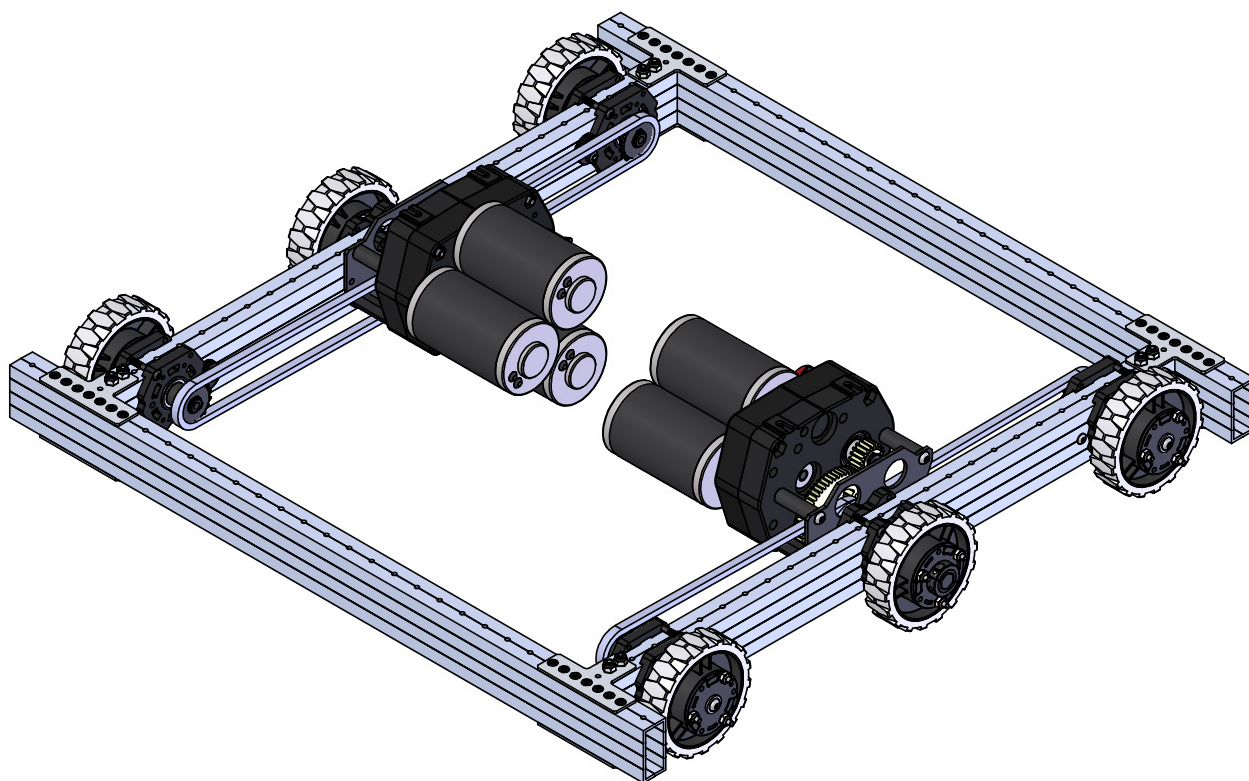


# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

217-8000-001

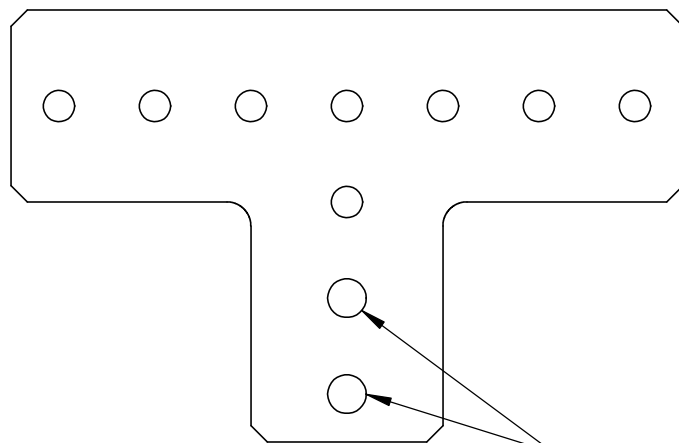


# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

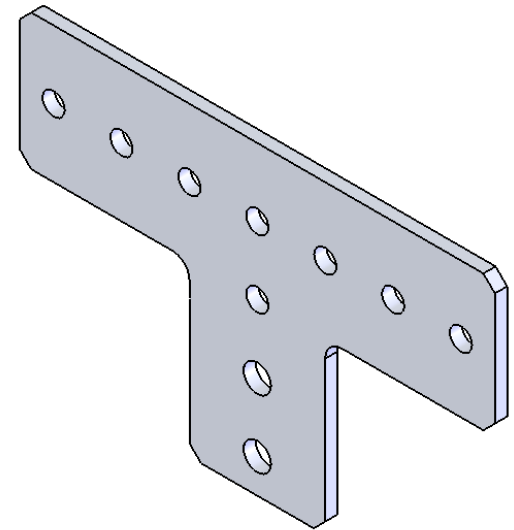
217-8000-001

## Bill of Materials

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
1	Front Rail	From 217-3453	2
2	Side Rail	From 217-3453	2
3	Gusset	From 217-3557	8
4	VersaChassis 6WD Short End Shaft	From 217-3437	2
5	VersaChassis 6WD Long End Shaft	From 217-3437	2
6	3 CIM Ball Shifter, WCD	217-3269	2
7	VersaBlock Kit	217-3432	6
8	#25 Sprocket w/ Hub - 18t - 1/2in HEX ID	217-3488	8
9	#25 Roller Chain (10 feet)	217-2775	~8ft
10	1/8" Acetal Spacer 1/2" Hex (10-pack)	217-2758	1
11	1/2" Acetal Spacer 1/2" Hex (10-pack)	217-3261	1
12	WCP Cam	217-3431	4
13	Flanged Bearing - 0.500" (Hex) x 1.125in x 0.313in v2	217-3875	12
14	VersaHub (1/2" Hex, Plastic)	217-4009	12
15	VersaWheel DT (4")	217-3197	6
16	High Strength Clamping Shaft Collar - 1/2" Hex ID	217-4106	2
17	Button Head Screw, 1/4-20 x .500 Long	SBS2520-0500	4
18	1/2" Retaining Ring		4
19	Button Head Screw, #8-32 x 2.000 Long	SBS0832-2000	18
20	Nylock #8-32 Nut	NNY0832	18
21	Button Head Screw #10-32 x 2.500" Long	SBS1032-2500BA	8
22	Nylock #10-32 Nut	NNY1032	8
23	5/32" Rivet	Rivet	56
24	8-32 0.375in Screw	SBS0832-0375SS	8
25	1/4" Washer		4
26	Button Head Screw #10-32 x 1/375 Long	SBS1032-1375	5



