

IG32-SB2 2WD Tube Mount Robot Platform

Assembly and Operation

The IG32 2WD tube mount platform is a simple robot that can support high payloads. It consists of the 2WD robot chassis and provides all the necessary parts to turn the robot chassis into an operational robot. It supports our IG32 planetary gear motors.

Images shown may not be an exact representation of the robot's features listed in this document

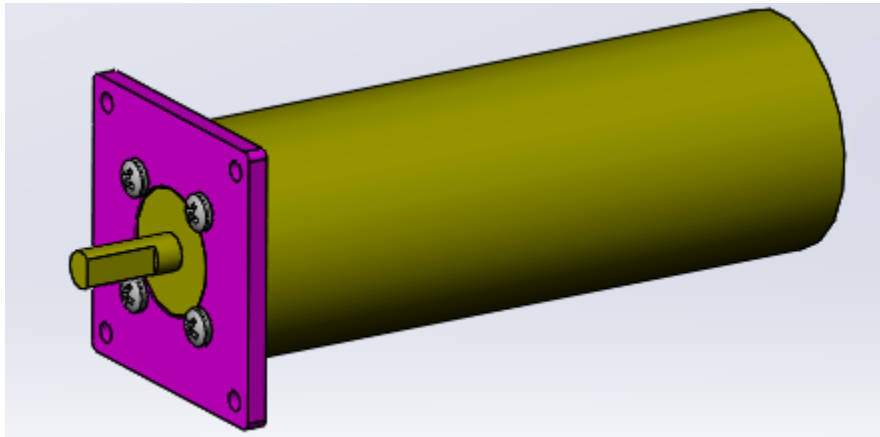


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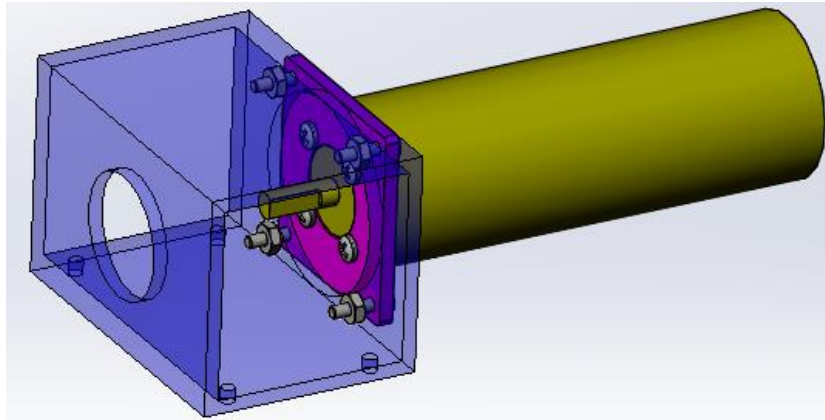
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Mechanical Assembly

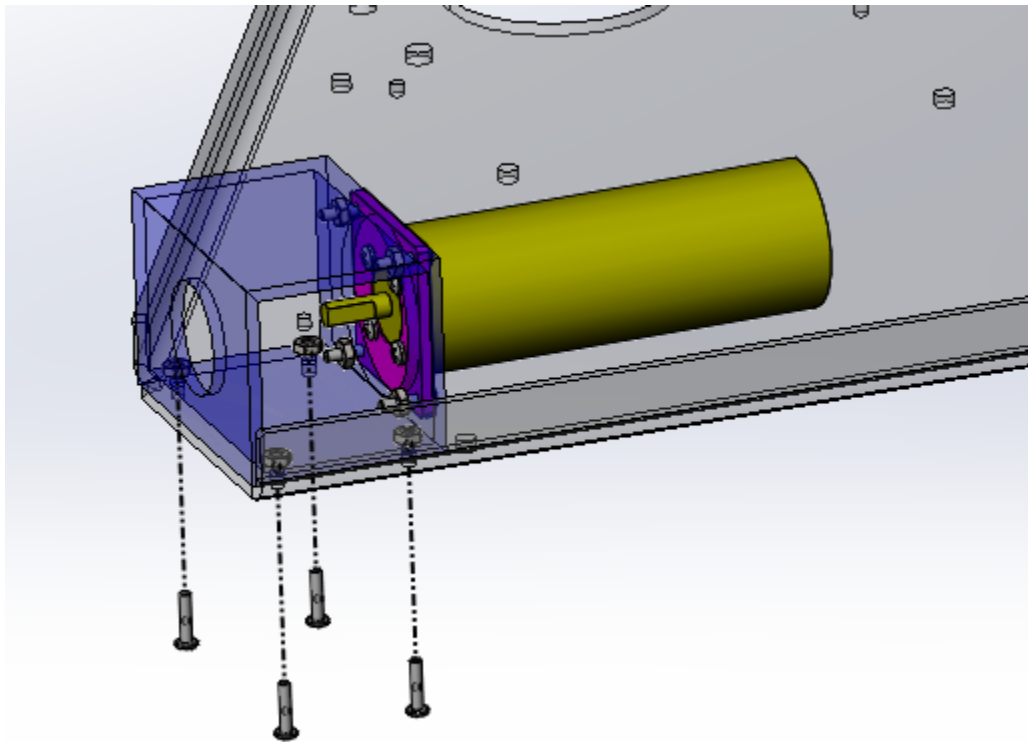
1. Start by mounting the motors to the motor plates using the provided M3 screws. Use Loctite to keep the screws from vibrating out.



