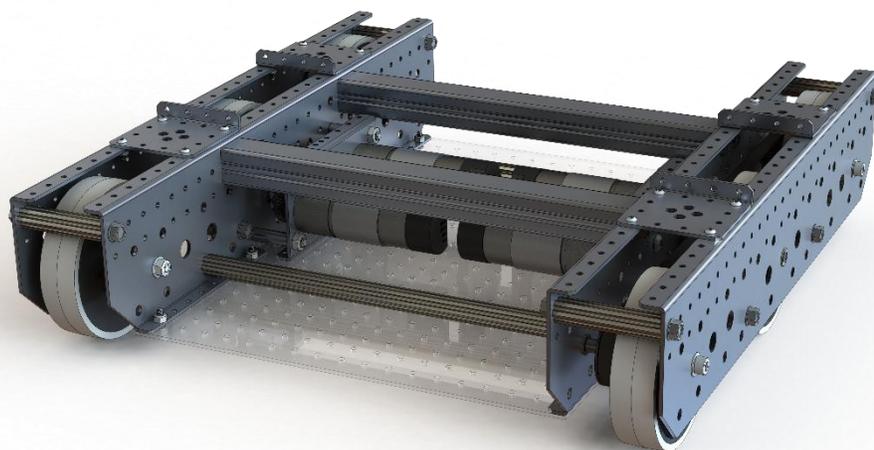




User Guide

TileRunner Chassis Base Kit



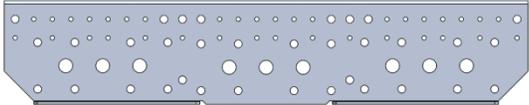
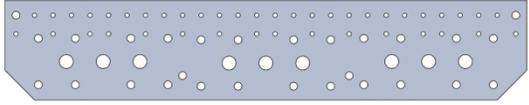
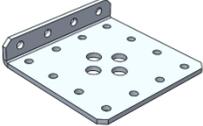
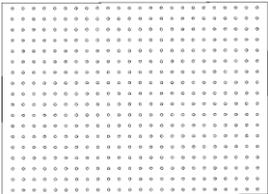
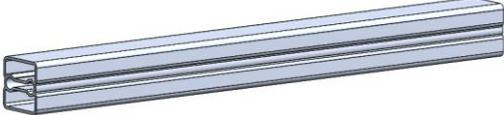
Additional Instructions Available

We encourage customers to seek product information at **AndyMark.com**, contact us via e-mail at **support@andymark.com**, or call Toll-Free **877-868-4770** with questions about any of our products.

TileRunner Recommended Hand Tool List (not included)

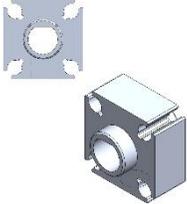
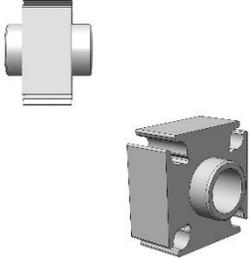
Component	Part Number	QTY	Part Photo
5/64" Allen Driver	am-3031	1	
3/32" Allen Driver	am-3173	1	
5/32" Allen Driver	am-2751	1	
5mm Allen Driver	am-1180	1	
5/16 Nut Driver	am-1273	1	
3/8" Nutsetter	am-2755	1	
10mm Nut Driver	am-1286	1	
1/2" - 9/16" Wrench	am-2746	1	
3/8"-7/16" Open End Wrench	am-2745	1	

TileRunner Bill of Materials

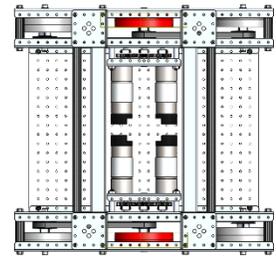
Component	Part Number	Quantity	Part Photo
am-3392_Inside	Chassis Inside Plate	2	
am-3392_Outside	Chassis Outside Plate	2	
am-3393	4x4 Plate	4	
am-3394	Belly Pan	1	
am-3395	Peanut, 11.25"	2	
am-3398	Churro, 11.25"	2	
am-3399	Churro, 63mm	8	
am-2648	4" Stealth Wheel	6	

am-2964a	NeveRest 40 Gearmotor	4	
am-2992	Hall Effect Encoder Cable	2	
am-1254	SHCS M3-0.5 x 6mm	24	
am-1310	Screw, Thread Forming 1/4-20 x 750	28	
am-1418	Screw, BHCS, 6-32 x 1/2"	56	
am-1419	Nut, Nylock, 6-32	32	
am-2768	Grease Packet	1	
am-3378	Belt, Timing, HTD 5mm pitch, 9mm wide, 93T	4	
am-3405	PicoBox Duo Plate	2	
am-3377	6x12x4 Flanged Bearing	14	

