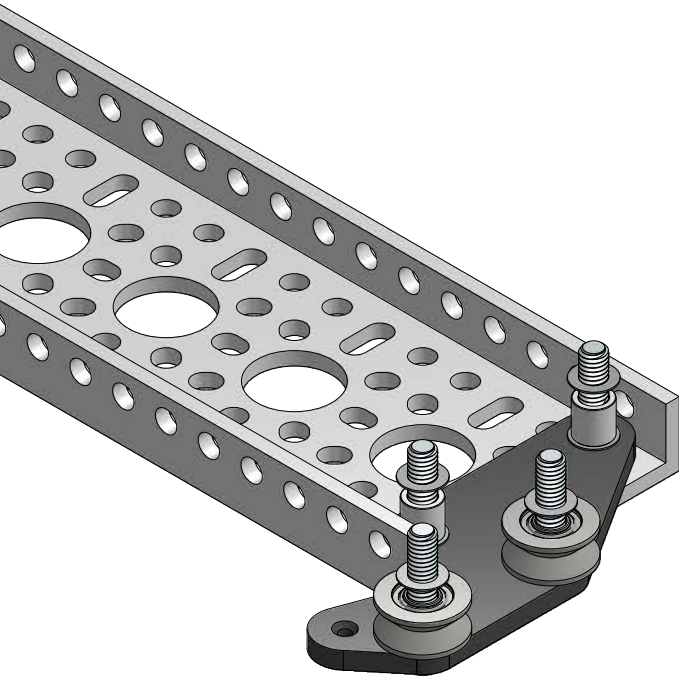
Repeat steps 1-5 using two of the 3 remaining shorter (11 hole) Low-Side U-Channels.





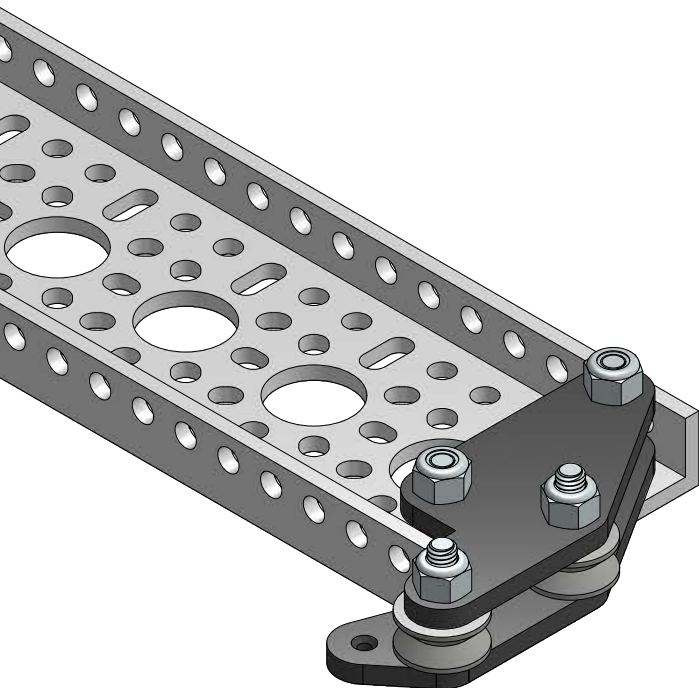
### STEP 7

Next we'll put together the pulley endcap assembly using the last Low-Side U-Channel. Use four 20mm length screws. Two will go through the bottom pulley endcap plate and the channel, while the other two will just go through the plastic plate. Stack a 0.25mm shim on each screw.



### STEP 8

Stack two 6mm spacers and two V-Groove Ball Bearings as shown. Then stack a 0.25mm shim on each screw.

