

2010

C-Base User Guide

**AndyMark, Inc. Drive System
Components Used in 2010 *FIRST* Robotics
Competition**



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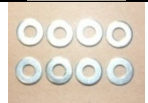
Overview

The 2010 C-Base is designed for use in the 2010 *FIRST* Robotics Competition (*FRC*). New Wheel Brackets are included in the 2010 C-Base, raising the C-Base frame by 8 inches. Also, the sheet metal mounting the Toughbox to the 2010 C-Base is new.

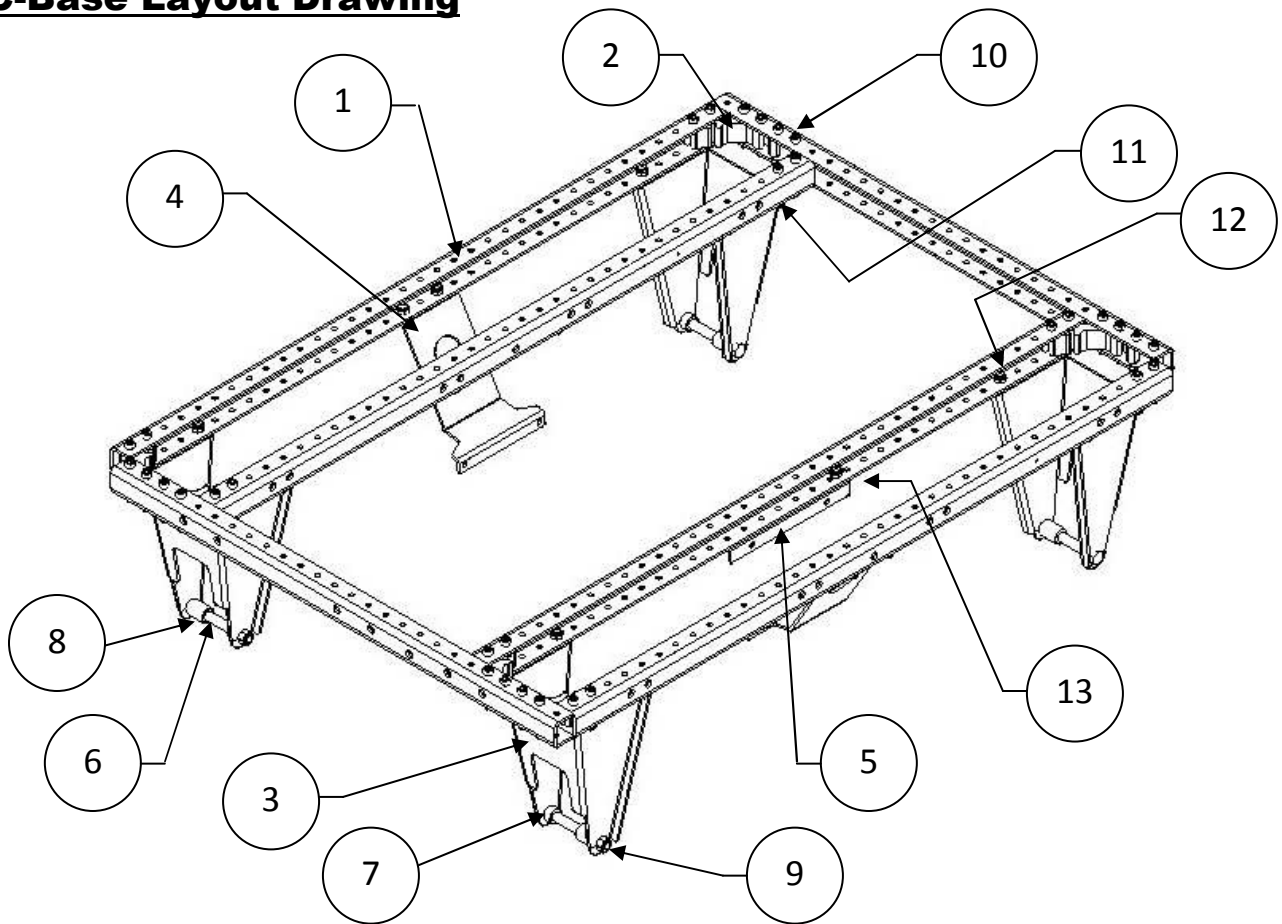
Each registered *FRC* team will receive parts for one 2010 C-base, two Toughboxes, two rubber treaded 8" wheels, two plastic treaded 8" wheels, bearings and sprockets.