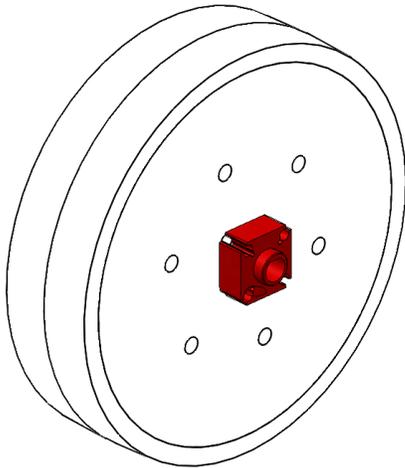
am-3407	Gear, 40T for PicoBox	6	
am-3408	Gear, 35T for PicoBox	4	
am-3409	Gear, 45T for PicoBox	4	
am-1102	Nut, nylock jam 1/4-20	8	
am-1111	Nut, nylock M6-1.0	4	
am-1415	Screw, BHCS, 6-32 x .750	8	
am-1416	Screw, BHCS, 6-32 x 1.25	16	
am-1417	Screw, SHCS, M6-1 x 75mm	4	
am-1420	Screw, BHCS, 1/4-20 x 1 3/4"	8	
am-3226-100	6mm D Shaft, 100mm, plated	2	
am-3406	PicoBox Spacer	8	
am-3424	Spacer, aluminum, 5/16 OD x .257 ID x 1/4 long	4	

am-3425	Spacer, aluminum, 8mm OD x 6.15mm ID x 15mm	2	
am-3426	Spacer, aluminum, 12.7mm OD x 6.15mm ID x 9mm	2	
am-3215	6MM D Bore Double Boss Nub w/Set Screw	8	
am-3413	6MM Round Bore Double Boss Nub w/Set Screw	4	
am-3401_half	24T HTD Pulley Half, 6MM Bore	12	
am-3404	24T HTD Pulley Extension	2	

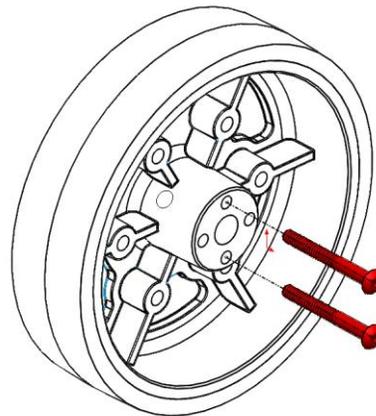
Center Wheel Assembly Instructions (QTY 2)



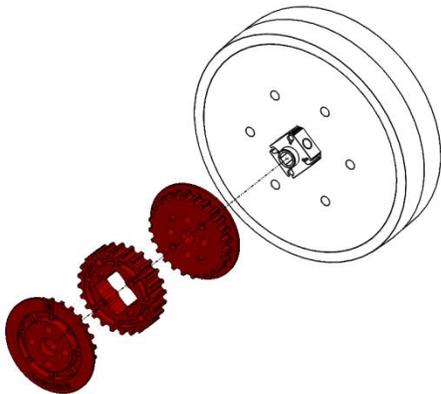
Step 1: Place a 6mm D-Bore Double Boss Nub (am-3215) into the center hole of a 4" 8mm Bore Stealth Wheel (am-2648).



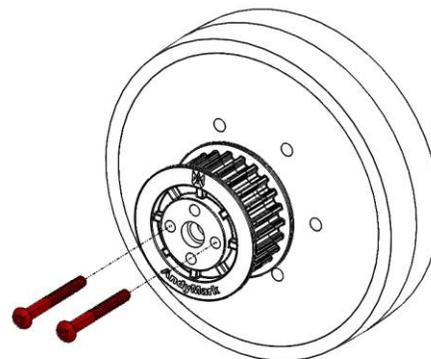
Step 2: Flip the wheel over and secure the Nub to the wheel by threading two 6-32 x 1.25" Button Head Screws (am-1416) into the Nub. Be sure to place the 6-32 screws in opposite holes of the wheels.



Step 3: Place an 24T HTD Pulley Extender (am-3404) between two 24T HTD Pulley Halves (am-3401_half), and place all three components onto the boss of the Nub



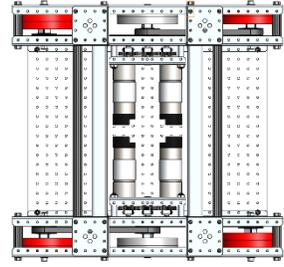
Step 4: Align the bolt circles of the Nub and the Pulley Assembly, and secure the pulley by threading two 6-32 x 1.25" Button Head Screws (am-1416) into the Nub. Be sure to thread the screws into the opposite holes that were used to secure the Nub to the Stealth Wheel.



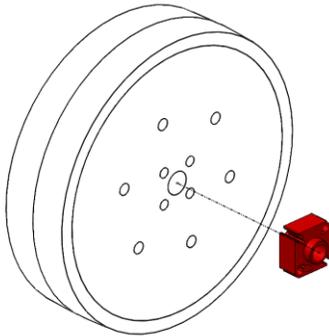
2X

NOTE: Repeat one more time to make 2 total Center Wheel Assemblies.