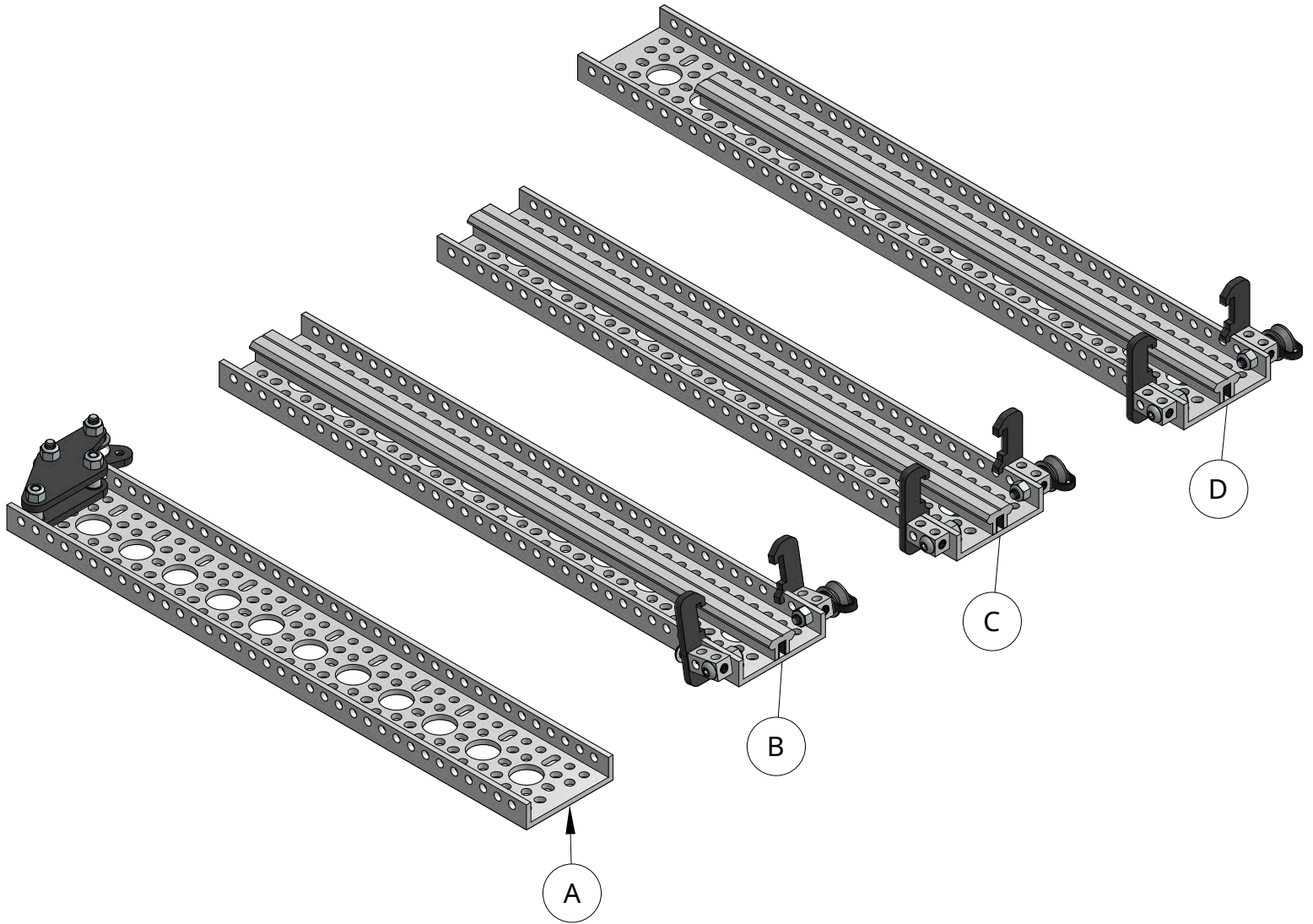


### STEP 9

Put the top pulley endcap plate in place as shown and fasten with four locknuts.