The C-base and Toughboxes are provided in kit form, with assembly required. Assembly instructions can be found in this manual, and online. CAD files and more detailed layout drawings can be found at www.andymark.com.





2. C-Base Bill of Material and Part Photos




Item #	Component	Qty	Part Number	Part Photo
1	C-Channel	6	am-0202	
2	Corner Connect	8	am-0212	
3	Wheel Bracket	4	am-0450	
4	T Brace	2	am-0443	
5	Angle Bracket	2	am-0442	
6	3/8 – 16 x 3.5 hex head screw	4	am-1122	
7	370 x 375 spacer (for wheels)	4	am-0440	
8	985 x 375 spacer (for wheels)	4	am-0441	
9	3/8-16 Nylock Nut	4	am-1054	
10	1/4-20x1.75 shcs	32	am-1058	
11	1/4-20 x 5/8 shcs	16	am-1053	
12	1/4 - 20 nylock nut	48	am-1015	
13	1/4 id washer	8	am-1027	

3. C-Base Layout Drawing



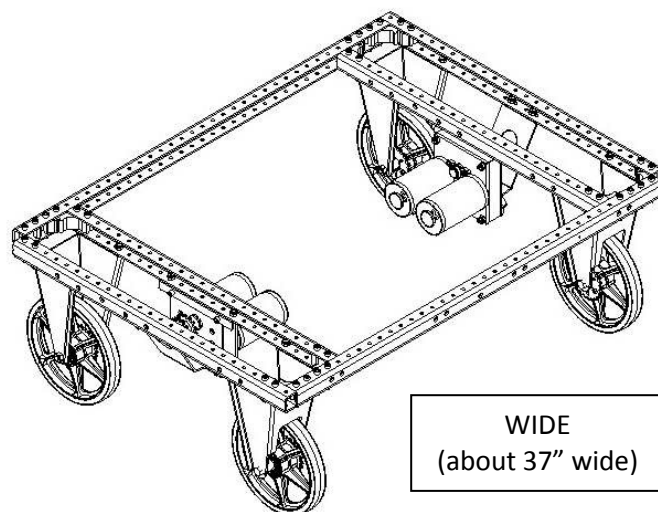
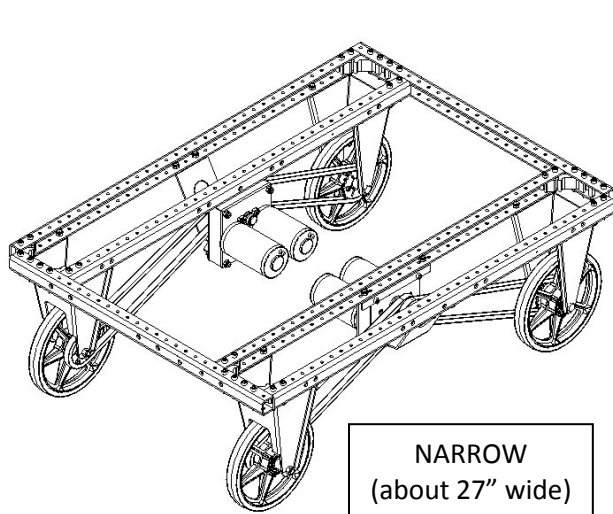
4. Sprocket and Wheel Bill of Materials