ENLARGE HOLE TO #10 SCREW CLEARANCE (.201")



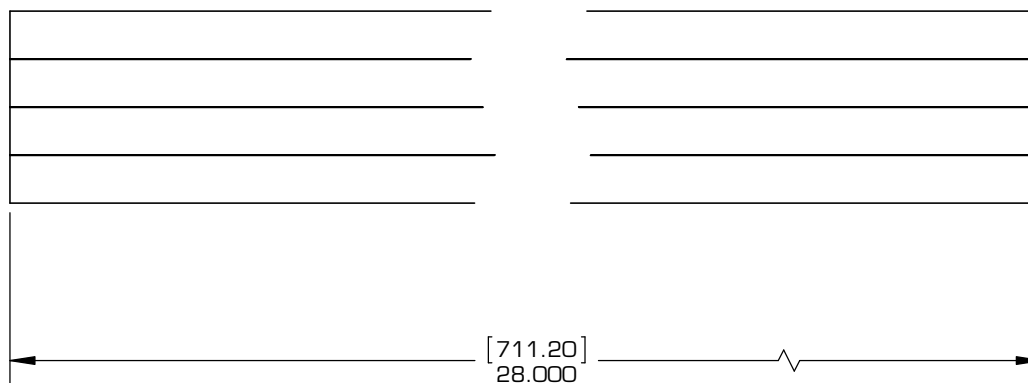
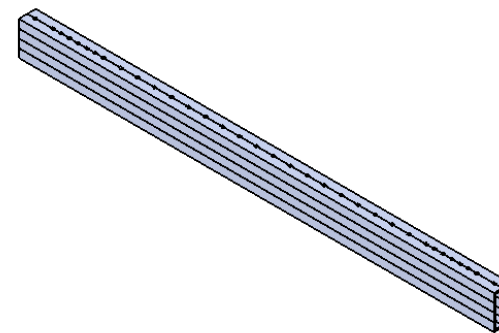
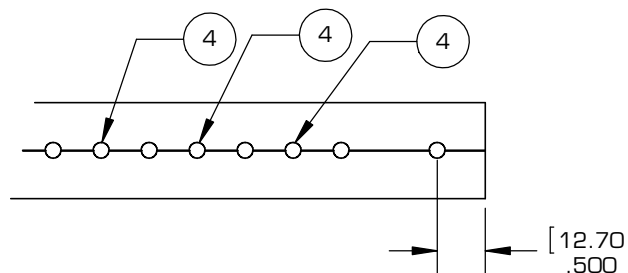
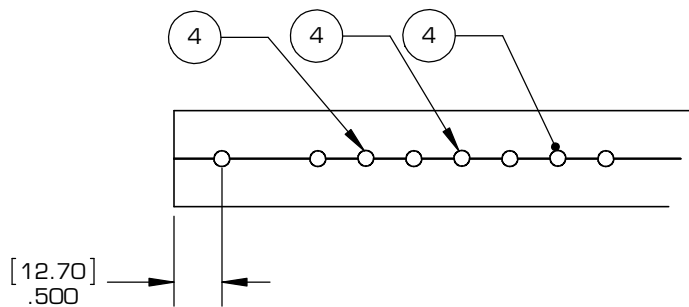
NOTES:

1. MODIFY VERSACHASSIS GUSSET (217-3557)
2. QTY: 8 PER ROBOT



Description	<b>Gusset</b>		
Dwg No	217-8000-001-003		
Project	VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter	Sheet 3 of 15	
Release	2014-12-16	<b>ALL DIMENSIONS ARE IN INCHES [MM].</b>	

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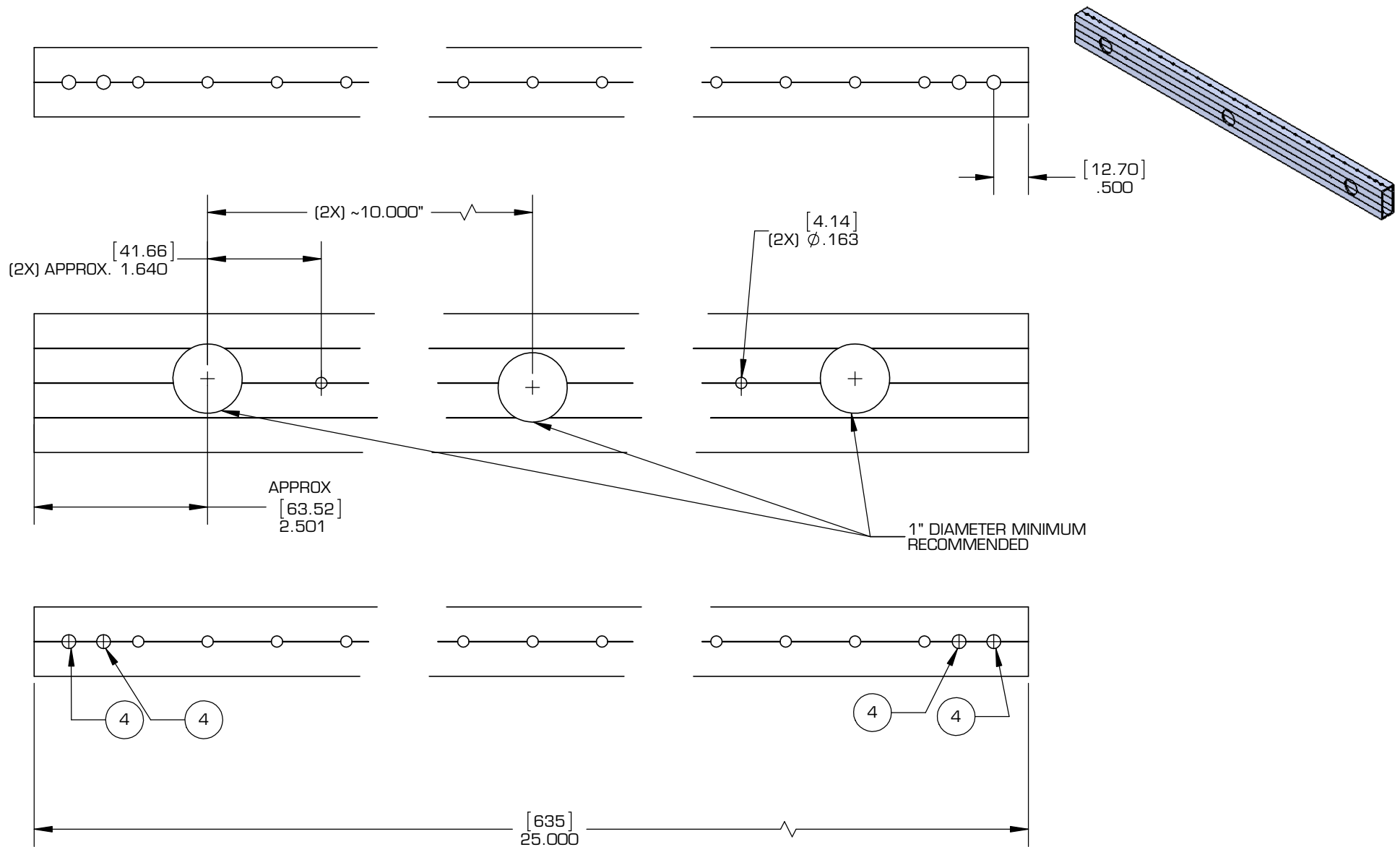