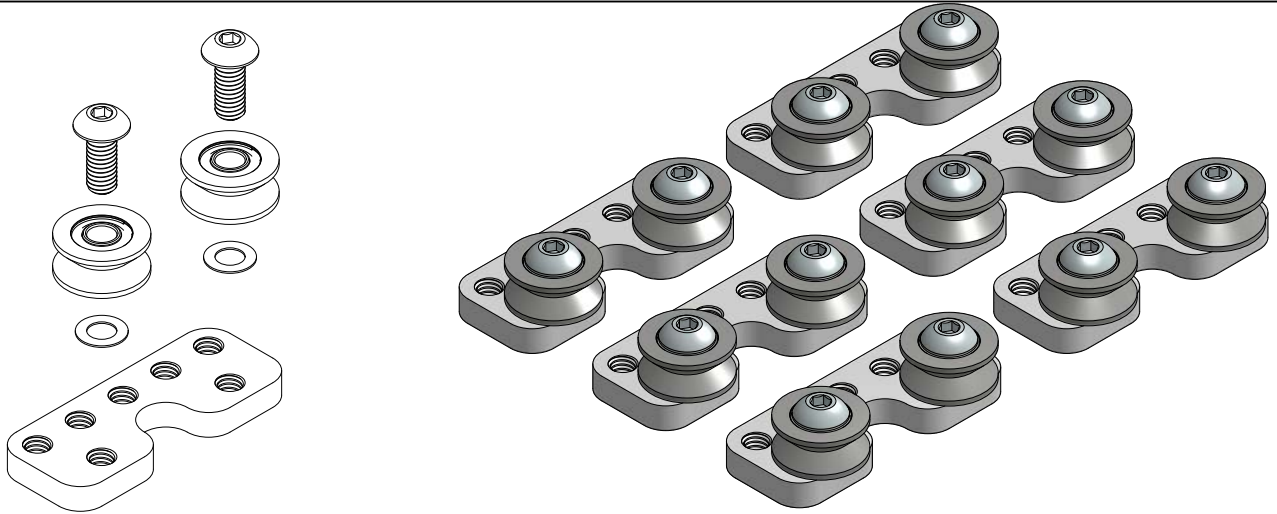
**TIP**

You should now have 4 segments (one long, and three short) that look like the ones shown below. We've lettered the segments to make them easier to refer to in future steps.



## STEP 10

Using two 10mm length screws, fasten two V-Groove Ball Bearings to a flat mount. Install one 0.25mm shim under each V-Groove Ball Bearing, this allows the bearing to spin freely. Repeat five more times for a total of six assemblies. Going forward, these will be referred to as the dolly assemblies.

