

WCP-EX-0001 - Application Guide (Rev 1)

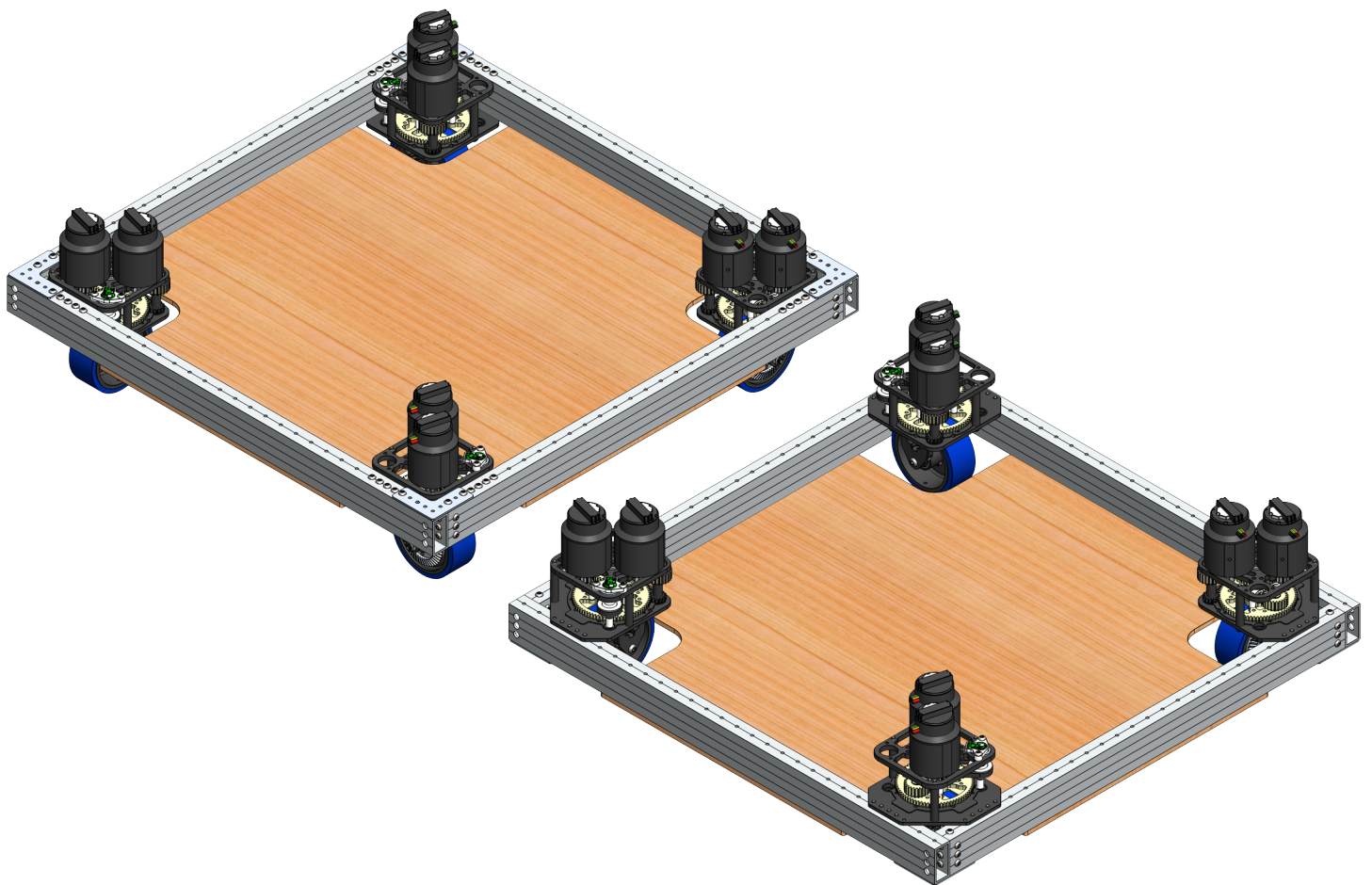




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What is the Swerve X (Tube Mount)?