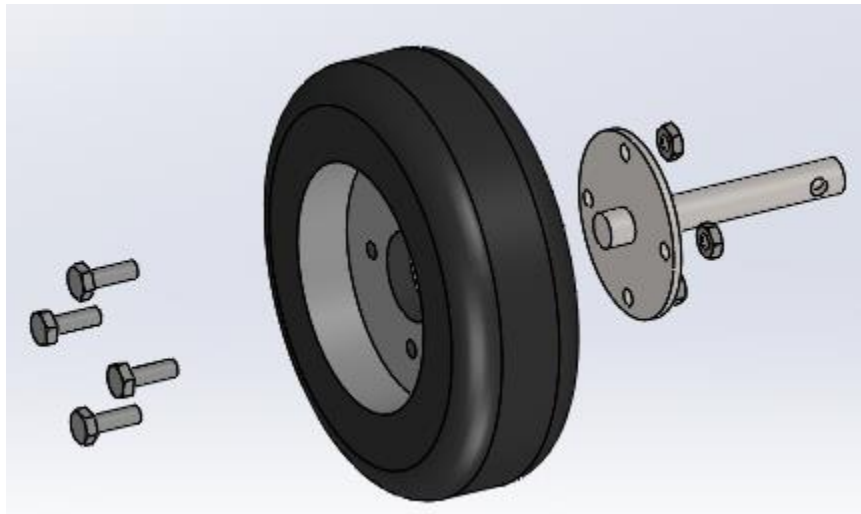
2. Next mount the motor plate to the motor tube, again using Loctite or nyloc nuts.



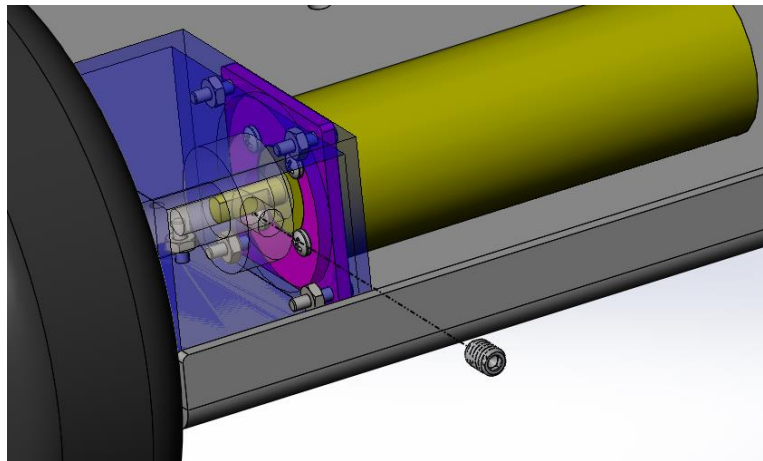
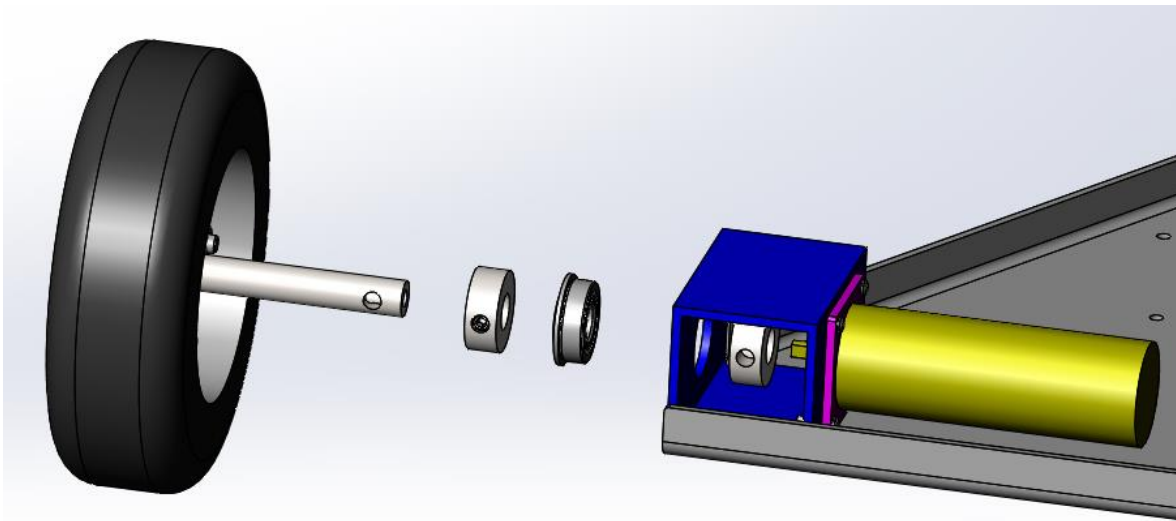
3. Mount the motor tubes to the chassis plate using the provided #4-40 hardware.