- NOTES:
1. CUT FROM VERSAFRAME 1" X 2" X .100" PRE-DRILLED TUBE STOCK (59" LENGTH) (217-3453)
  2. QTY: 2 PER ROBOT
  3. LENGTH CAN BE ADJUSTED. BE CAREFUL TO ENSURE CHAIN OR BELT LENGTHS AND FRAME PERIMETER ARE CORRECT
  4. DRILL NEW 5/32"  $\phi$  HOLES THRU BOTH SIDES  
MATCH DRILL FROM GUSSET (SEE MATCH DRILL GUIDE)



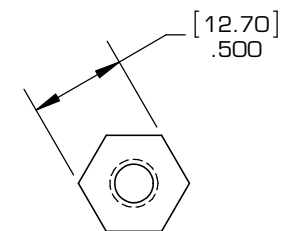
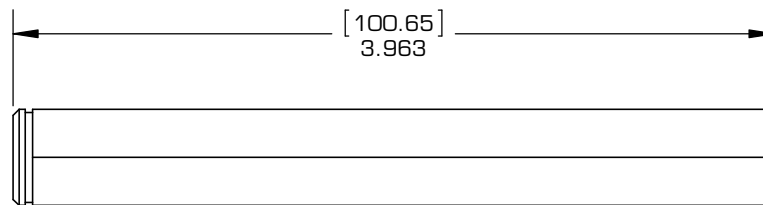
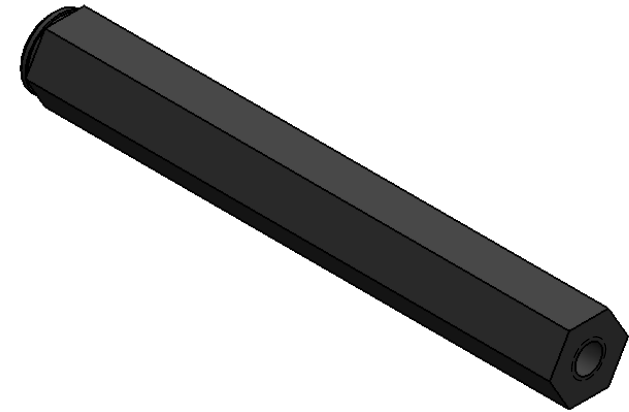
Description	Front Rail		
Dwg No	217-8000-001-001		
Project	VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter	Sheet 4 of 15	
Release	2014-12-16	ALL DIMENSIONS ARE IN INCHES [MM].	

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Description	<b>Side Rail</b>		
Dwg No	217-8000-001-002		
Project	VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter	Sheet 5 of 15	
Release	2014-12-16	<b>ALL DIMENSIONS ARE IN INCHES [MM].</b>	

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CUT 1.038" OFF (217-3437)

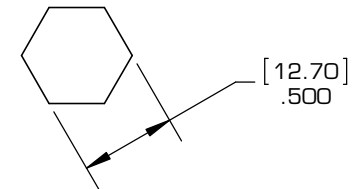
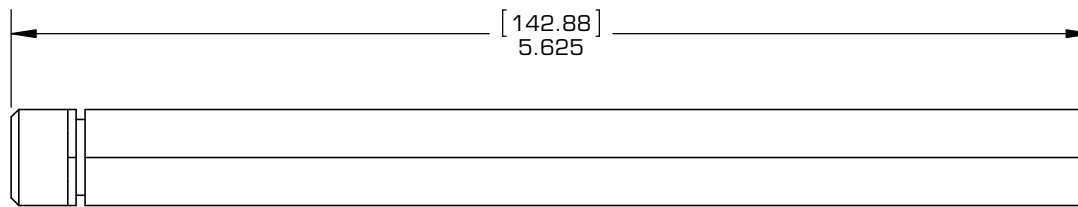
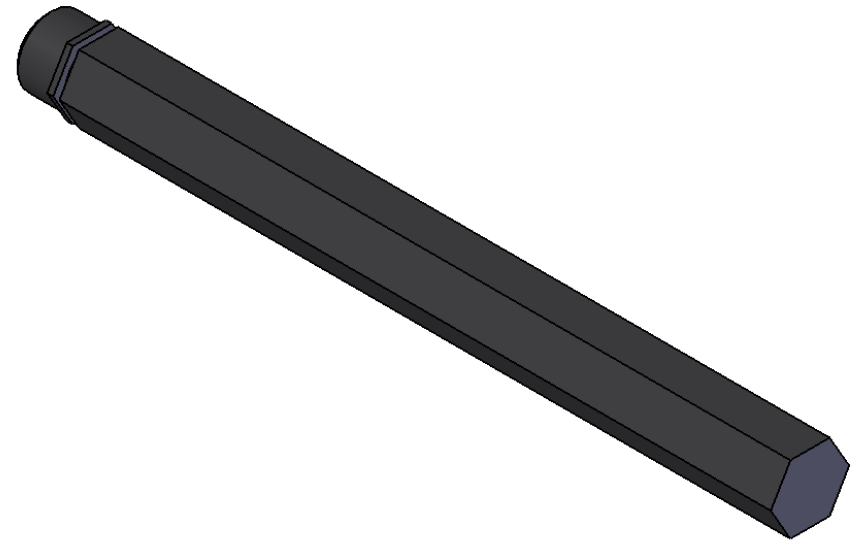
NOTES:

1. MODIFY VERSACHASSIS HEX SHAFT (217-3437)
2. QTY: 2 PER ROBOT



Description	<b>VersaChassis 6WD Short End Shaft</b>		
Dwg No	217-8000-001-005		
Project	VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter	Sheet 6 of 15	
Release	2014-12-16	<b>ALL DIMENSIONS ARE IN INCHES [MM].</b>	