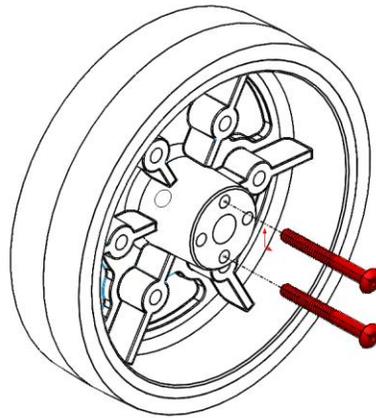
Corner Wheel Assembly Instructions (QTY 4)



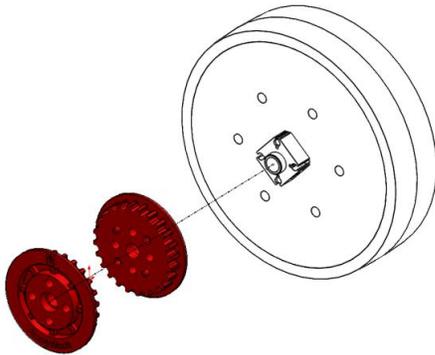
Step 1: Place a 6mm Round Bore Double Boss Nub (am-3413) into the center hole of a 4" 8mm Bore Stealth Wheel (am-2648) and align the bolt circles of the Nub and the Wheel.



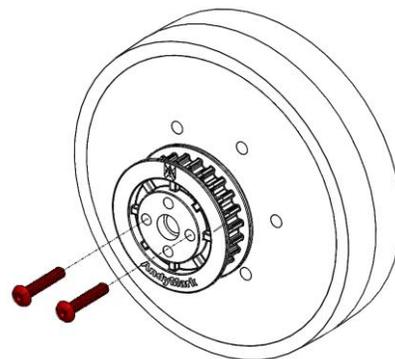
Step 2: Flip the wheel over and secure the Nub to the wheel by threading two 6-32 x 1.25" Button Head Screws (am-1416) into the Nub. Be sure to place the 6-32 screws in opposite holes of the wheels.



Step 3: Place two 24T HTD Pulley Halves (am-3401_half) onto the boss of the Nub.



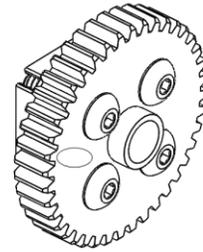
Step 4: Align the bolt circles of the Nub and the Pulley Assembly, and secure the pulley by threading two 6-32 x 0.750" Button Head Screws (am-1415) into the Nub. Be sure to thread the screws into the opposite holes that were used to secure the Nub to the Stealth Wheel.



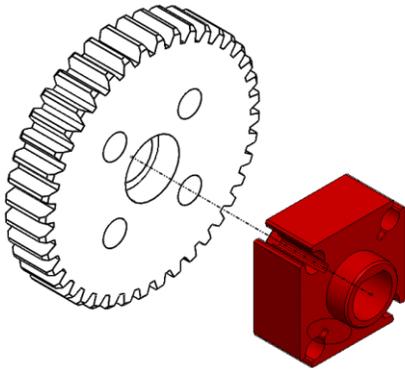
4X

NOTE: Repeat 3 more times to make 4 total Corner Wheel Assemblies.

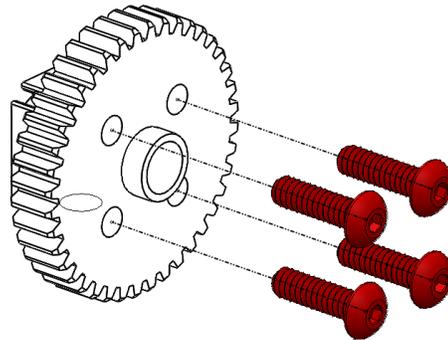
PicoBox Gear Assembly Instructions



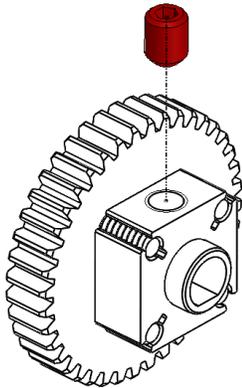
Step 1: Place a 6mm D Bore Double Boss Nub (am-3413) into the center hole of a 40T Gear for PicoBox (am-3407) and align the bolt circles of the Nub and the Gear.



Step 2: Flip the gear over and secure the Nub to the gear by threading four 6-32 x 0.500" Button Head Screws (am-1418) into the Nub.



Step 3: Ensure that a #10-32 Set Screw is partially threaded into the Nub.



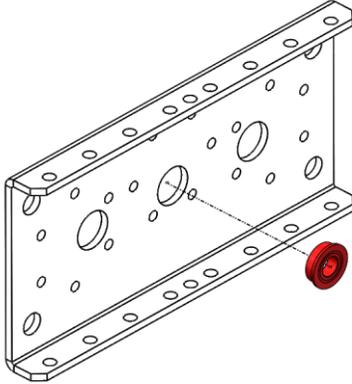
NOTE: These instructions provide steps to create a PicoBox Duo that utilizes a 1:1 gear ratio between the NeverRest motors and the PicoBox Output shaft. To utilize the other included 1.28:1 or 1:0.78 ratios, follow these steps with the included 35 Tooth and 45 Tooth gears.