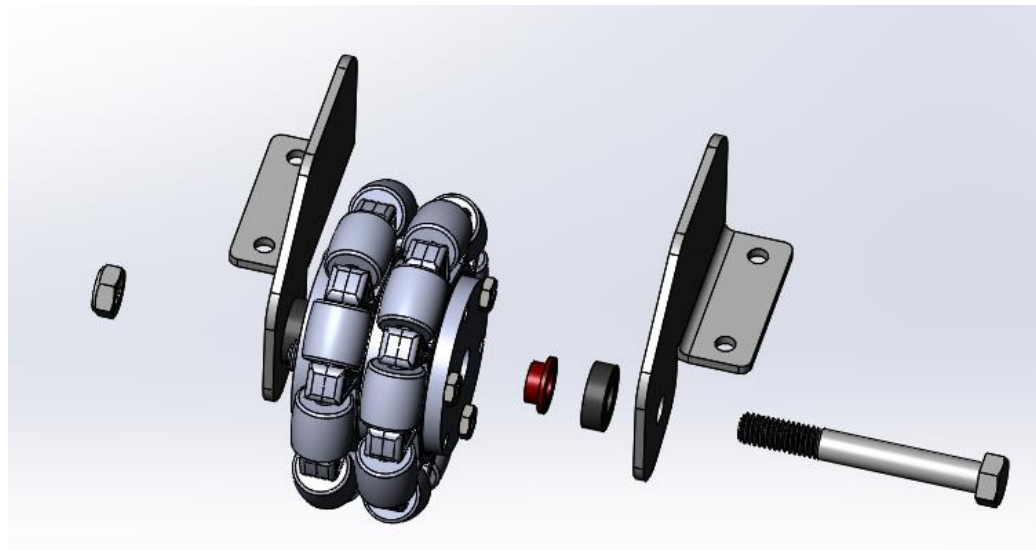
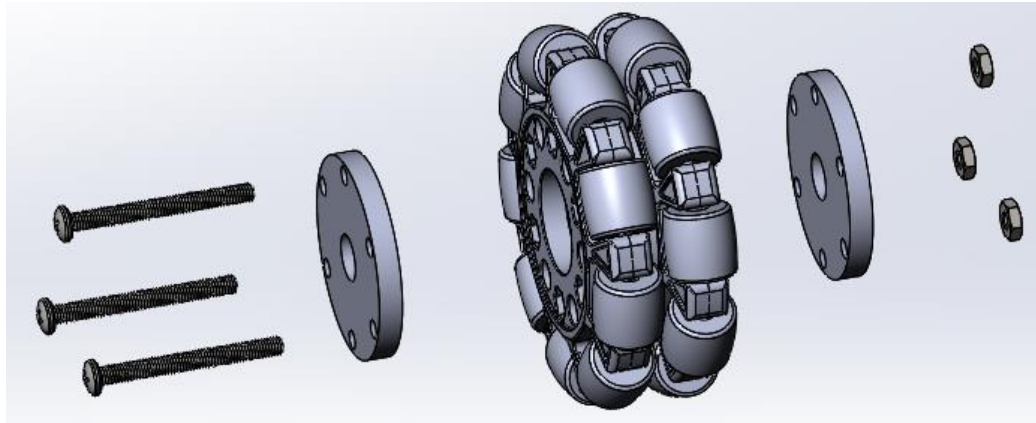
4. Mount the wheels to the shaft using the provided hardware and Loctite.