One of the four possible configurations of WCP's Swerve X, the Tube Mount Swerve is the traditional style of swerve. While designed in the familiar style of past generations of swerve, this configuration is much smaller and lighter. One of the primary benefits of this configuration is that it allows for a much less complex drivetrain assembly experience. Simply cut four VersaFrame Tubes to your desired length, and you're just about good to go.

Notable features:

- Frame assembly is independent from module installation.
- Less complex frame tubes.
- Has the option for low center of gravity or high ground clearance.
- Takes up less space inside the frame when compared to the flipped configuration.

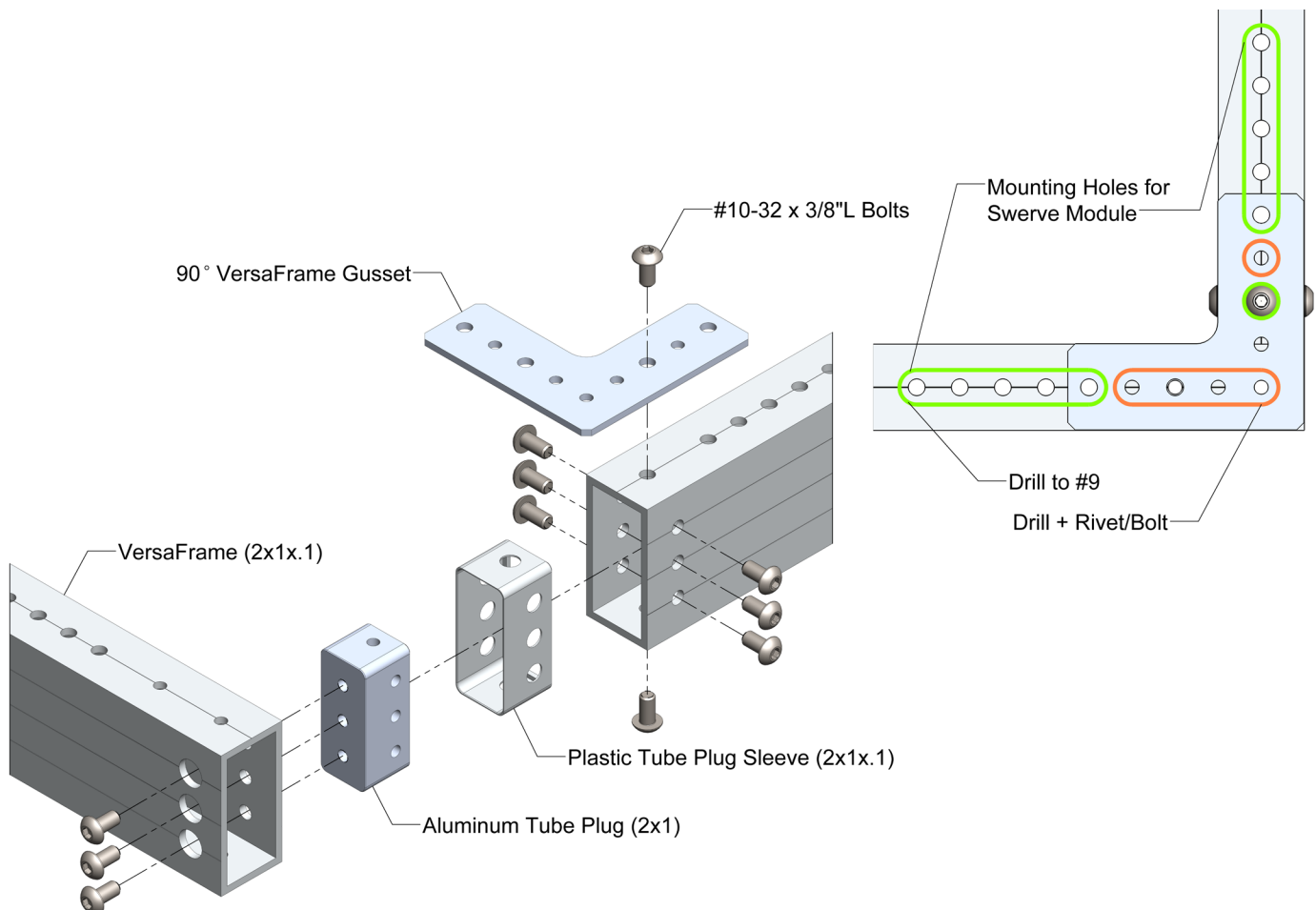


Recommended Frame Construction

The image below shows recommended assembly instructions for one corner of the frame. While it shows the frame being assembled with both the Aluminum Tube Plug (WCP-0374) and the VersaFrame Gusset (217-3548), it is also acceptable to use just one or the other.

In the image below, all holes in the gusset and tube marked in green must be drilled clearance for #10-32 bolts before the frame can be assembled. Unless the holes are used for mounting the swerve, the gusset can be installed using either bolts or rivets as desired.

Note: If you are assembling the frame with a gusset, make sure to install it on the opposite side of the tube from the Tube Mount Swerve X Module.