Item #	Component	Qty	Part Number	Part Photo
14	S35-22LE Sprocket	4	am-0245	
15	S35-15DHE Sprocket	2	am-0421	
16	765 x 500 Spacer (for sprocket on Toughbox)	2	am-0452	
17	Self-tapping #10 screw	12	am-1123	

18	2010 FIRST Wheel, rubber tread	2	am-0420	
19	2010 FIRST wheel, plastic tread	2	am-0494	
20	1614ZZ Ball Bearings	8	am-0209	
21	Battery Plugs	4	am-0122	

5. Drive System Assembly Instructions

Step 1: Decide whether to use the C-Base in a NARROW or WIDE setup.



Step 2: Build the frame, starting by cutting the correct number of C-Channel pieces to your desired length. Notice in the above pictures, the end C-Channel in the NARROW setup is shorter than the side pieces. The opposite is true in the WIDE setup.

NARROW lengths:

Long Sides (4): 36"

Short Ends (2): 26" (or 27")

WIDE lengths:

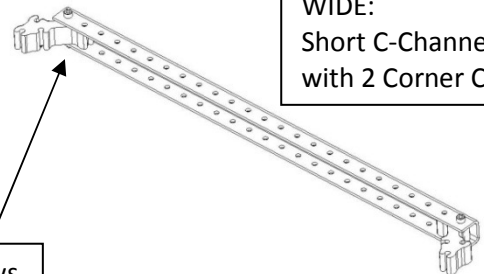
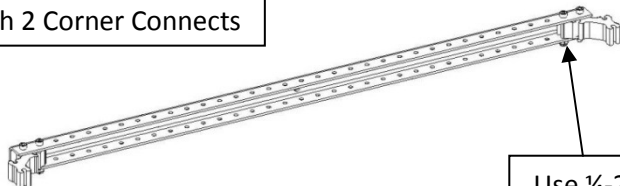
Short Sides (4): 25" (4) or
25" (2) and 26" (or 27") (2)

Long Ends (2): 36"

Step 3: Assemble the Corner Connects onto the ends of the C-Channels

NARROW:
Long C-Channel (4)
with 2 Corner Connects

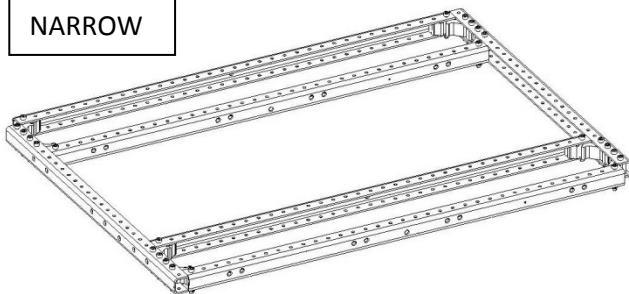
WIDE:
Short C-Channel (4)
with 2 Corner Connects



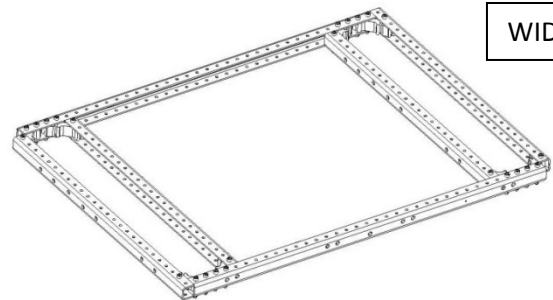
Use ¼-20 x 1.75 screws
and ¼-20 nylock nuts