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CUT .375" OFF (217-2617-003)

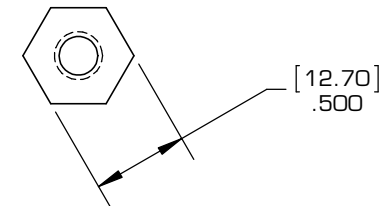
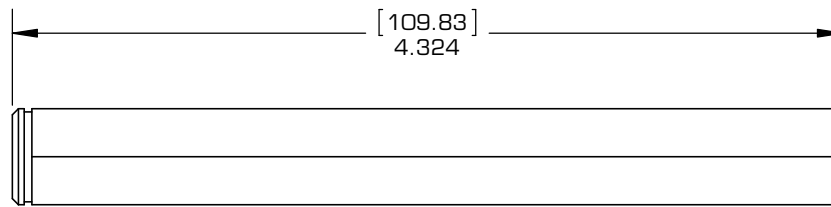
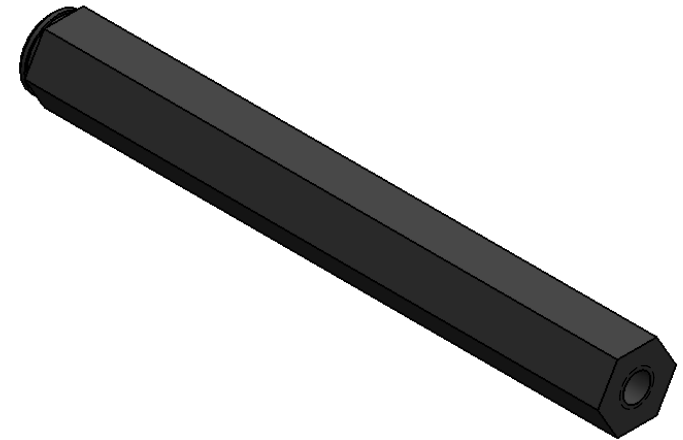
NOTES:

1. MODIFY OUTPUT SHAFT FROM WCD 3RD STAGE 3 CIM BALL SHIFTER (217-3269)
2. QTY: 2 PER ROBOT



Description	VersaChassis 6WD Drive Shaft		
Dwg No	217-8000-001-004		
Project	VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter	Sheet 7 of 15	
Release	2014-12-16	ALL DIMENSIONS ARE IN INCHES [MM].	

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CUT 0.676" OFF (217-3437)

NOTES:

1. MODIFY VERSACHASSIS HEX SHAFT (217-3437)
2. QTY: 2 PER ROBOT



Description	VersaChassis 6WD Long End Shaft		
Dwg No	217-8000-001-006		
Project	VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter	Sheet 8 of 15	
Release	2014-12-16	ALL DIMENSIONS ARE IN INCHES [MM].	

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# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

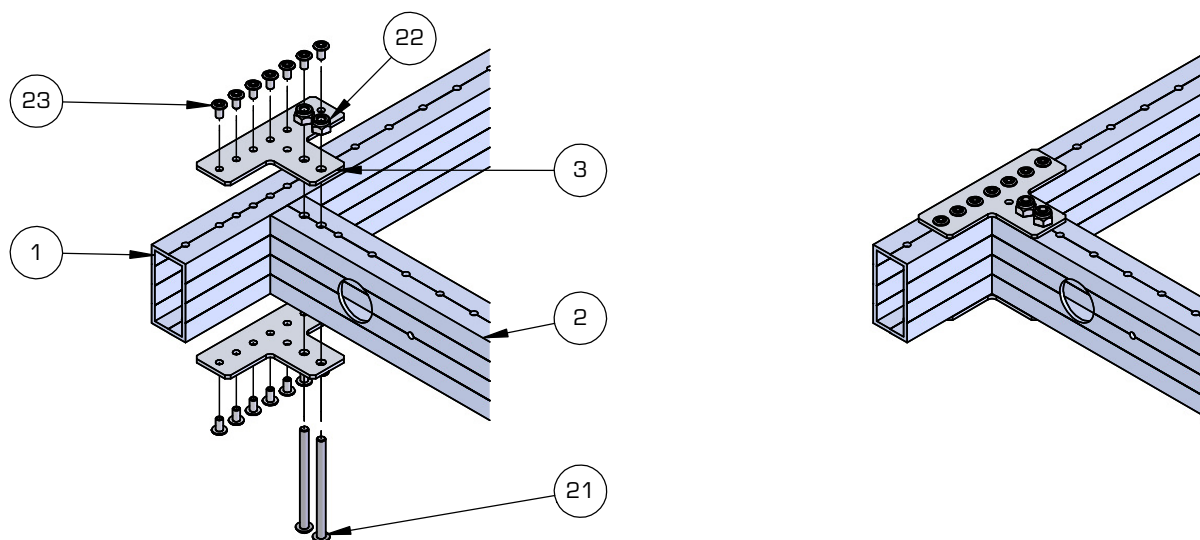
217-8000-001

## Frame Assembly

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
1	Front Rail	From 217-3453	2
2	Side Rail	From 217-3453	2
3	Gusset	From 217-3557	8
21	Button Head Screw #10-32 x 2.500" Long	SBS1032-2500BA	8
22	Nylock #10-32 Nut	NNY1032	8
23	5/32" Rivet	Rivet	56

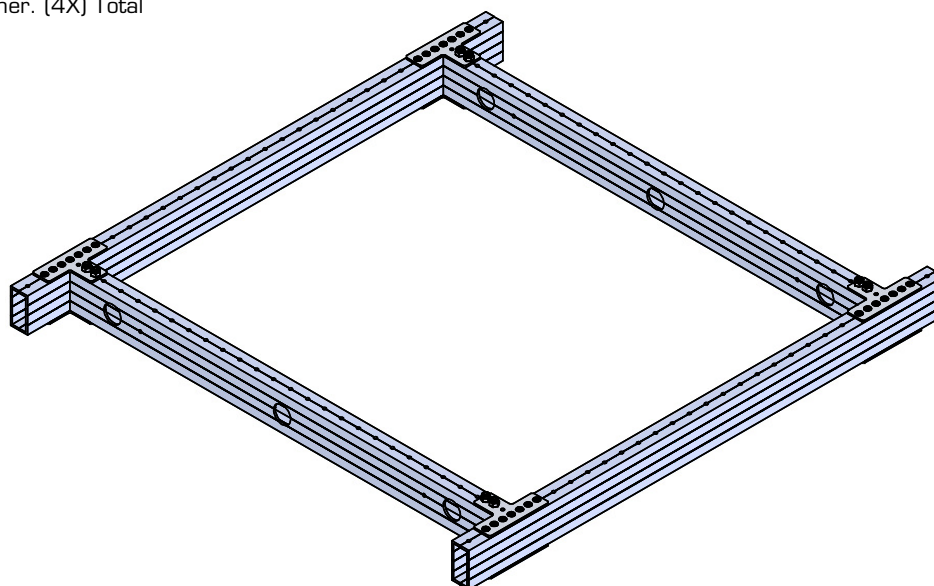
### Step 1:

Attach VersaChassis Gussets to front and back VersaFrame with 5/32 pop rivets (Match drill any absent holes). Match drill holes from gusset to the side rail, then fasten with #10-32 screws and nuts as shown.



