



## IG52-DB4, 4WD All Terrain Heavy Duty Robot Platform

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### Assembly and Operation

This is our Heavy Duty All-Terrain Robot platform with 52mm gear motors, built to navigate through rough terrain and over small obstructions. This heavy duty robot is configurable.

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

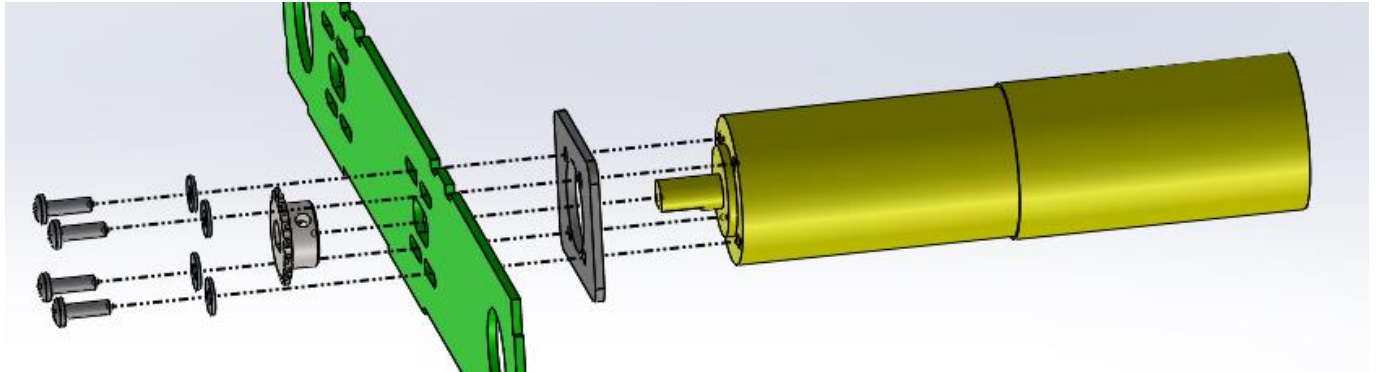


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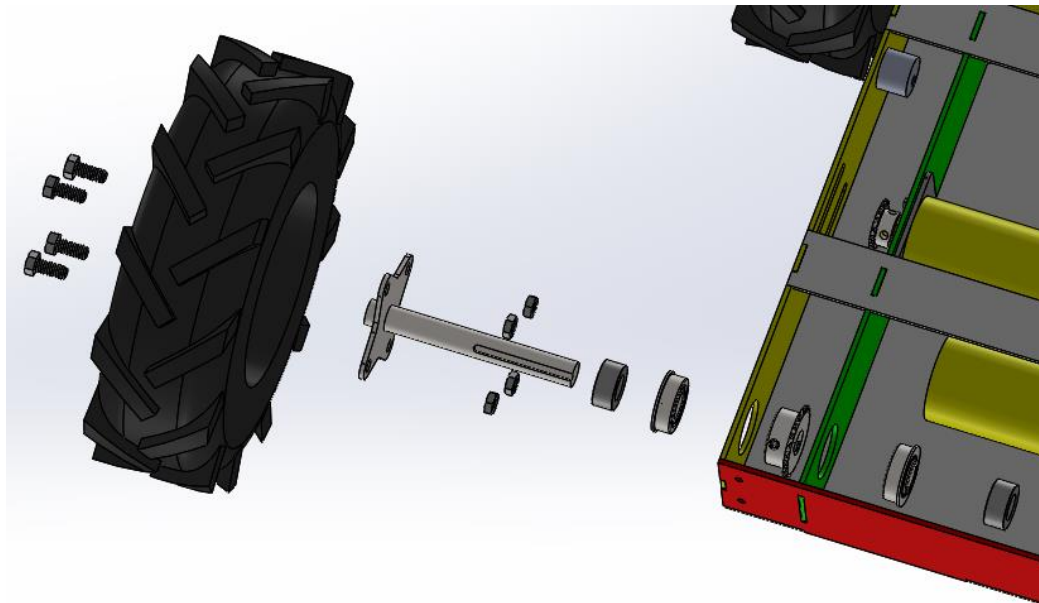
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## Mechanical Assembly

1. Mount the motors as shown in the figure below, with the motor spacer plate between the motor and the chassis. Make sure to use Loctite on the screws. Once the motor is mounted, the small sprockets can be mounted on the motor shaft. The hub should face the motor and they should be pushed all the way against the inside plate with just a small clearance for rotation.