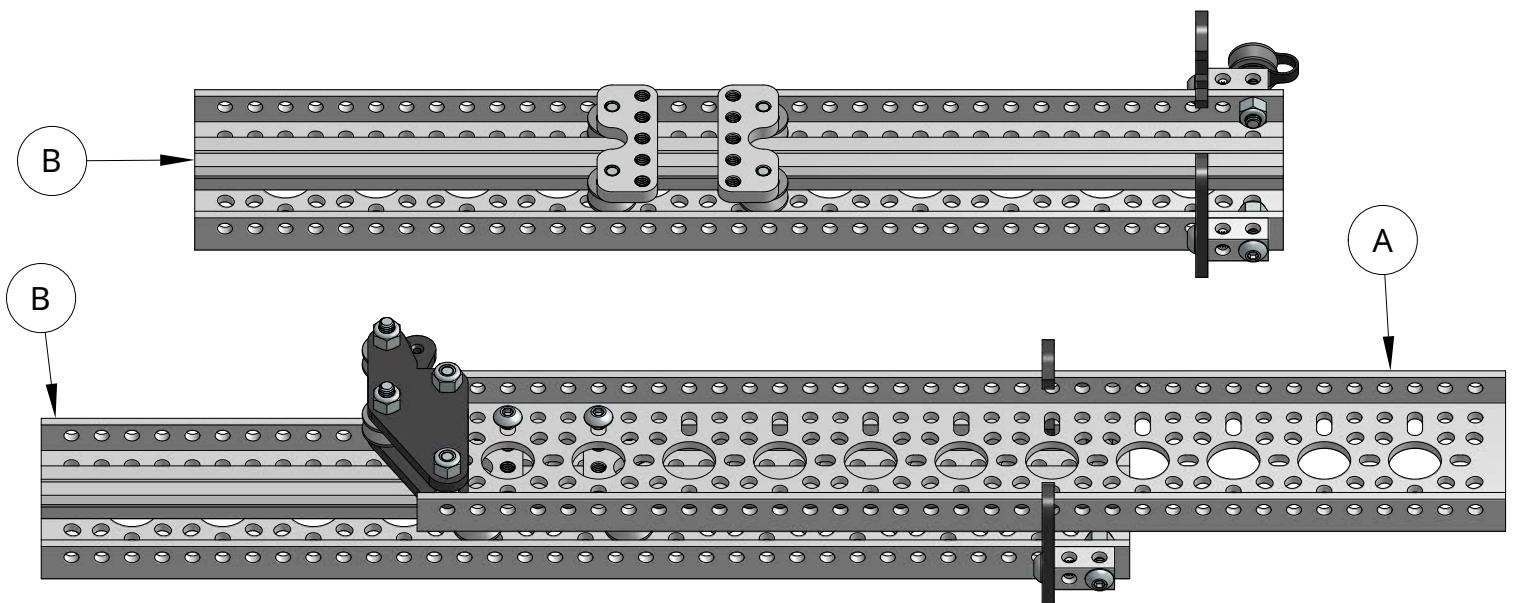


## TIP

Any screw in a threaded hole will have some amount of play. To get a tighter fit on the V-Guide, you can loosen the two screws and then squeeze the V-Groove Ball Bearings together while you tighten the screws again.

