



Swerve & Steer AM-3009

PART REV:

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Rotational Center (ip-3009 page1)

REV DATE: 8/14/2019

QTY	Parts Needed On This Page	Tools Needed On This Page
1	AM-3013 40T Steer Gear, plated	Arbor Press
1	AM-0253 1/2" ID, 1/2" Long Bushing	5/32 Allen Wrench
1	AM-0028 3/8" ID Flanged, Ball Bearing (FR6ZZ)	Drill with 5/32 Allen Bit
1	AM-3017 Swerve & Steer Gear Plate	
1	AM-2928 1.25" ID Bearing (R20ZZ)	
1	AM-3016 Swerve & Steer Bearing Plate	
1	AM-2927 Thrust Bearing, 2" OD 1/16" Thick	
4	AM-1120 #10-32x5/8" SHCS w/ Nylon Thread Lock Patch	

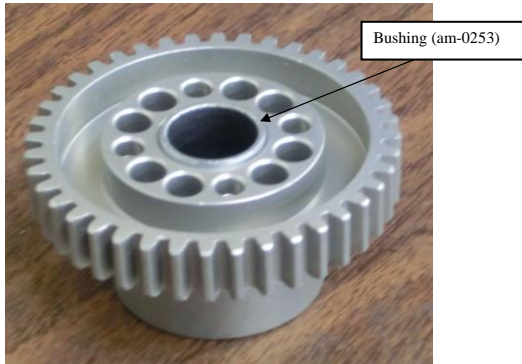
Step 4

Press the sleeve gear assembly through the center of the bearing plate assembly so that the gear and bearing are in contact.



Step 1

Press one bushing (am-0253) into the gear side of the Steer Gear (am-3013) using an arbor press.



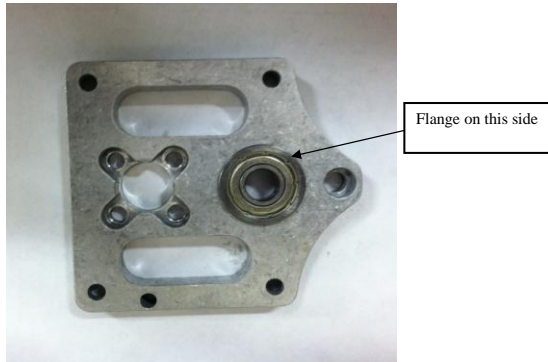
Step 5

Place the thrust washer (am-2927) onto the top side of the Bearing Plate (am-3016).



Step 2

Press an FR6ZZ (am-0028) bearing into the Gear Plate (am-3017).



Step 6

Add the gear plate so that the recesses are facing outwards. Insert and tighten four nylon thread screws (am-1120). (Tighten all the way and then back off 1/2 turn to allow bearing plate to rotate freely)



Step 3

Press an R20ZZ bearing (am-2928) into the Bearing Plate (am-3016).





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Wheel Housing (ip-3009 page2)

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QTY	Parts Needed On This Page	Tools Needed On This Page
6	AM-1123 #10-24x3/4" Thread Forming Screw	5/16" Socket Head
1	AM-2231 375 Hex Hub	Arbor Press
1	AM-2256 4 inch HiGrip Wheel	
1	AM-3020 U Housing for Swerve & Steer	
2	AM-0692 3/8" Hex Flanged Bearing (FR6ZZL-Hex)	
1	AM-0030 1/2" ID Flanged Bearing (FR8ZZ)	
1	AM-0028 3/8" ID Flanged, Ball Bearing (FR6ZZ)	
1	AM-3019 Bevel Input Shaft	
1	AM-1121 2x2x10mm Machine Key	
1	AM-2621 20 Tooth Mod 1.25 375 Key Bore Bevel Gear	
1	AM-0033 Retainer Clip, 8mm ID	
1	AM-3021 375 Hex Output Shaft for Swerve & Steer	
1	AM-2930 Spacer, Plastic, 0.443 ID, .750 OD, .125 thick	
1	AM-2620 40 Tooth Mod 1.25 3/8 Hex Bore Bevel Gear	
2	AM-1124 External klipping for 3/8" Shaft	