### Step 2:

Repeat for each corner. (4X) Total



# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

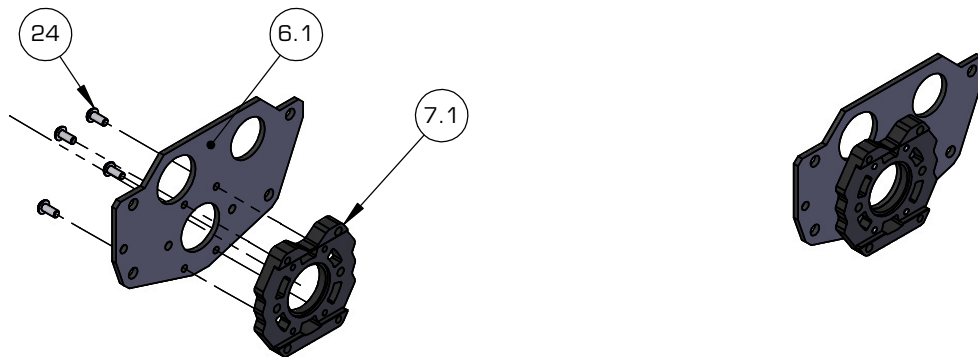
217-8000-001

## Gearbox Assembly

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
6	3 CIM Ball Shifter, WCD	217-3269	1
6.1	3 CIM Ball Shifter Plate	From 217-3269	1
7	VersaBlock Kit	217-3432	1
7.1	VersaBlock (1 side)	From 217-3432	1
8	#25 Sprocket w/ Hub - 18t - 1/2in HEX ID	217-3488	2
13	Flanged Bearing - 0.500" (Hex) x 1.125in x 0.313in v2	217-3875	1
24	8-32 0.375in Screw	SBS0832-0375SS	4

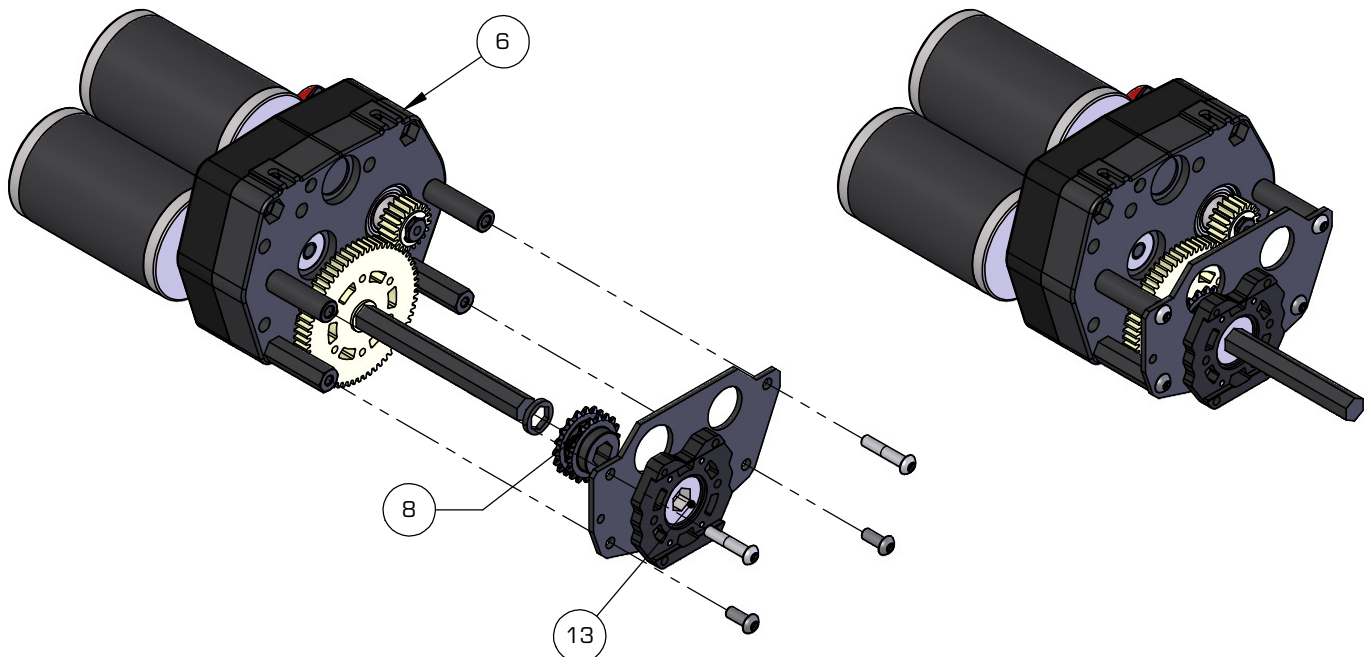
### Step 3:

Attach the VersaBlock to 3rd stage plate using #8-32 screws and insert a 1/2" hex flanged bearing into the plate as shown.



### Step 4:

Assemble gearbox per "3 CIM Ball Shifter with WCD 3rd Stage Assembly Instructions". At "Step 20" install 18 tooth #25 Sprockets and use the 3rd stage plate as assembled in the previous step. Mirror assembly for opposite side.