Step 4: Assemble the Frame

NARROW

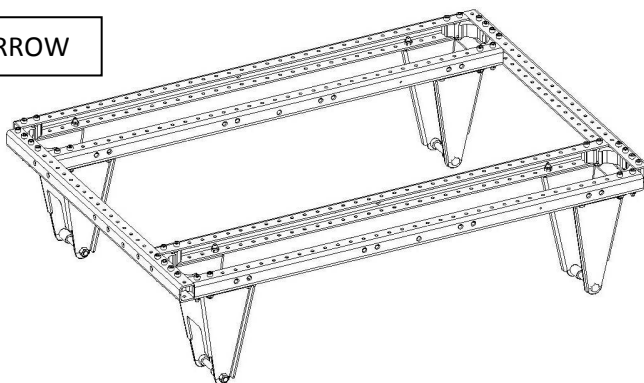


WIDE

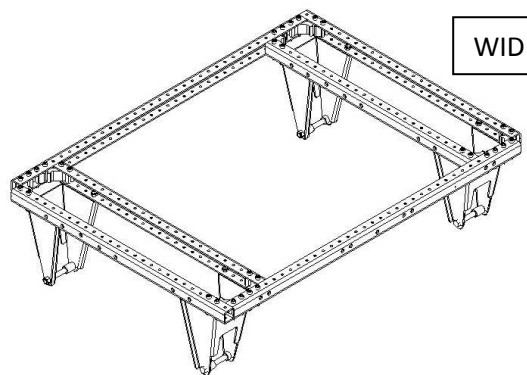


Step 5: Attach the Wheel Brackets

NARROW



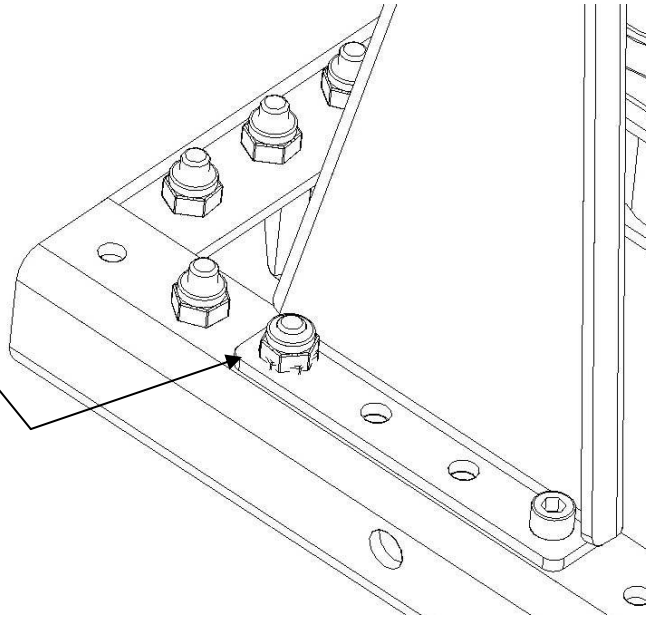
WIDE



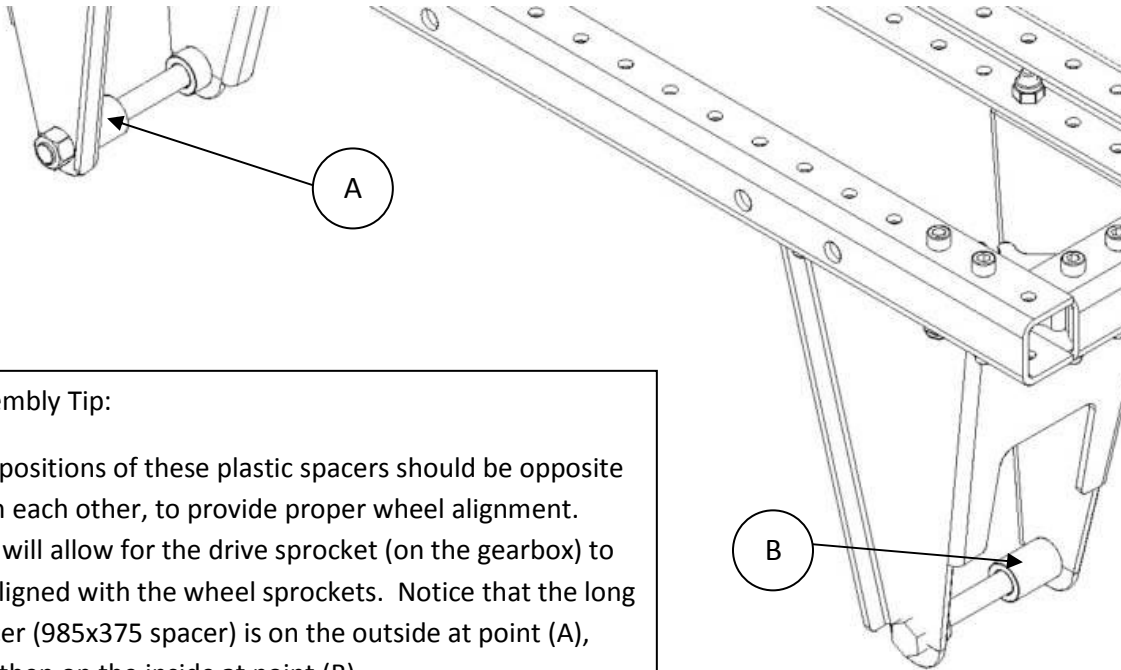