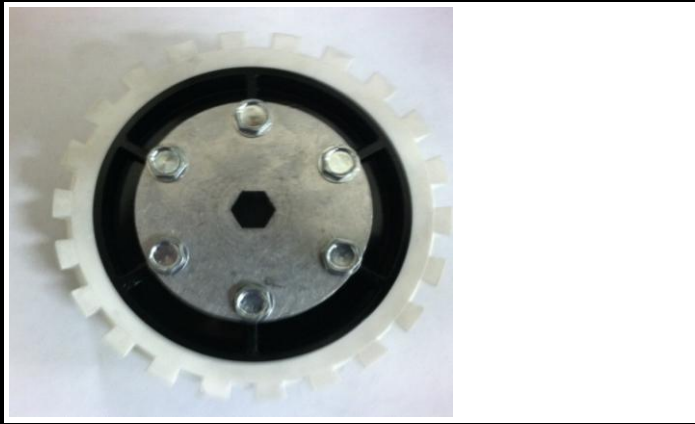
Step 9
 Insert the Bevel Input Shaft (am-3019). Place the machine key (am-1121) in the groove.



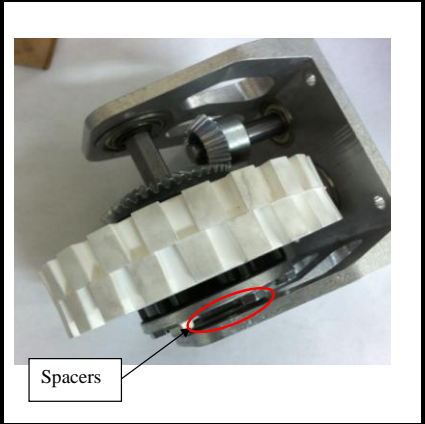
Step 10
 Attach the small Bevel Gear (am-2621) and secure in place with a retaining clip (am-0033).



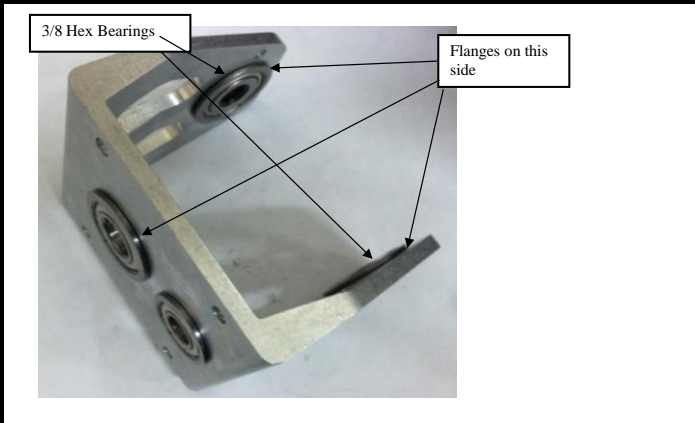
Step 7
 Attach the 3/8" Hex Hub (am-2231) to the HiGrip wheel (am-2256) with 6 thread forming screws (am-1123).



Step 11
 Insert the Hex Output Shaft (am-3021) so that the (2) slots are below the bevel gear. Add a 1/8" plastic spacer (am-2930), HiGrip wheel (am-2256), and the 40 Tooth Bevel Gear (am-2620).



Step 8
 Press bearings into the U housing (am-3020). Both hex bearings (am-0692) will have their flanges on the inside while both round bore bearings (am-0030 and am-0028) will have their flanges on the outside.



Step 12
 Secure the shaft and hardware in place with two klipping (am-1124) inserted into the grooves.