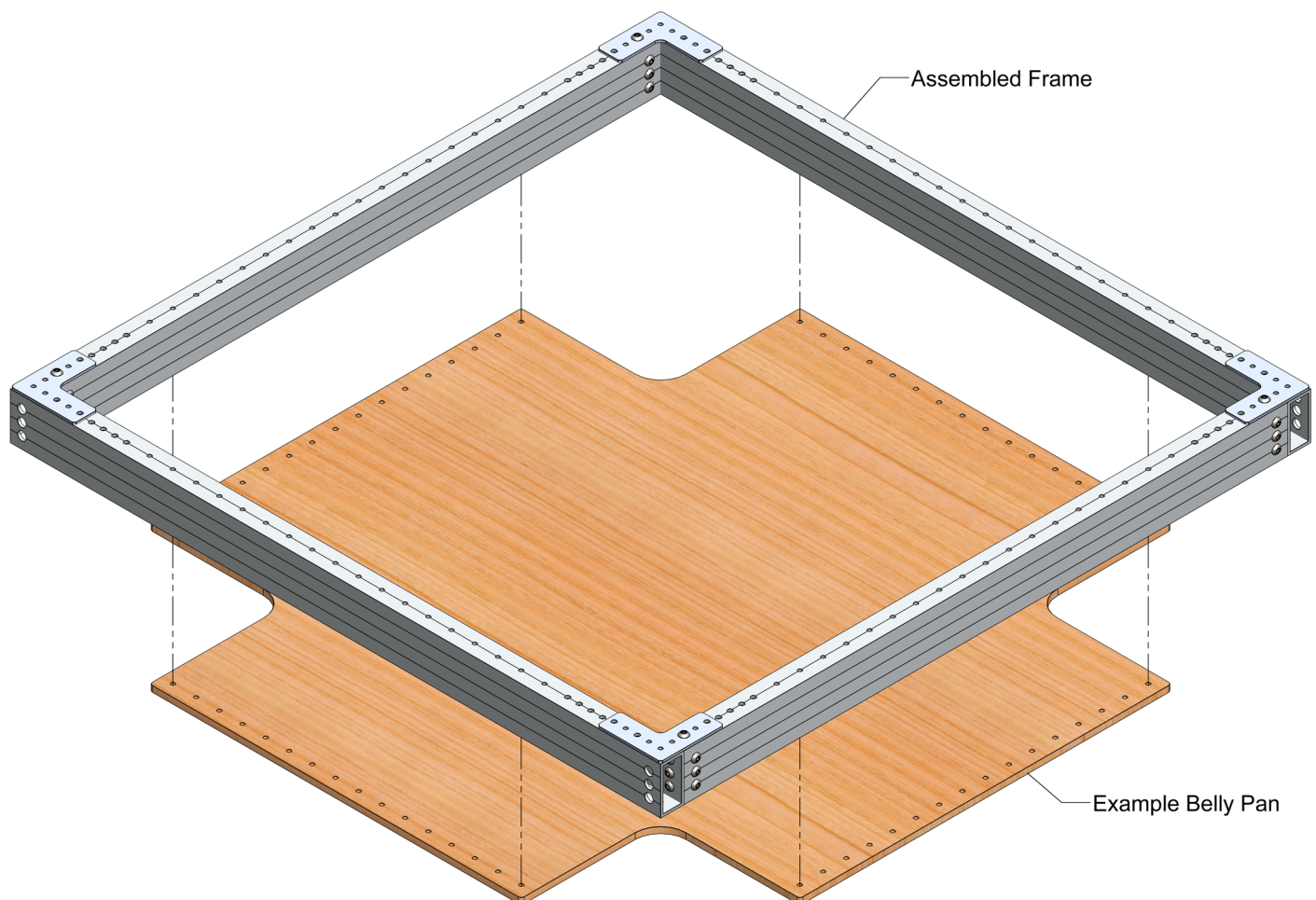




Belly Pan Installation

For the Tube Mount configurations, the belly pan can be installed using either rivets or bolts as desired. The images below show the installation of the belly pan.

Note: For both Tube Mount configurations, the side on which the belly pan is mounted does not matter.



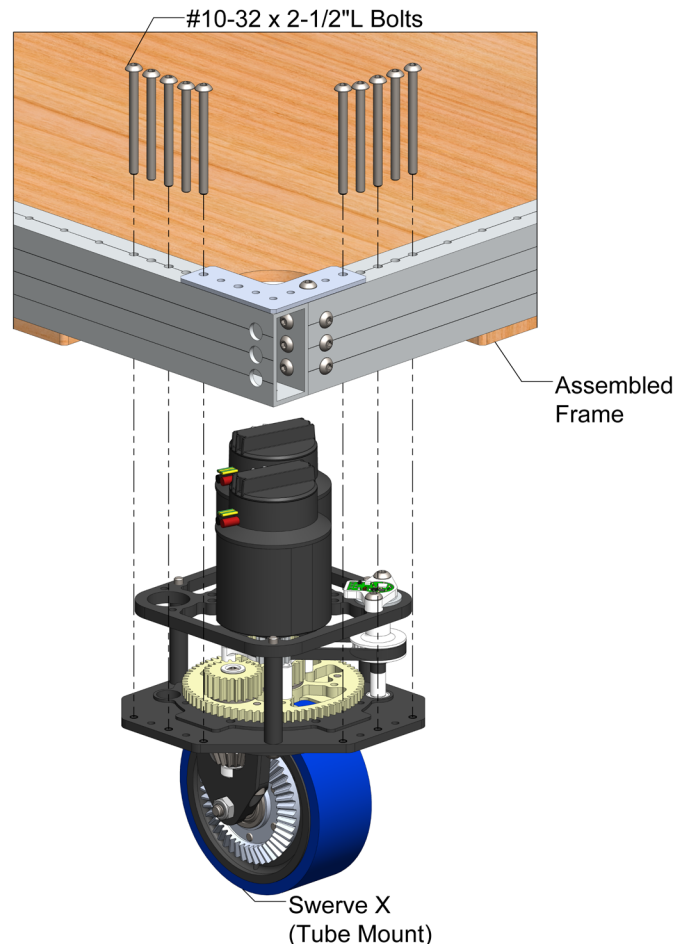


Bottom Mount Swerve Module Installation

Once the frame is fully assembled, the Tube Mount Swerve Modules can be installed. As seen in the image below, the gusset for the frame is installed on the top side of the tube for this mounting style.

The bottom mount option gives teams 2" of extra ground clearance but doing this will also limit space available for other mechanisms above the frame. This will also increase the height of the Center of Gravity of the robot.

Note: The image below shows the Module being installed using ten bolts, but they are not all needed. If desired, the Tube Mount Module can be mounted using only six bolts.