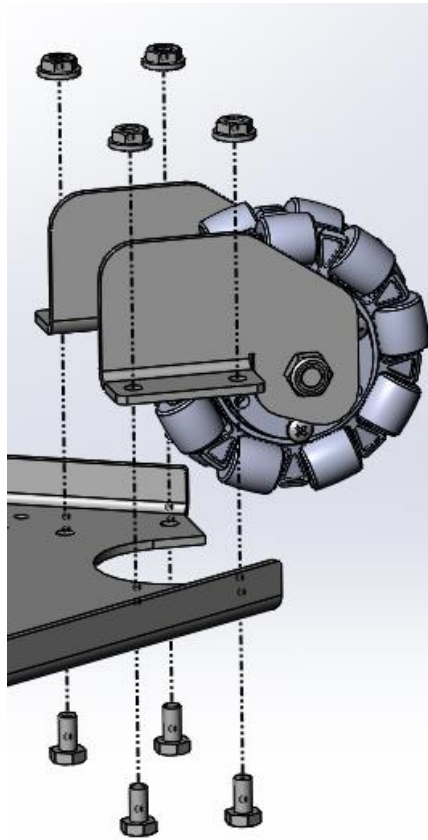
5. To mount the wheel shafts, place the bearing in the outer hole in the tube and slide the shaft through it with shaft collars on either side of the bearing. The shaft collar inside the tube is used to mount the shaft to the motor. Make sure to use the longer set screw provided (1/4-20 x .375") here and tighten it down through the hole in the side of the shaft and onto the flat part of the motor shaft. Make sure the set screw tightens down onto the center of the flat spot so there is minimal backlash in the wheel. Some backlash in the motor gearbox is normal but if you are able to turn the wheel 1/4 turn or so, check that the set screw is in the right place. If it is not, the motor shaft can get damaged. Again, make sure to use Loctite on the set screws.



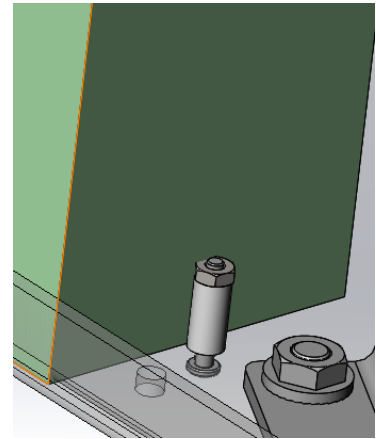
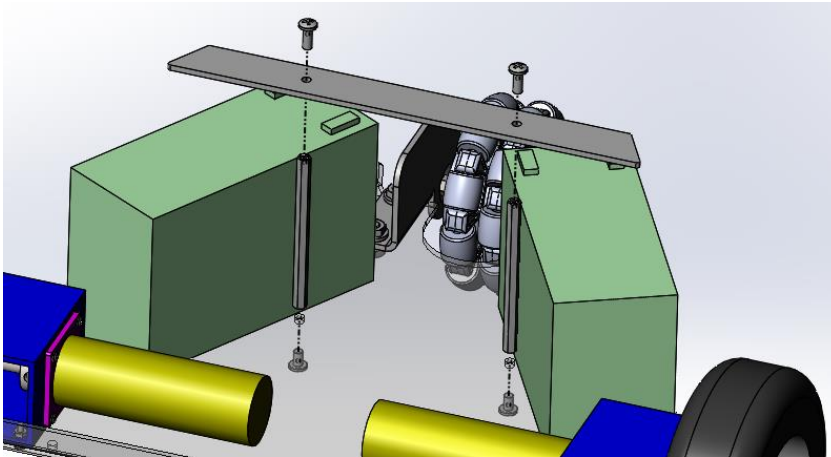
6. Mount the bearing plates onto the omni wheel using the provided hardware. Next mount the omni wheel to the chassis mount brackets. Make sure to use a bronze sleeve bearing and a plastic spacer on each side of the wheel and use the 3/8 bolt as the shaft. Tighten bolt with locknut enough so that there isn't a lot of side to side play in the wheel but it still spins freely.