# Wheel Assembly

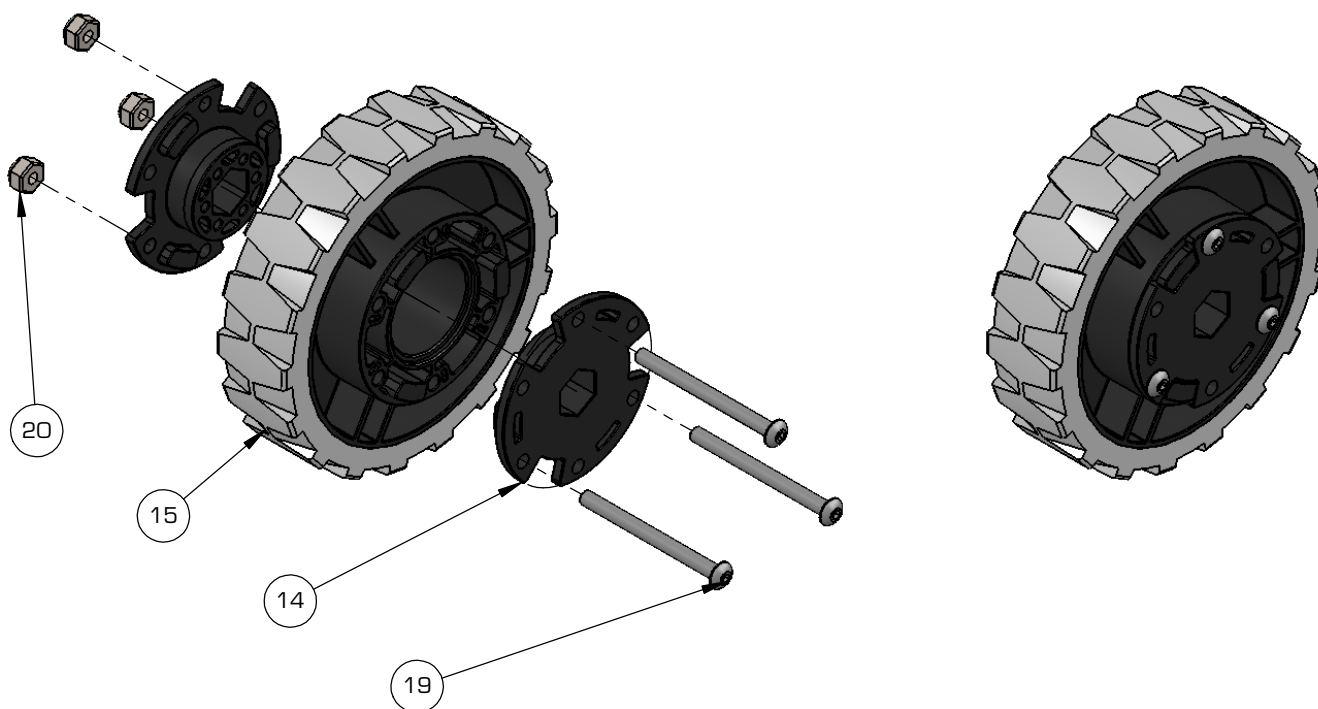
217-8000-001

## Wheel Assembly

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
14	VersaHub (1/2" Hex, Plastic)	217-4009	12
15	VersaWheel DT (4")	217-3197	6
19	Button Head Screw, #8-32 x 2.000 Long	SBS0832-2000	18
20	Nylock #8-32 Nut	NNY0832	18

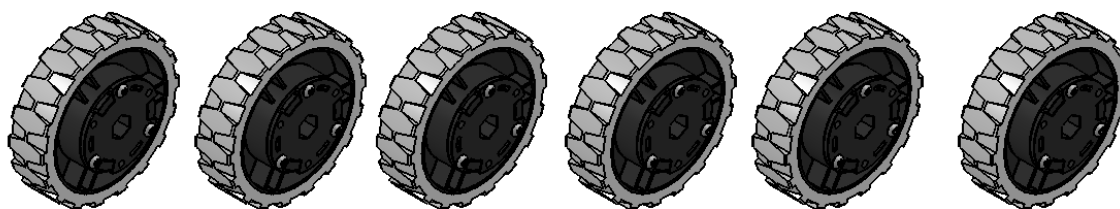
### Step 5:

Insert a HEX VersaHub into either side of the VersaWheel. Insert (3X) #8-32 screws into holes 120° apart and #8-32 nuts as shown.



### Step 6:

Complete for (6X) wheels.



# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

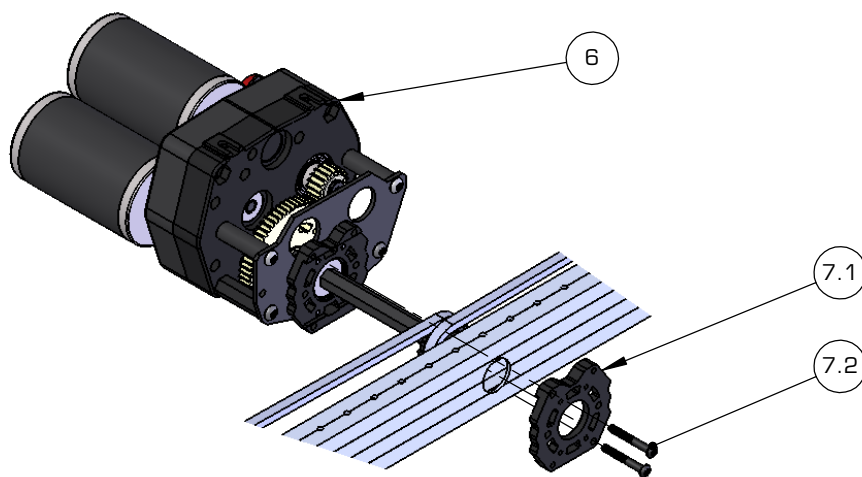
217-8000-001

## Final Assembly

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
6	3 CIM Ball Shifter, WCD	217-3269	2
7	VersaBlock Kit	217-3432	2
7.1	VersaBlock (1 side)	From 217-3432	2
7.2	Button Head Screw, #10-32 x 1.500 Long	From 217-3432	4
10	1/8" Acetal Spacer 1/2" Hex (10-pack)	217-2758	2
16	High Strength Clamping Shaft Collar - 1/2" Hex ID	217-4106	2

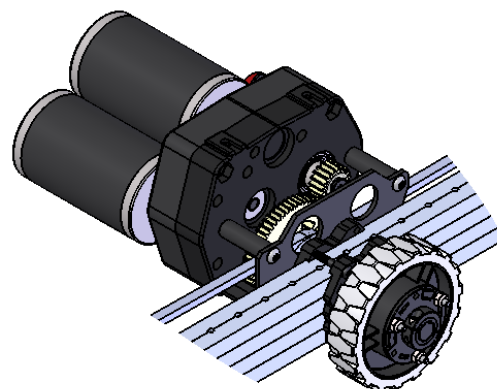
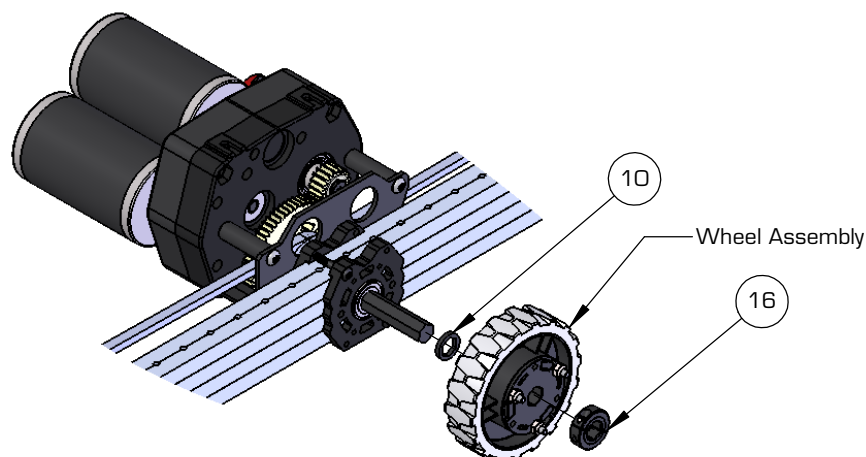
### Step 7:

Insert 3 CIM Ball Shifter as shown and assemble Versablock Kit on tube.