NOTE: Repeat 5 more times to make 6 total Gear Assemblies.

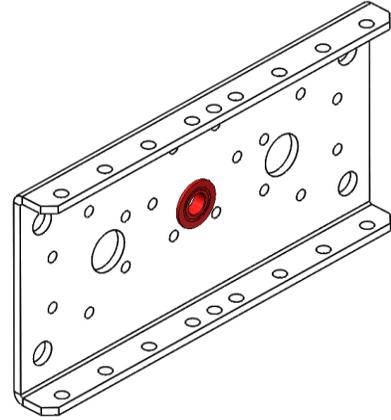
6X

PicoBox Duo & Chassis Assembly Instructions

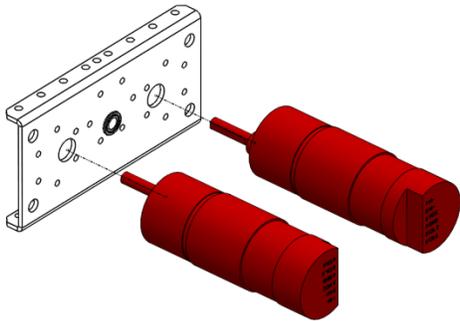
Step 1: Press a 6x12x4 Flanged Bearing (am-3377) into the center 12mm hole of a PicoBox Duo gearbox plate (am-3405).



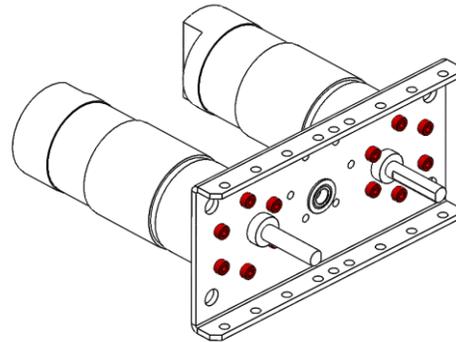
Step 2: Make sure the flange of the bearing is on the same side of the plate as the flanges, and is flush against the sheet metal of the gearbox plate.



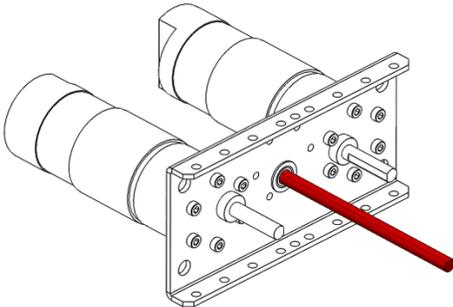
Step 3: Insert a NeveRest 40 (am-2964a) motor into the remaining 12mm holes of the PicoBox Duo gearbox plate, opposite of the flanges on the gearbox, and line up the threaded holes on the end of the motor with the bolt-circle holes of the gearbox plate.



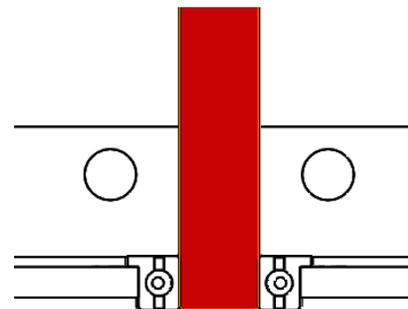
Step 4: Install six M3 x 0.5 x 6mm long SHCS (am-1254) in each NeveRest motor to secure it to the gearbox plate.



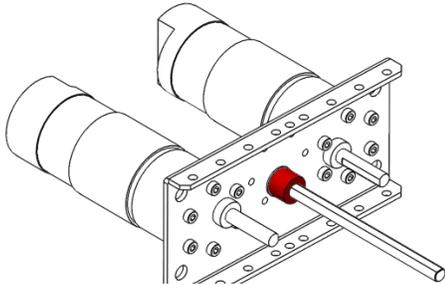
Step 5: Install the 6mm D-Shaft (am-3226-100) into the center bearing on the PicoBox Duo.



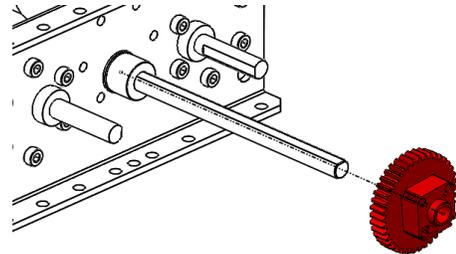
Step 6: Ensure that the end of the shaft is flush with the end of the bearing.



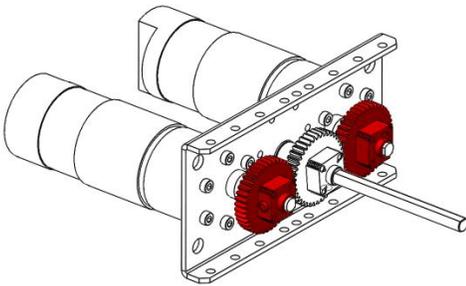
Step 7: Install the 9 mm long Aluminum Spacer (am-3426) on the center axle up against the previously installed bearing.