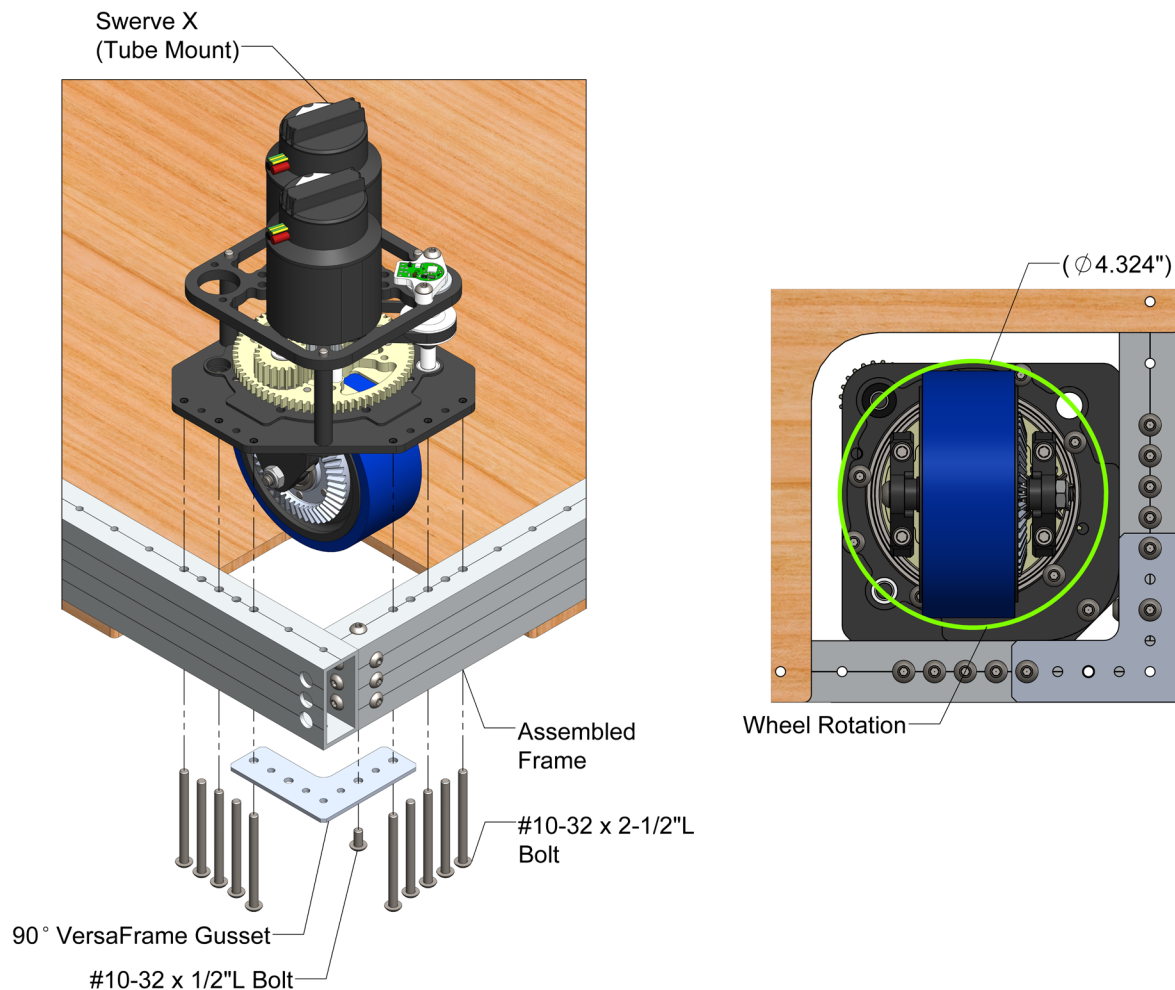


Top Mount Swerve Module Installation

The Swerve Module will be installed from the top of the frame for this configuration. In the images below, the example belly pan used for this guide clear the wheel by a minimum of 1/4". Similar to the previous bottom mounting method, only six bolts are required to install the modules.

Note: The radius for the wheels rotation is the same across all configurations of the Swerve X.

Note: If you design the belly pan/gusset to be too close to the module, this may cause issues with removing the wheel.





Revision Table

Revision Date	Revision #	Description
11/19/2021	1.0	First revision created.