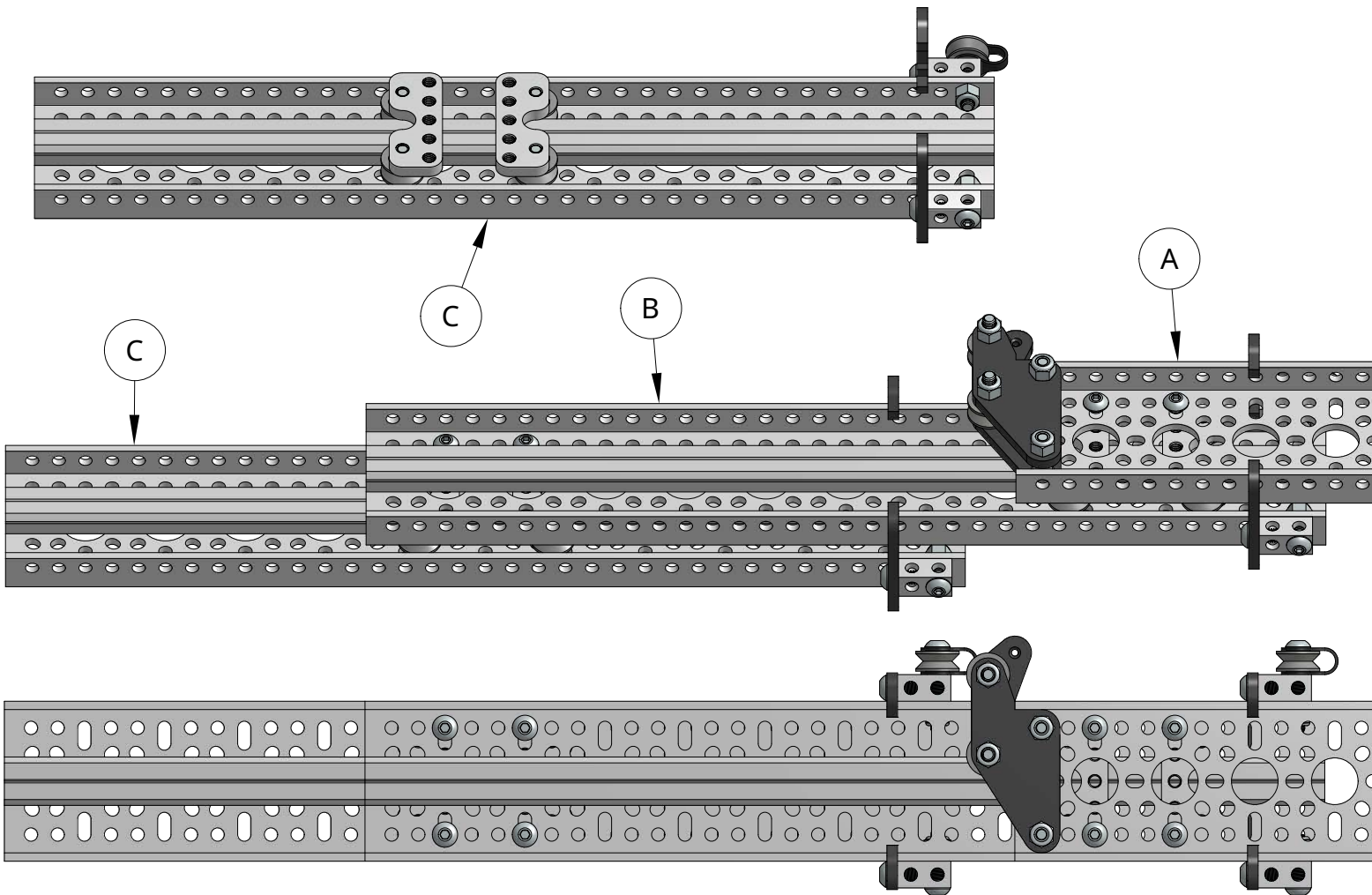
## STEP 11

Slide two dolly assemblies onto the V-Guide of Segment B. They should be facing away from one another (making a butterfly-like shape). Position them about half-way down the V-Guide. Slide Segment A into the Slide Guide Plate of Segment B. Then use four 6mm length screws to fasten Segment A to the dolly assemblies as shown.



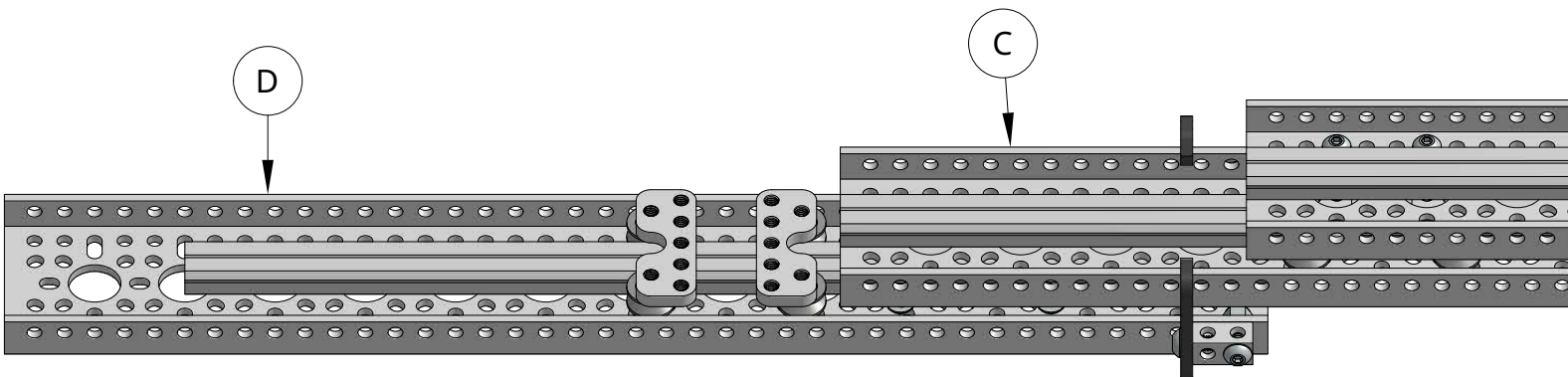
## STEP 12

Similarly, install two dolly assemblies on Segment C. Slide Segment B through Segment C's Slide Guide Plate. Use four 6mm length screws to fasten Segment B to the dolly assemblies.



## STEP 13

Use the last two dolly assemblies and four more 6mm length screws and apply the same techniques to join Segment C to Segment D.