7. Mount the caster brackets to the chassis plate using the existing holes and the provided ¼-20 hardware.

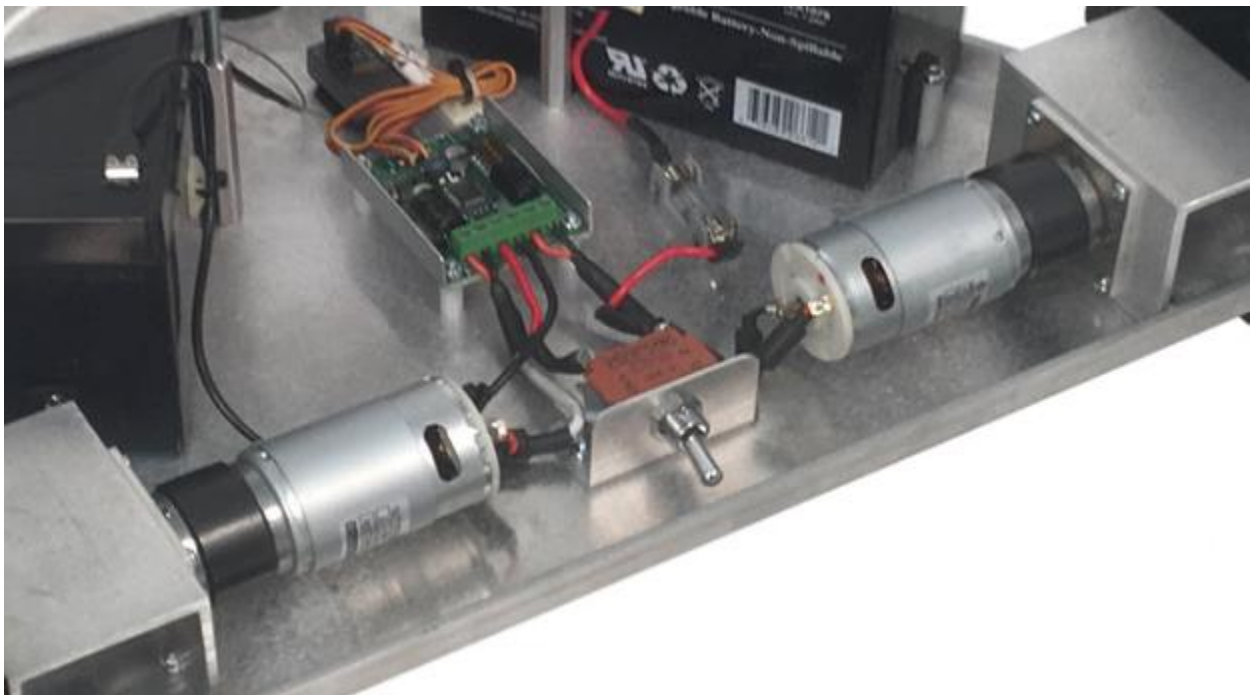


8. If using qty. 2 lead acid batteries, the holes are already in the chassis for mounting and screws and standoffs will be provided with the kit. See below image for instructions. If using a different battery configuration you will need to drill holes to mount them. Position the batteries on the chassis where you want them to be mounted. Use the battery bracket to mark the necessary mounting holes to be drilled (typically these will be 1/8" holes). Drill the holes in the chassis and mount the battery bracket using the included hardware and, if necessary, foam tape to ensure a tight fit. Also included in the battery bracket hardware kit are some plastic spacers. These are to keep the batteries from sliding underneath the battery bracket (see picture below). Position the spacer against the end of each battery and use a 3/32 drill bit through the spacer to mark the hole in the correct place. Drill out hole to 1/8" and mount the spacers with the included hardware.