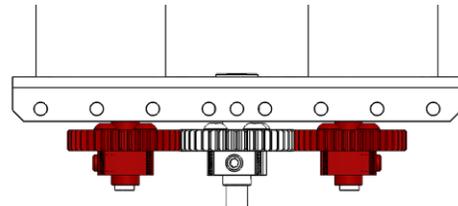
Step 8: Install one Gear Assembly onto the center axle of the gearbox. Be sure to place the boss of the Gear against the spacer. Tighten the #10-32 set screw to lock the Gear Assembly in place.



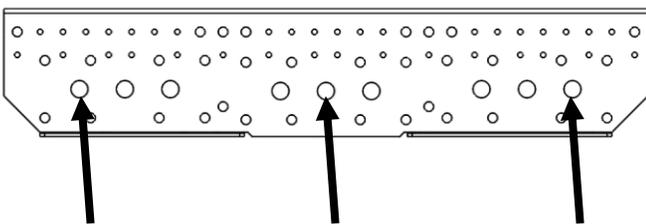
Step 9: Install a Gear Assembly onto each of the NeveRest Motor shafts. These gears will need to be of equal size in order for the gears to mesh together.



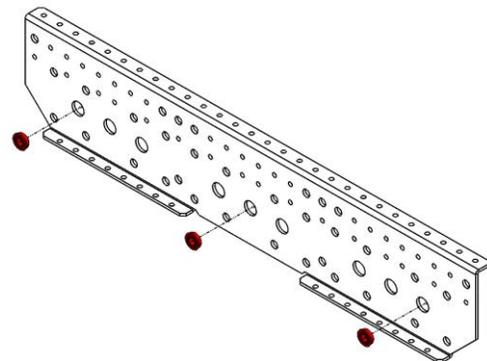
Step 10: Ensure that all of the gears are aligned with each other and tighten the #10-32 Set screws to lock all the gear assemblies in place.



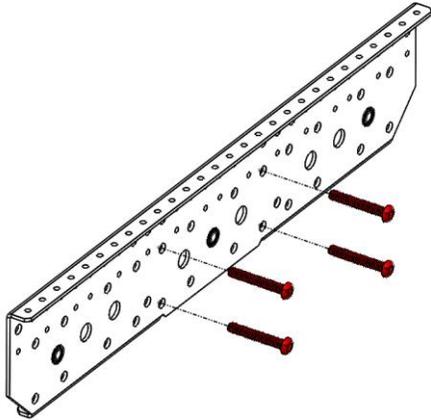
Step 11: Locate the bearing holes on the Tile Runner Chassis. For standard configuration locate the following holes on the chassis.



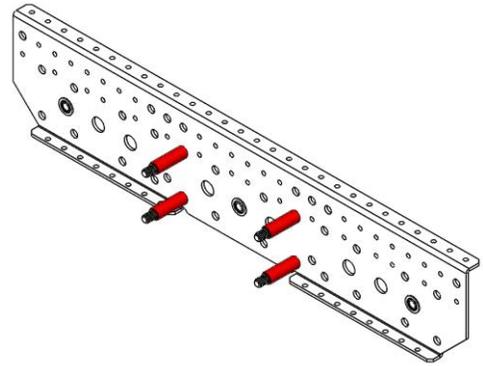
Step 12: Press a 6x12x4 flanged bearing into the center 12mm hole of the TileRunner Inside Plate (am-3392_Inside), on the same side of the plate that has two separate flanges. Then press two more bearings into the end-most 12mm holes of the TileRunner Inside Plate. Make sure the bearing flanges are flush against the sheet metal.



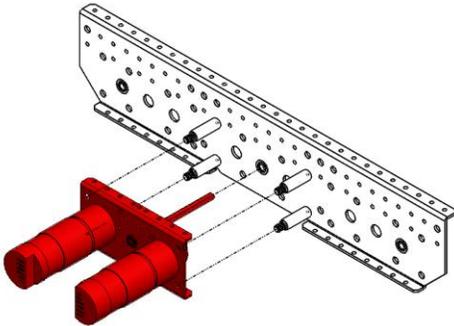
Step 13: Insert four 1/4-20 x 1.75" Button Head Screws (am-1420) into the side of the Inside Plate with a single solid flange.



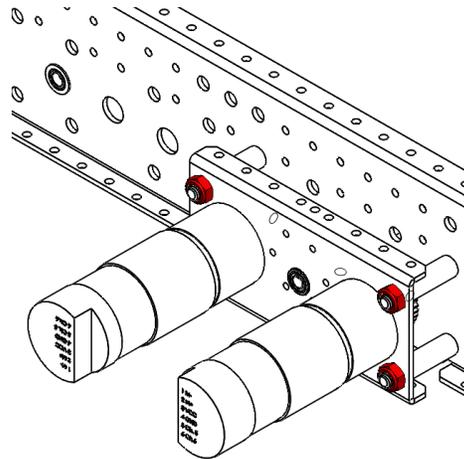
Step 14: Place a PicoBox Spacer (am-3406) over all four 1/4-20 screws on the side of the Inside Plate with two flanges.



