



Swerve & Steer AM-3009

PART REV:

1

Rotational Center

SECTION
REV:

3

REV

DATE: 1/29/2015

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	

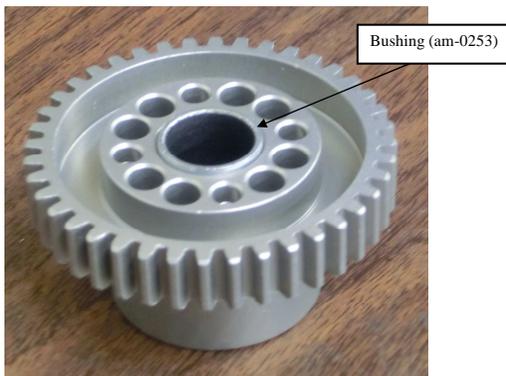
Step 4

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.



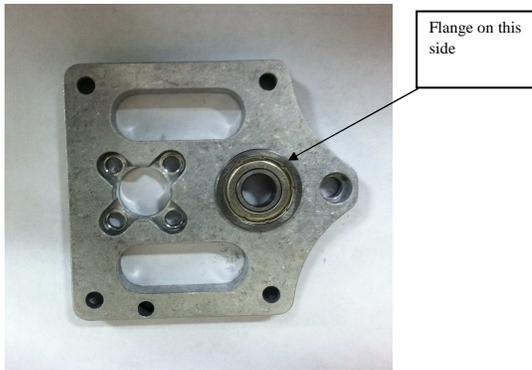
Step 5

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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PART REV:

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Wheel Housing

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2

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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 3/8 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 3/8 Key Bore Bevel Gear	
1	AM-0033 Retainer Clip, 8mm ID	
1	AM-3021 3/8 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 kllipping for 3/8" Shaft	
1	AM-1366 Wave Disc Spring	
1	AM-1323 Dowel Pin, 1/4" dia x 1" Long	

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). Press the Dowel Pin (am-1323) into the hole on the Hex Output Shaft (am-3021).



Dowel Pin

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

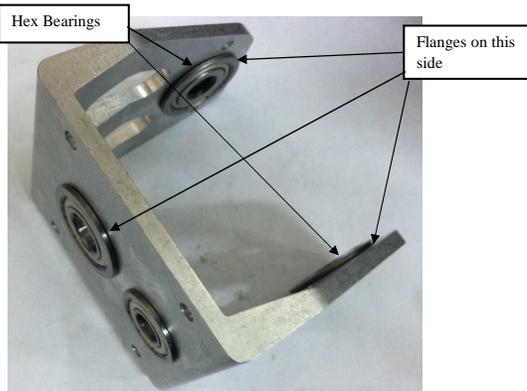
Insert the Hex Output Shaft (am-3021) so that the (2) slots are below the bevel gear. Add a 1/8" plastic spacer (am-2930), spring washer (am-1366), HiGrip wheel (am-2256), and the 40 Tooth Bevel Gear (am-2620).



Spacers

Step 8

Press bearings into the U housing. 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 kllipping (am-1124) inserted into the grooves.





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PART REV:

1

Motor Mounting

SECTION
REV:

2

REV

DATE: 1/15/2015

QTY	Parts Needed On This Page	Tools Needed On This Page
1	AM-3012 Swerve & Steer Motor Plate	5/32 Allen Wrench
1	AM-2971 PG71 Gearmotor with Encoder	M4 Allen Wrench
4	AM-1264 M4-0.7 x 10mm	
1	AM-1249 Machine Key 4mm x 12mm	
1	AM-2931 Spacer, Plastic, .406 ID, 1.00 OD, .438 thick	
1	AM-3014 48 Tooth, 10mm Bore Steer Gear	
1	AM-0255 2.5" CIM Motor	
2	AM-1120 #10-32x5/8" SHCS w/ Nylon Thread Lock Patch	
4	AM-1070 #10 Washers	

Step 16

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



Step 13

Attach the PG71 Motor (am-2971) to the Motor Plate (am-3012) using (4) M4 screws (am-1264).



Step 14

Slide the large Plastic Spacer (am-2931) over the shaft and then insert the 4mm machine key (am-1249).



Step 15

Slide the 10mm Bore Gear (am-3014) onto the shaft so that the carved out portion is facing away from the plate.





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PART REV:

1

Overall Assembly

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3

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QTY	Parts Needed On This Page	Tools Needed On This Page
2	AM-1065 Washer, 1/2" ID, 3/4" OD, Steel	5/32 Allen Wrench
1	AM-0024 40 Tooth Large Cluster Gear	3/8" Wrench
1	AM-3018 12 Tooth Gear Shaft for Swerve & Steer	5/16 Drill
4	AM-1041 Screw, SHCS 10-32 X 1250	Arbor Press
4	AM-2919 Spacer, Aluminum, .62"	
8	AM-1042 10-32 Nylock Jam Nut	
1	AM-2929 Collar Clamp, 1/2" Base	
4	AM-1048 Screw 10-32 SHCS X 1750	
4	AM-2920 Spacer, Aluminum, 1.100"	

Step 20

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



Step 17

On the Wheel Housing assembly, add the 40T Cluster Gear (am-0024) to the end of the bevel gear shaft with one Metal Washer (am-1065) on either side.



Step 21

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

Make sure all (5) holes on the Rotational Center plate line up with the holes on the motor mount.



Step 18

Insert the short end of the Gear Shaft (am-3018) into the FR6ZZ bearing using an arbor press. Use 5/16 Drill to drill out the top end of the gear shaft.



Step 22

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



Step 19

Attach this assembly to the Rotational Center using four 1.25" bolts (am-1041), short aluminum spacers (AM-2919), #10 Washers (AM-1070), and Nylock Nuts (am-1042). Be sure to put the bolt heads in the recesses of the Rotational Center assembly.



Step 23

Celebrate