2. Slide all 8 bearings into place through the bearing holes in the chassis. Slide a lock collar onto the axle, then slide the axle through the first bearing. At this point, put the key in the shaft and slide on the wheel sprocket. Finally slide the shaft through the second bearing. Slide another lock collar on to secure the inside bearing and slide the outside lock collar over to secure the outside bearing. Use Loctite on all set screws. Wait to mount the wheels until chains are attached and tensioned.

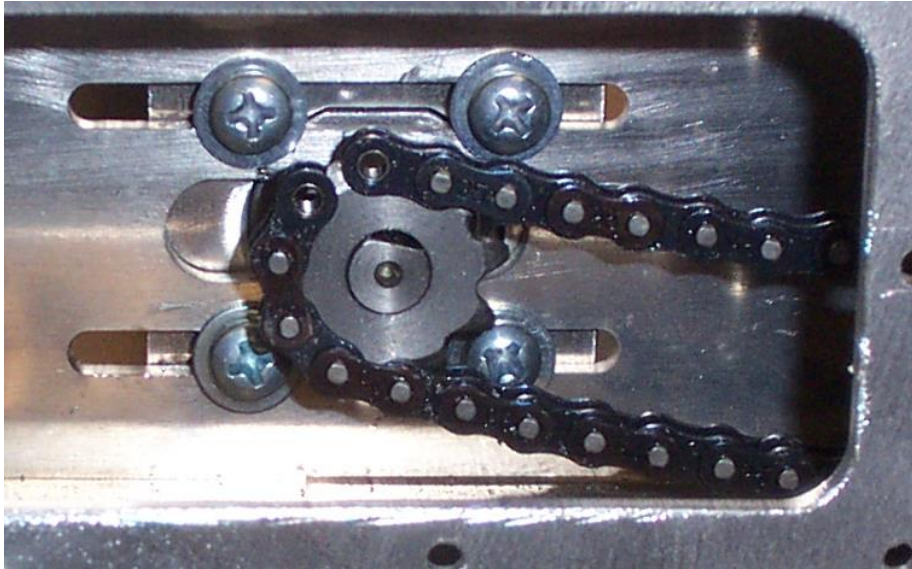




3. Measure, cut, and install the chain using the chain cutting instructions listed below.
4. At this point, the side slot covers can be mounted.
5. Mount the batteries with the provided hardware. Foam is included if needed for a tight fit. Simply stick it to the underside of the battery bracket before bolting down. The foam can also be used underneath the batteries to space them up over the weld.
6. Follow the instructions in the next section to wire the robot. Once finished with wiring the wheels and lid can be installed.

### **Chain Measuring, Cutting, and installation**

7. With the motor in its approximate middle position, measure out the required length of chain. You will want full links as shown in the figure below to insert the master link through. You will be removing the outer cross-links.



8. The easiest way to cut the chain is with a chain breaker tool, illustrated in **Error! Reference source not found.**

9. Alternatively, clamp the chain in a vise and grind/file the ends of the pins down. Then drive the pin through the chain.

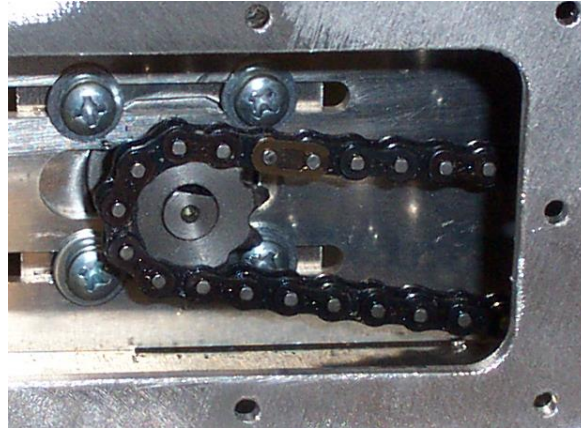


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10. Install the master link as shown in the figure below **Error! Reference source not found.** and tension chain by sliding the motor away from the axle. The chain should be tight enough so there isn't much slack but loose enough so that it isn't adding extra strain on the motor shaft. Listen when running the robot to notice if there is an uneven sound coming from the motor. If so, the chain is probably too tight.
11. Repeat for the other four wheels.