Step 5: Attach the Wheel Brackets (continued)

Assembly Tip:

Position the Wheel Bracket as shown if you want your 8" wheel not to protrude outside of the frame.



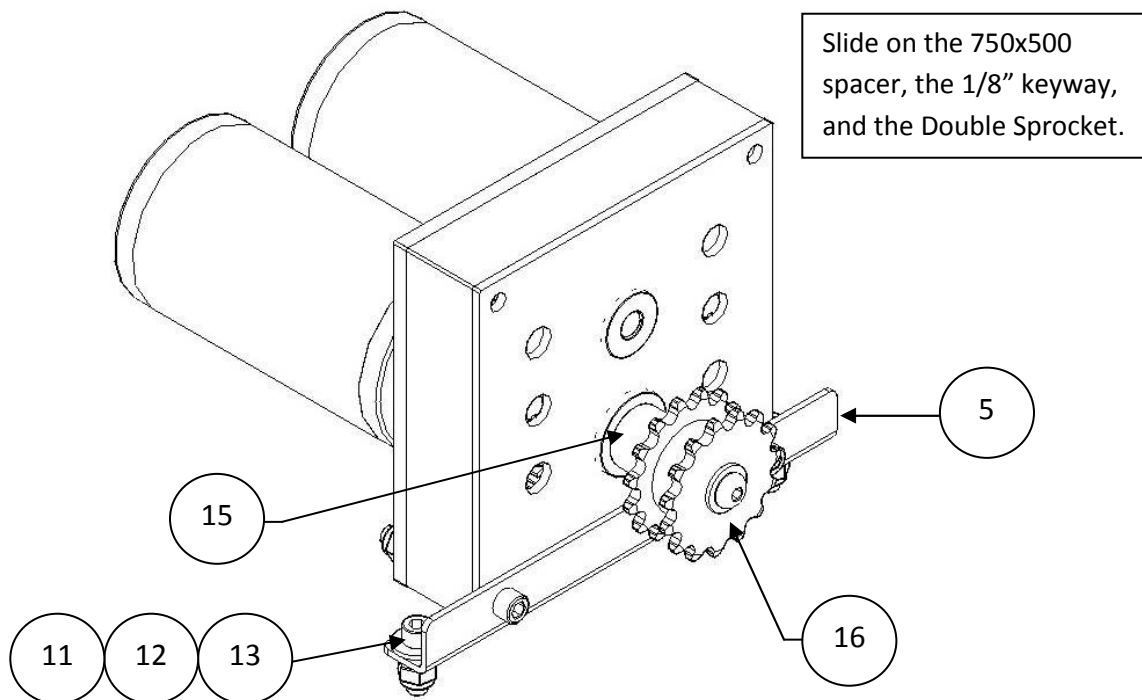
Step 6: Add in the axles (3/8x3-1/2 bolts w/ nuts) and the spacers on all 4 Wheel Brackets