Step 15: Insert the Center Axle of the Gearbox Assembly into the center bearing on the TileRunnerInside Plate. Align the four 1/4-20 screws with the four 1/4" holes on the PicoBox Duo Plate, and push the assembly together until the PicoBox Duo plate is up against the PicoBox Spacers.

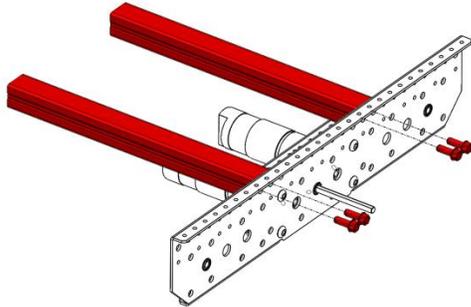


Step 16: Secure with four 1/4-20 Nylock Jam Nuts (am-1102).

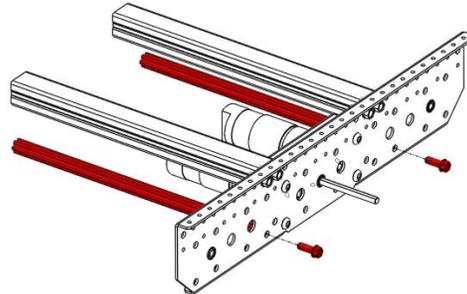


Step 17: Repeat Steps 1-12 to create another PicoBox Duo - TileRunner Inside Plate Assembly.

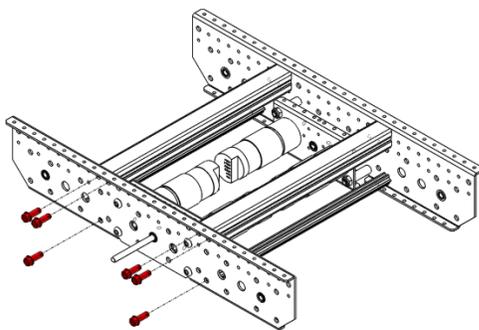
Step 18: Attach two 11.25" Peanut Extrusions (am-3395) to one PicoBox Duo - TileRunner Inside Plate Assembly (on the same side of the plate as the PicoBox Duo,) using four 1/4-20 x 0.750" Self Threading Screws (am-1310) to the indicated attachment points.



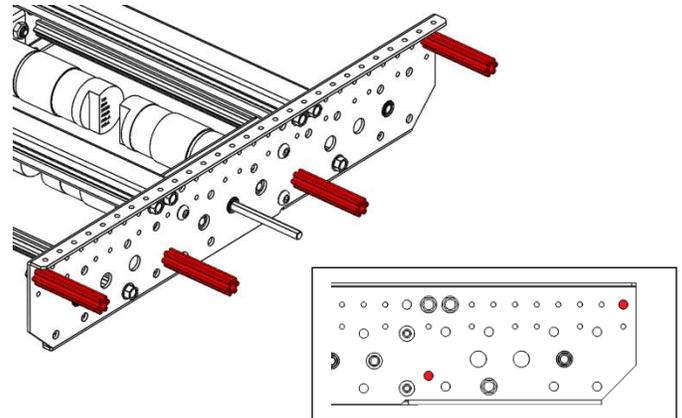
Step 19: Attach two 11.25" Churro Extrusions (am-3398) to one PicoBox Duo - TileRunner Inside Plate Assembly (on the same side of the plate as the PicoBox Duo,) using two 1/4-20 x 0.750" Self Threading Screws (am-1310) to the indicated attachment points.



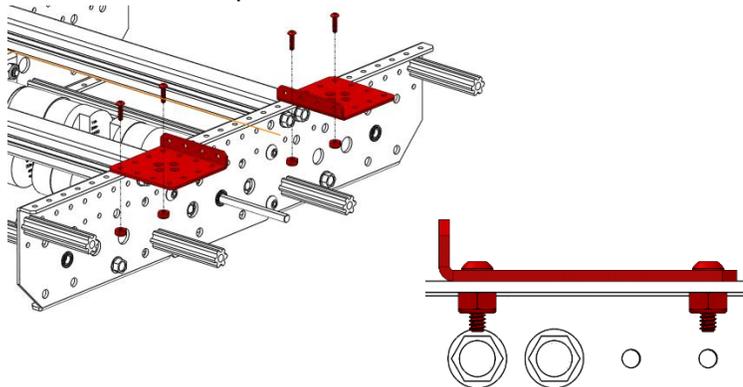
Step 20: Place the remaining PicoBox Duo - TileRunner Inside Plate Assembly together, ensuring the gearboxes are both on the inside of the chassis, and secure using six 1/4-20 x 0.750" Self Threading Screws (am-1310).