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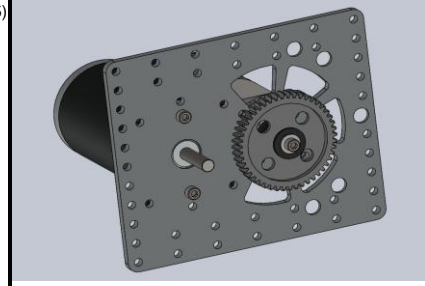
Motor Mounting (ip-3009 page3)

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QTY	Parts Needed On This Page	Tools Needed On This Page
1	am-4056 Gear, 48T 20DP 14.5PA .500IN Hex Bore	5/32 Allen Wrench
1	am-3012c Swerve & Steer Motor Mount Plate	M3 Allen Wrench
1	am-3652 PG71 Gearmotor with .500 Output Shaft	
4	am-1264 Screw, SHCS, M4-0.7 x 10mm	
2	am-3948-063 1/2" Hex Molded Spacer, .063	
1	am-3948-250 1/2" Hex Molded Spacer, .250	
1	AM-0255 2.5" CIM Motor	
2	AM-1120 #10-32x5/8" SHCS w/ Nylon Thread Lock Patch	
	am-1523 Washer, #10 x 3/4 Fender	
1	am-3948-125 1/2" Hex Molded Spacer, .125	

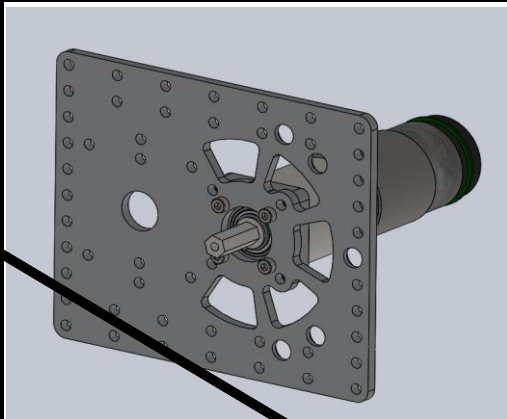
Step 16

Insert and attach the CIM motor (am-0255) using two nylon thread screws (am-1120).



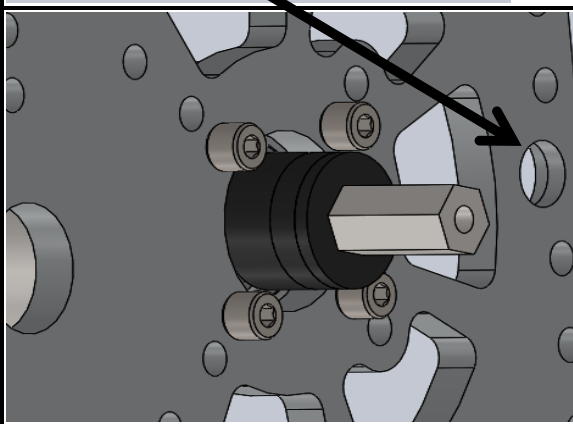
Step 13

Attach the PG71 gearmotor to the Motor Plate (am-3012c) using (4) M4 screws (am-1264) and blue Locktite. The counterbored holes face "up" toward the motor



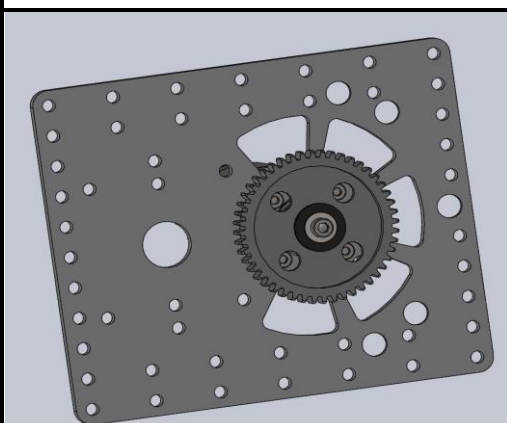
Step 14

Slide ONE of EACH thickness of black hex spacer onto the shaft



Step 15

Slide the 500 hex bore Gear (am-4056) onto the shaft. Then slip on the thinnest black hex spacer on after the gear and retain the gear with the #10 washer and the 5/8 long 10-32 screw