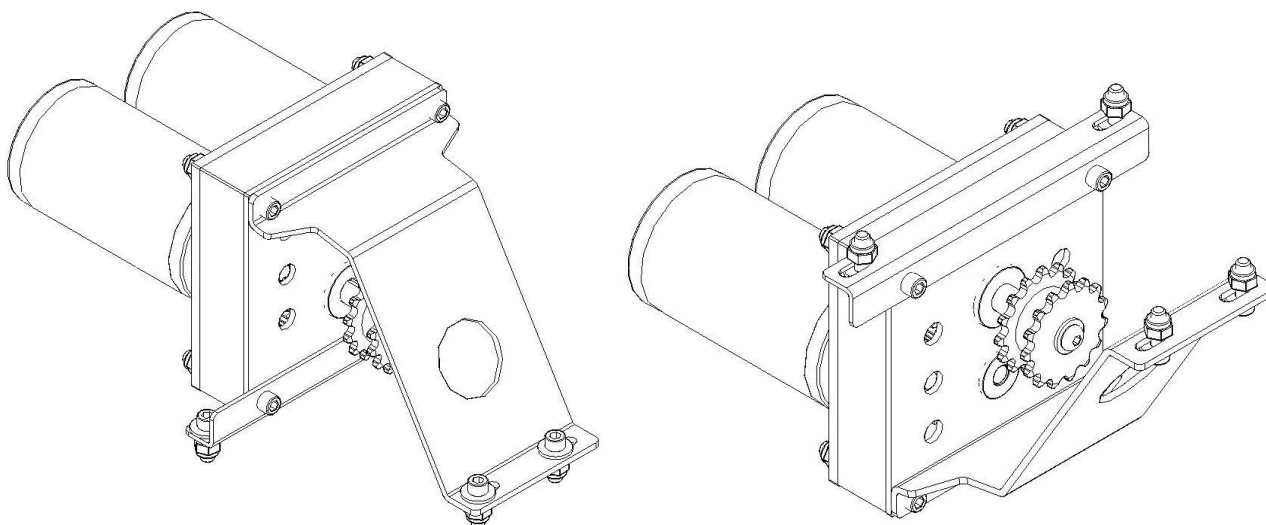
Assembly Tip:

The positions of these plastic spacers should be opposite from each other, to provide proper wheel alignment. This will allow for the drive sprocket (on the gearbox) to be aligned with the wheel sprockets. Notice that the long spacer (985x375 spacer) is on the outside at point (A), and then on the inside at point (B).