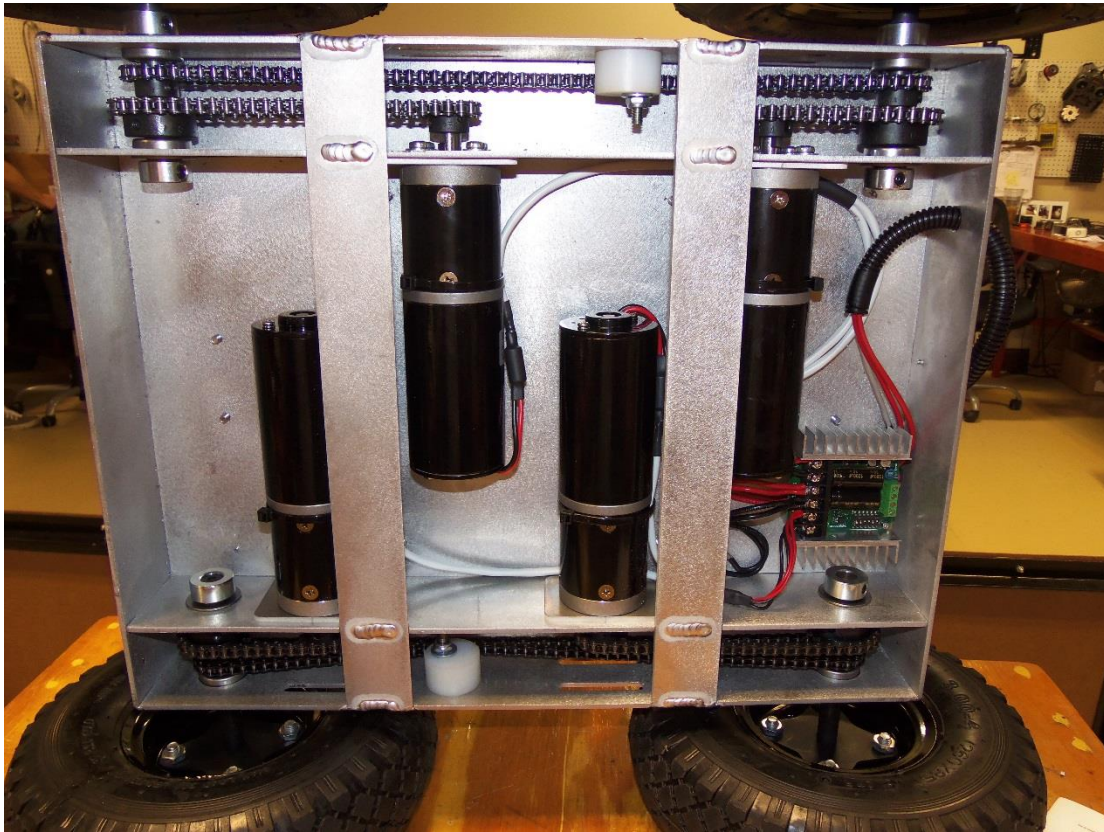
## Mounting Electrical Components

12. Mount batteries on top of the chassis using battery brackets and hardware provided. Use foam tape on the bracket and underneath the battery to ensure a snug fit.
13. Measure a place on the chassis to mount the switch. The top of the chassis is a good place for it. Drill a ½" hole.
14. If using a Sabertooth 2x25A motor controller it will fit inside of the chassis with the motors. Other motor controllers may need to be mounted on top of the chassis with the batteries.

## 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 follow the schematic for your selected motor controller:

[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 Aileron 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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