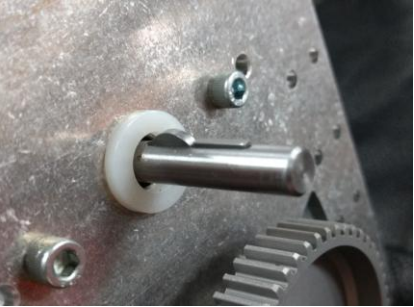
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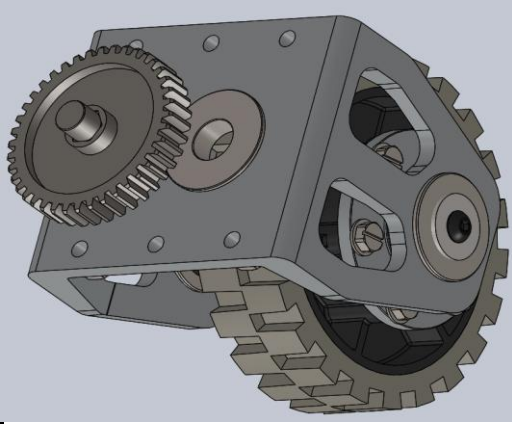
Overall Assembly (am-3009 page4)

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QTY	Parts Needed On This Page	Tools Needed On This Page	<h2>Step 20</h2> <p>Place both the woodruff key (am-1433) and the 2mmx2mm Key (am-1121) on the CIM output shaft in the key slot in the shown orientation</p> 
1	am-2930 Spacer, 0.443 id, .750 od, .125 Thick, Plastic	5/32 Allen Wrench	
1	am-3976 Gear, 40T 20DP 14.5PA .375IN Hex Bore	3/8" Wrench	
1	AM-3018a 12 Tooth Gear Shaft for Swerve & Steer	Arbor Press	
4	AM-1041 Screw, SHCS 10-32 X 1250		
4	AM-2919 Spacer, Aluminum, .62"		
8	AM-1042 10-32 Nylock Jam Nut		
1	AM-3792 Collar Clamp, 1/2"		
4	AM-1048 Screw 10-32 SHCS X 1750		
4	AM-2920 Spacer, Aluminum, 1.100"		
1	AM-1433 Woodruff Key		
1	AM - 1121 2MM x 2MM KEY		

Step 17

On the wheel housing assembly, add the 40T Gear (am-3976) to the end of the bevel gear shaft.



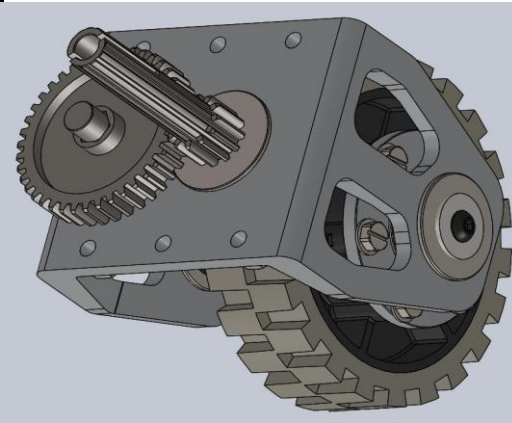
Step 21

Slide one 1/2" collar clamp (am-2929) onto the tip of the gear shaft.



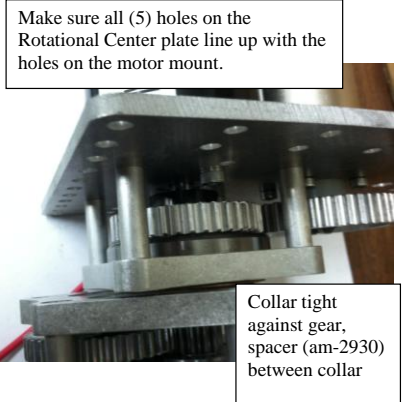
Step 18

Insert the short end of the Gear Shaft (am-3018a) into the 1/2" round bearing



Step 22

Attach Rotational Center and Motor Mount assemblies together by sliding the gear shaft onto the CIM shaft with a spacer (am-2930) between the plate and collar. Secure in place with four 1.75" Bolts (am-1048), long Alum Spacers (am-2920), and Nuts (am-1042). Be sure to put bolt heads in recesses of the Rotational center assembly.



Step 19

Attach this assembly to the Rotational Center using four 1.25" bolts (am-1041), short aluminum spacers (AM-2919), #10 Washers (AM-1026), and Nylock Nuts (am-1042). Be sure to put the bolt heads in the recesses of the Rotational Center assembly.



Step 23

Tighten the 1/2" Collar (am-2929) onto the top of the sleeve gear.