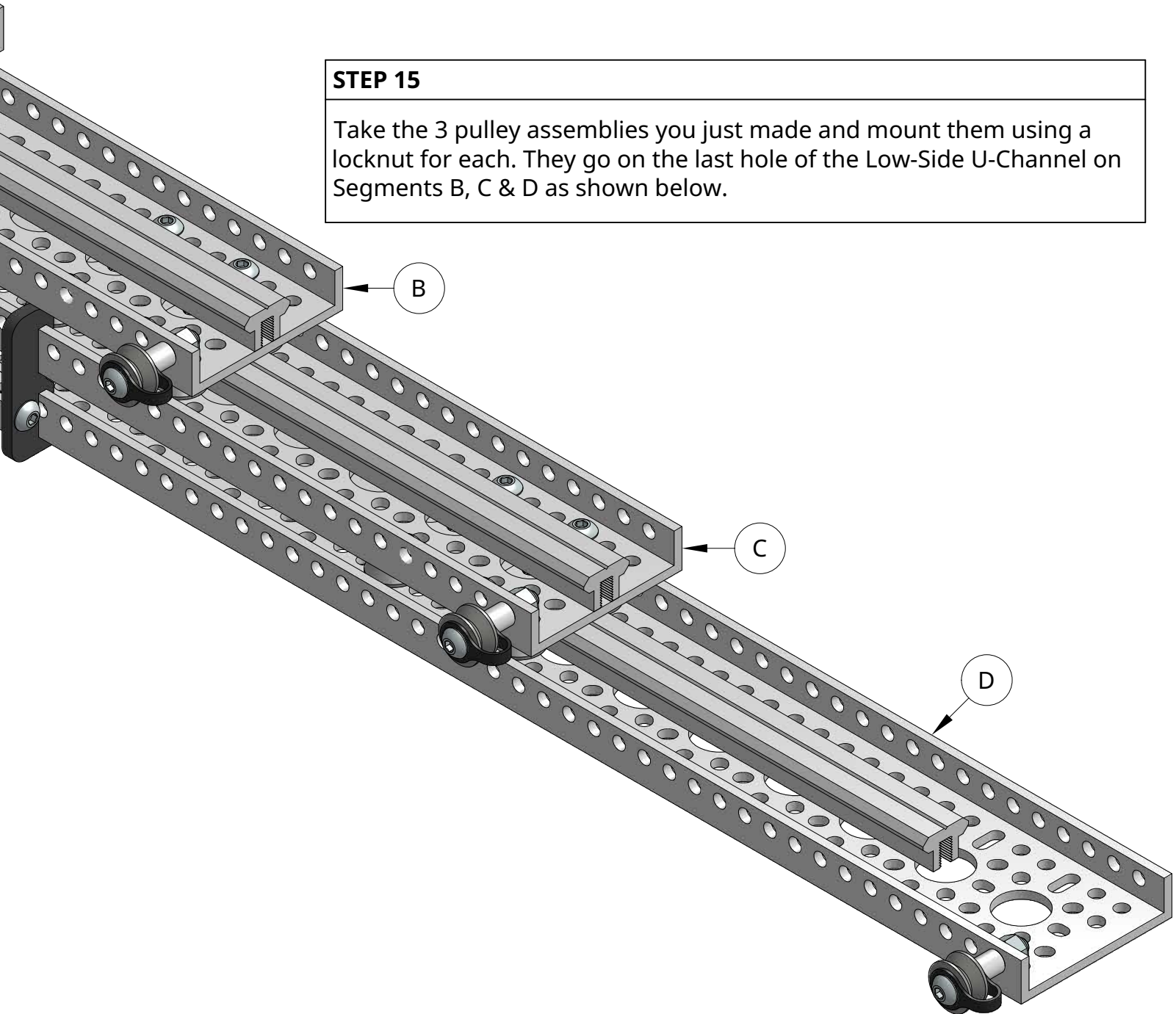
## STEP 14

Using a 25mm screw, a v-groove ball bearing, a v-groove bearing shield and two 0.25mm shims, create 3 more pulley assemblies like you did in Step 1. This time though, you will add an 8mm spacer on the end.