Step 21: Attach four 63mm Churro Extrusions (am-3399) to one of the Inside Plates using 1/4-20 Self Threading Screws (am-1310) in the positions indicated in the diagram

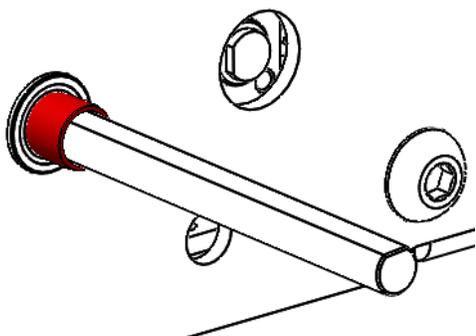


Step 22: Attach two 4x4 Plates (am-3393) to the Inside Plate using two 6-32x0.500" Button Head Screws (am-1418) and two 6-32 Nylock Nuts (am-1419) on each 4x4 plate.

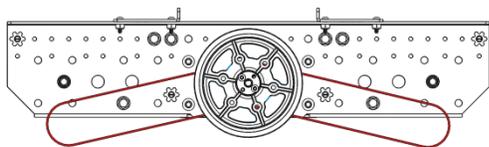


Step 23: Repeat steps 21 and 22 to add 63mm Churros and 4x4 Plates to the other side.

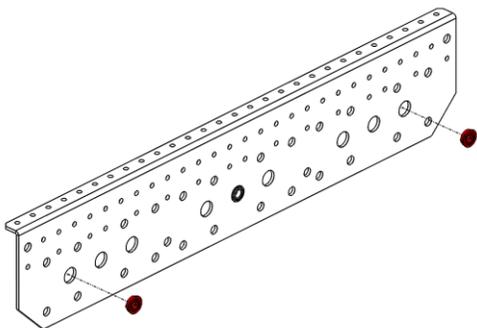
Step 23: Install a 0.25" long Aluminum Spacer (am-3424) onto the Center Shaft.



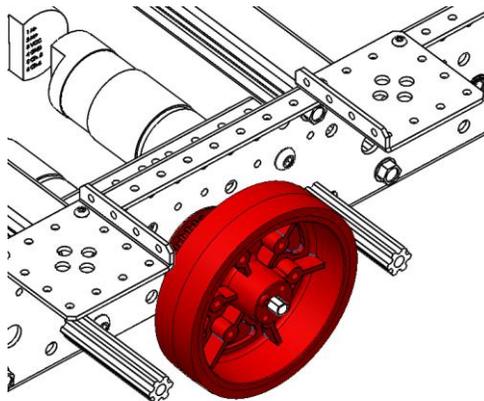
Step 25: Wrap two 93 Tooth Belts (am-3378) around the Pulley on the Center Wheel Assembly. Be sure to wrap the belts around the lower Churro Extrusions in the drive module so they can be installed on the Outer Wheel Assemblies.



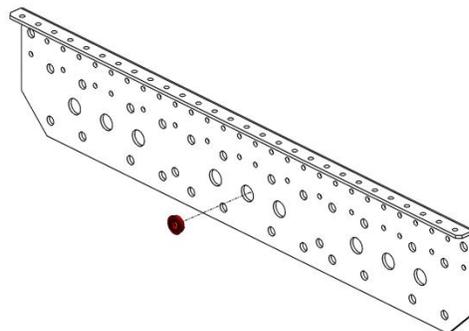
Step 27: Flip the plate over and press two more bearings into the end-most 12mm holes of the Outside Plate. The flange on the bearing should be on the side opposite the flange on the sheet metal. Make sure that the bearing flanges are flush against the sheet metal.



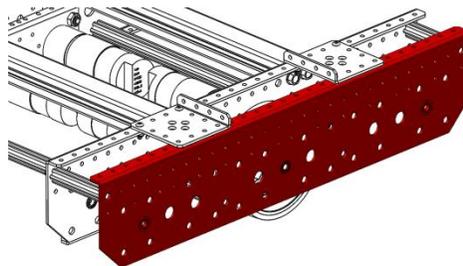
Step 24: Install the Center Wheel Assembly onto this shaft and over the spacer such that it is flush with the bottom of the cavity in the pulley. Lock the wheel in place using the #10-32 set screw on the Nub.



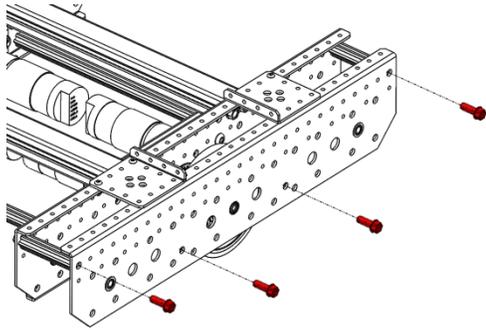
Step 26: Press an 6x12x4 Flanged Bearing (am-3377) into the center 12mm hole of the Outside Plate (am-3392_Outside). The flange on the bearing should be on the same side of the plate that has the flange. Make sure that the bearing flanges are flush against the sheet metal.