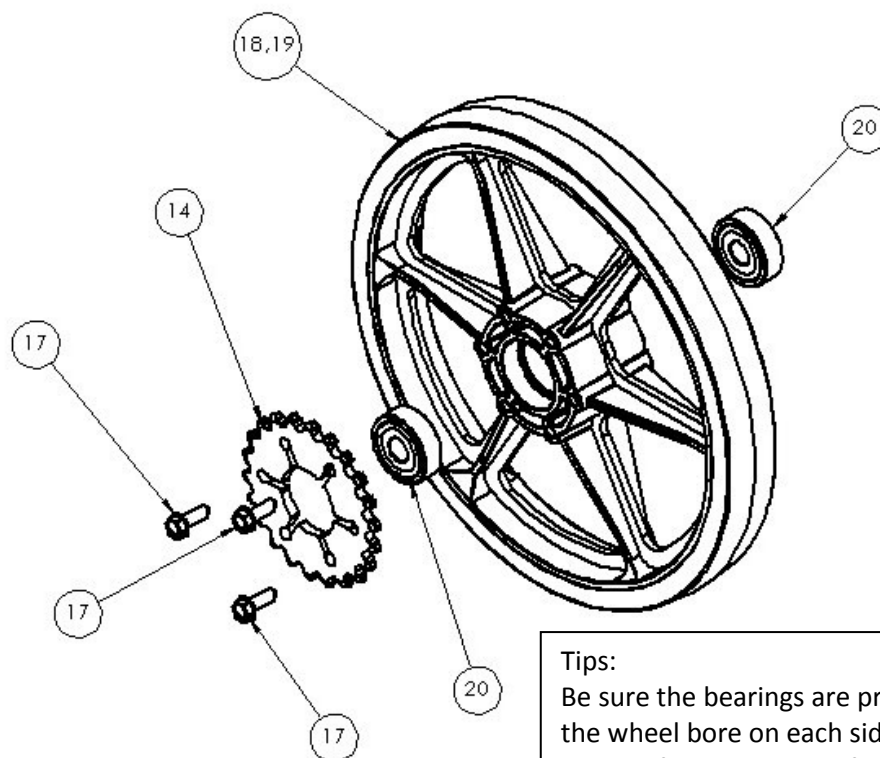
Step 7: Attach Angle Bracket to Toughbox (see Toughbox Assembly instructions to build Toughbox)



Step 8: Attach the T Brace to the Toughbox



Step 9: Press Bearings into the Wheel and attach sprockets

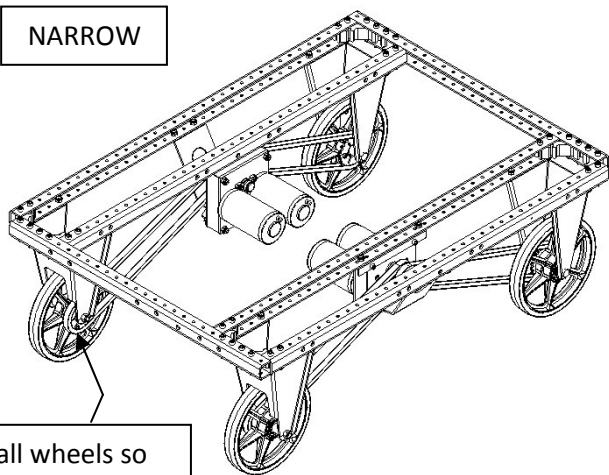


Tips:

Be sure the bearings are pressed completely into the wheel bore on each side of the wheel. The outside faces should be flush. Only 3 screws are needed to attach sprocket to the wheel.

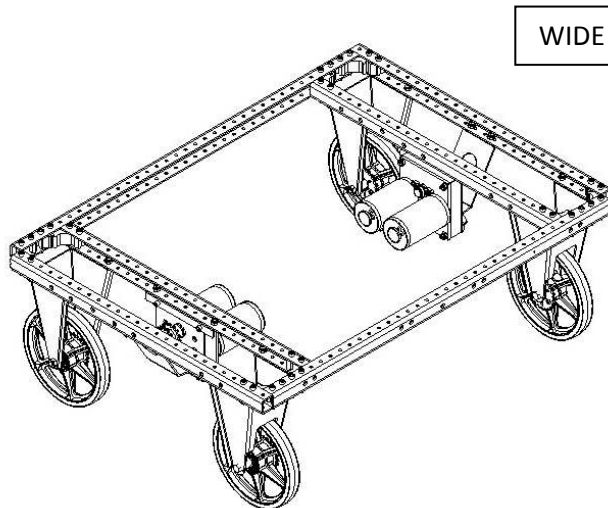
Step 10: Install Wheels and Toughboxes onto C-Base Frame

NARROW



Install wheels so that sprockets are on the inside

WIDE



The purpose of the two different treaded wheels is to allow for easier turning. Place the wheels in the locations that best suit your application. More wheels and other types of wheels can be purchased at www.andymark.com.