### Step 8:

Slide Acetal Spacer and wheel assembly onto axle.





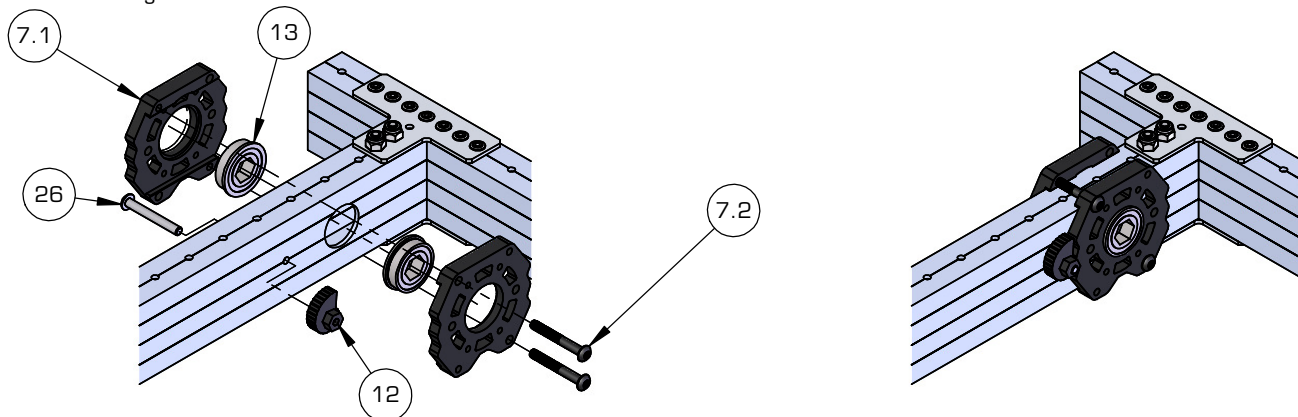
# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

217-8000-001

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
4	VersaChassis 6WD Short End Shaft	From 217-3437	2
5	VersaChassis 6WD Long End Shaft	From 217-3437	2
7	VersaBlock Kit	217-3432	6
7.1	VersaBlock (1 side)	From 217-3432	1
7.2	Button Head Screw, #10-32 x 1.500 Long	From 217-3432	2
8	#25 Sprocket w/ Hub - 18t - 1/2in HEX ID	217-3488	6
10	1/8" Acetal Spacer 1/2" Hex (10-pack)	217-2758	1
11	1/2" Acetal Spacer 1/2" Hex (10-pack)	217-3261	1
12	WCP Cam	217-3431	4
13	Flanged Bearing - 0.500" (Hex) x 1.125in x 0.313in v2	217-3875	8
17	Button Head Screw, 1/4-20 x .500 Long	SBS2520-0500	4
18	1/2" Retaining Ring		4
25	1/4" Washer		4
26	Button Head Screw #10-32 x 1.375 Long	SBS1032-1375	4

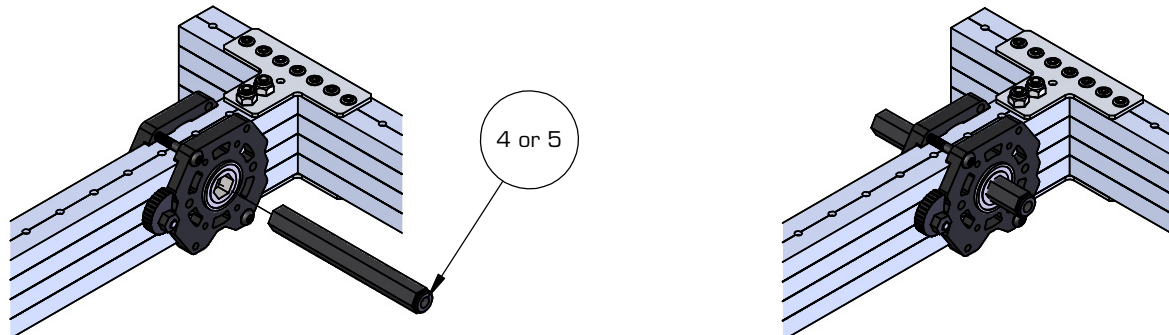
## Step 9:

Assemble VersaBlock onto tube with 1/2" Hex Bearings, inserting #10-32 screws into opposite corners as shown. Insert a #10-32 screw through the tube and into the WCP Cam as shown.



## Step 10:

Insert the axle through the VersaBlock assembly, with the snap ring groove on the inside of the chassis as shown. Be sure to use 2 of the long shafts at one end of the robot, and 2 of the short shafts at the opposite end.

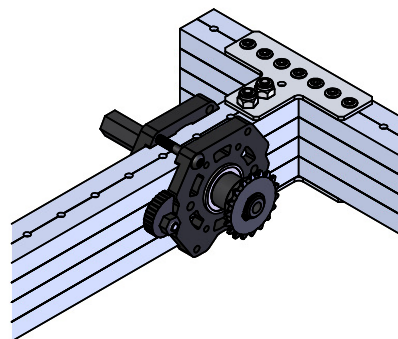
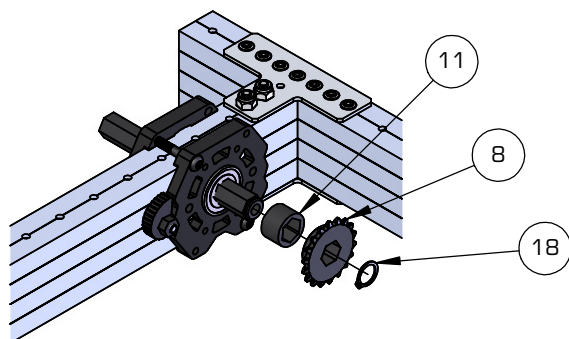


# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

217-8000-001

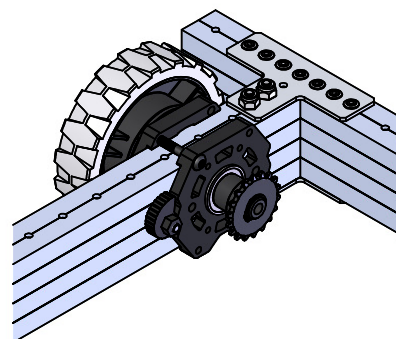
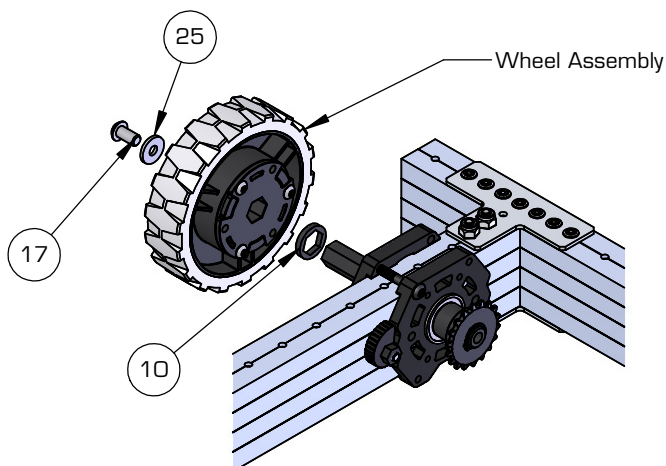
## Step 11:

Assemble 1/2" Acetal Spacer and #25 Sprocket - 18t onto long axle and install 1/2" Retaining Ring into groove. Slide assembly into VersaBlock. Complete this step for each corner, using two long axes, and two short axes. Each Side should have one of each, the offset is to allow two parallel chain paths.



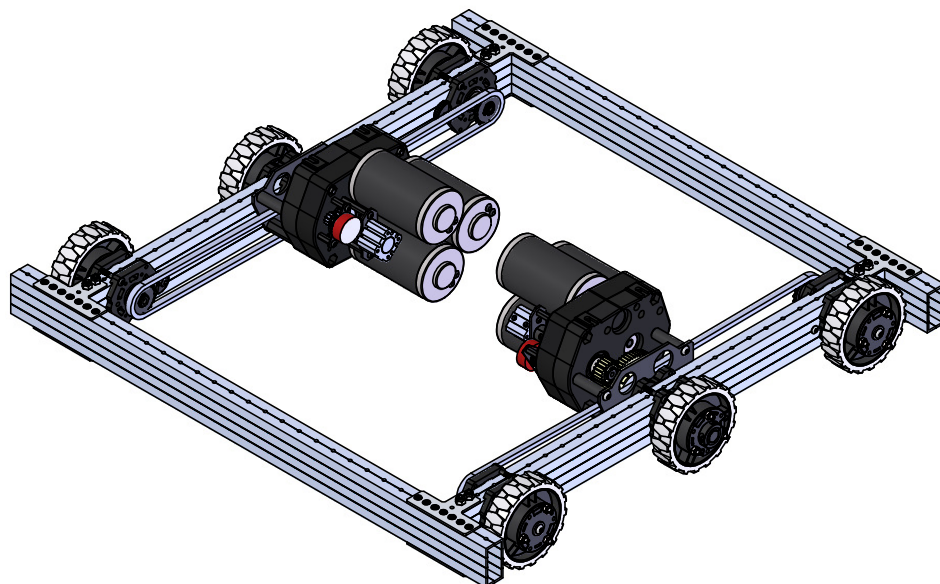
## Step 12:

Assemble 1/8" Hex spacer onto axle, followed by VersaWheel assembly, then retain using 1/4"-20 screw and washer.



## Step 13:

Install #25 chain for a complete drivetrain.



# VersaChassis - 6 Wheel Drive w/ 3 CIM Ball Shifter

217-8000-001

## Opportunities to Expand...

This drivetrain is just one example of how you can use the versatile VEXpro VersaFrame. By reconfiguring the frame lengths and gussets, you can build almost any chassis you can imagine. This example configuration is compatible with a wide variety of VEXpro products, which are themselves designed to work together as part of a larger construction system. This versatility makes it easy to swap wheels, adjust drive speeds, change gearboxes, add more motors, or build other advanced functionality right into your design. Look at the product page for speed options.

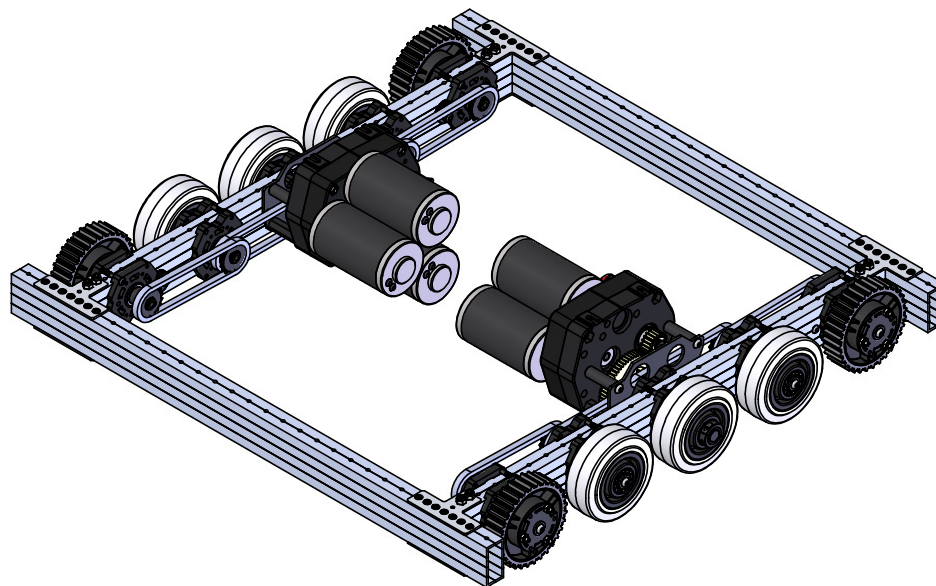
You can achieve whatever goals you set, regardless of your resources.

Below are a few of the hundreds of example modifications which can be made to the basic chassis.

As always, contact [prosupport@VEX.com](mailto:prosupport@VEX.com) for more help!

### **(N) Wheel Drive:**

By adding more VersaBlocks you can make a drivetrain with however many wheels you want, including wheels of different types, Colson wheels and VersaWheels are shown in this 10wd configuration.



### **(6X) Wheel Drive:**

Adjust your frame tubes and gearing and you can use 6" wheels, or even 8".