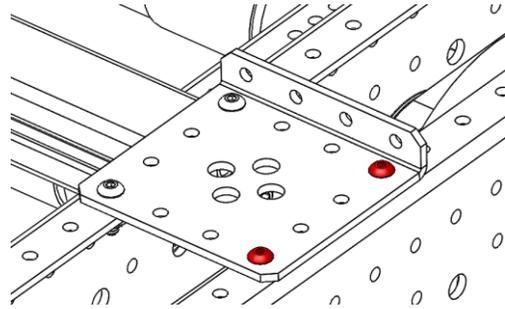
Step 28: Slide the Center Axle into the center bearing previously installed into the Outside Plate, and make sure the flange of the Outside Plate points toward the chassis.



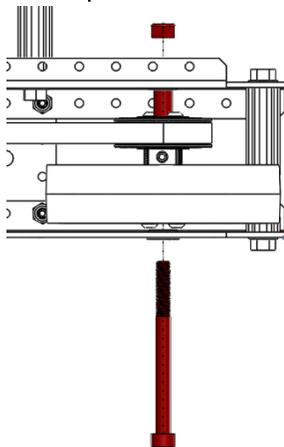
Step 29: Secure the Outside Plate to the chassis by threading four 1/4-20 Self Threading Screws (am-1310) into the four 63mm Churro Extrusions on the Drive Module. Be careful not to pinch the belts while installing the Outside Plate.



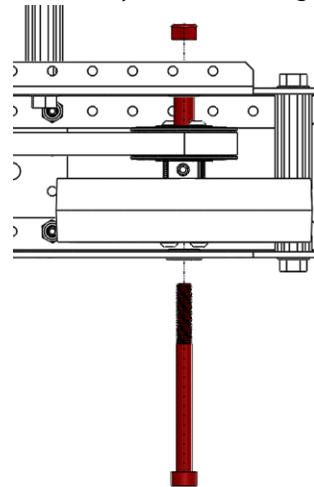
Step 30: Attach the 4x4 Plates (am-3393) to the Outer Plate using two 6-32 x 0.500" Button Head Screws (am-1418) and two 6-32 Nylock Nuts (am-1419) on each 4x4 Plate.



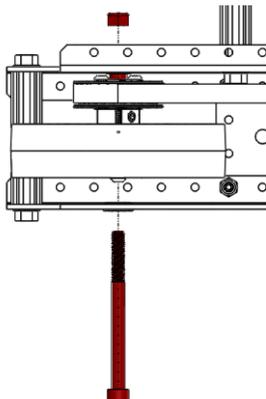
Step 31: Place a 15mm long Aluminum Spacer (am-3425) into the center cavity of the pulley in an Outer Wheel Assembly, and place the assembly in between the Inside and Outside plates ensuring the belt wraps around the pulley. The belt should sit parallel to the inner plate.



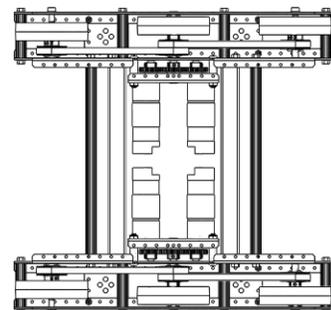
Step 32: Insert a M6 x 75mm SHS (am-1417) into the bearing of the Outer Plate, through the Outer Wheel Assembly and aluminum spacer, and through the bearing on the Inside Plate. Secure the bolt using an M6 Nylock nut (am-1111). Do not overtighten – the bolt should move freely in the bearing.



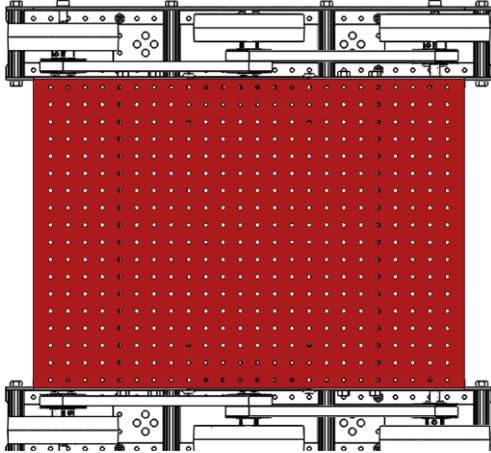
Step 33: Repeat Steps 31-32 on the other Outer Wheel Assembly using a 0.250" long Aluminum Spacer (am-3424) between the pulley and the bearing on the Inside Plate.



Step 34: Repeat Steps 23-33 to assemble the other half of the drivetrain. Be sure to use the same length aluminum spacers on each Outer Wheel Assembly at each end of the chassis to ensure the wheel spacing is symmetrical.



Step 35: Install the Belly Pan (am-3394) onto the bottom flanges of the Inside Plates, and secure with eight 6-32 x 0.500" Button Head Screws (am-1418) and eight 6-32 Nylock Nuts (am-1419). Install the screws and nuts at each end of the two flanges on each Inside Plate.



Step 36: Congratulations! You now have a complete TileRunner Drive Chassis.