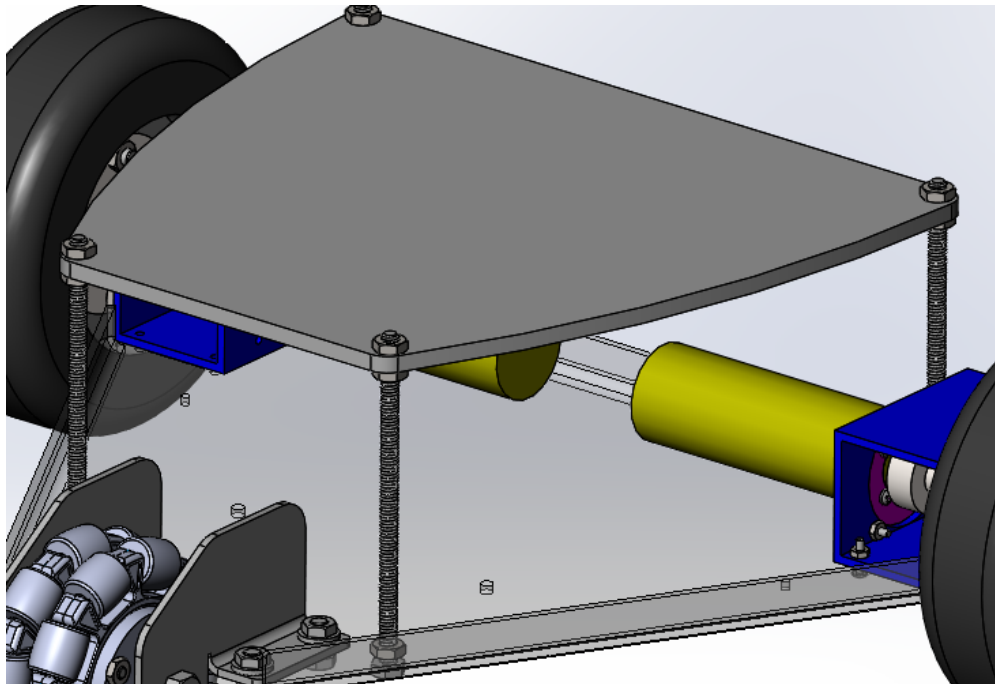


9. Pick a spot to mount the switch and motor controllers. Mark and drill holes (1/8" for motor controller, 1/2" for switch). Optionally, switch mounting brackets are available for purchase for easier switch mounting (see link below).

[Switch Mounting Bracket](#)



10. An upper deck is available as an option. To mount, use the provided $\frac{1}{4}$ -20 bolts and nuts. Use three nuts per bolt as shown below.



Inflating the tires

Before running the robot on the ground, make sure the tires have been inflated. Running the robot with a flat tire can cause the tube to spin inside of the tire and damage the valve stem. For this reason it is a good idea to check the tires periodically to make sure they are inflated.



Electrical Assembly

For electrical assembly please find the schematic on our website for the motor controller you selected:

[Schematics](#)

For additional support on wiring, soldering, and crimping, please read the following support pages:

[Electric Motor Hookup Support](#)

[Electric Power Hookup Support](#)

[Soldering Tips](#)

[Crimping Wires](#)

Operation

1. Before powering on the robot make sure it is up on blocks so the wheels can spin freely. Occasionally some or all of the wheels start as soon as the motor controller gets power. In this case the settings of the motor controller need to be changed.
2. Make sure to use the correct DIP switch settings. If using a Sabertooth motor controller in R/C mode switch 1 should be DOWN (closest to the number) and all other switches should be UP. If using a different mode see the manual for the motor controller you are using on Dimension Engineering's website.

Binding a Spektrum Remote

3. Insert the bind plug into the receiver and power on the robot.
4. While pressing the Bind button, power on the transmitter.
5. Release the Bind button after the receiver's LED stays illuminated. This indicates the receiver is bound to the transmitter.
6. While the robot and transmitter are still powered on, remove the bind plug from the receiver. The transmitter is now bound to the receiver and will connect automatically the next time both are powered on. Do not try to drive the robot before the transmitter connects to the receiver. Keep the drive joystick in the center position until it connects. The joystick is calibrated once a connection is made and will remember the position of the joystick as the center position. This will cause the robot to move erratically.



7. If the wheel aren't moving as desired, it may be necessary to swap the Alieron and Elevator plugs or to reverse the channels on the transmitter. To reverse channels see the instructions for "Servo Reversing" in the Spektrum documentation.

General Terms

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