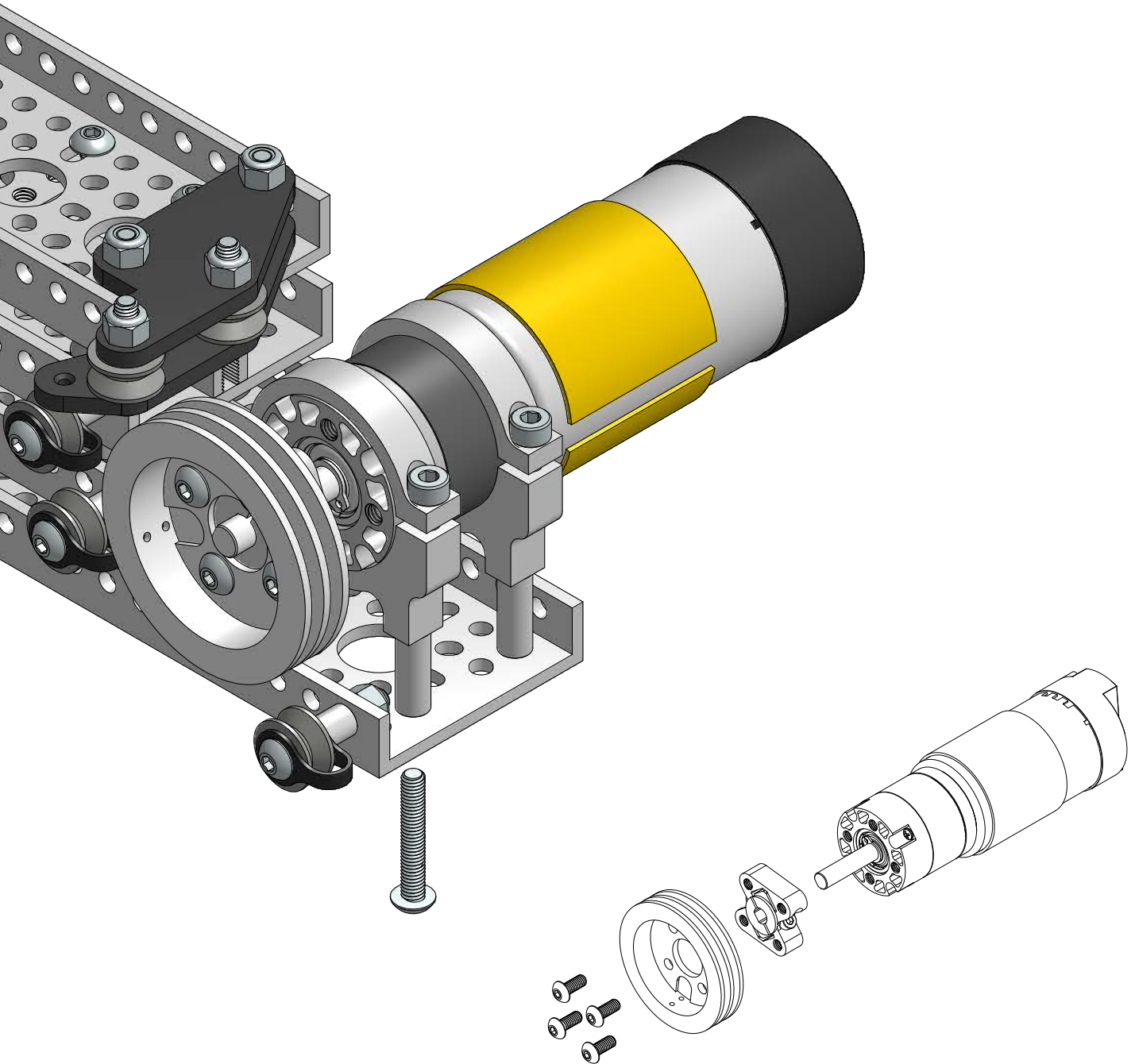
## STEP 15

Take the 3 pulley assemblies you just made and mount them using a locknut for each. They go on the last hole of the Low-Side U-Channel on Segments B, C & D as shown below.



## STEP 16

Use four 25mm screws and four 16mm spacers to mount two clamping mounts. Slide your motor into the clamping mounts and tighten the pinch bolts. Use four 8mm screws to fasten the winch pulley to the Sonic Hub. Finally slip the hub on the motor shaft and tighten the pinch bolts.



## Congratulations!

Your kit is now assembled! Make sure to check out our Rigging Guide document next.