

IG52-DB Heavy Duty Enclosed Robot

Assembly and Operation

The IG52-DB Enclosed is a rugged and powerful robot platform. Make it RC or use it with sensors and a microcontroller to make it autonomous/semi-autonomous.

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



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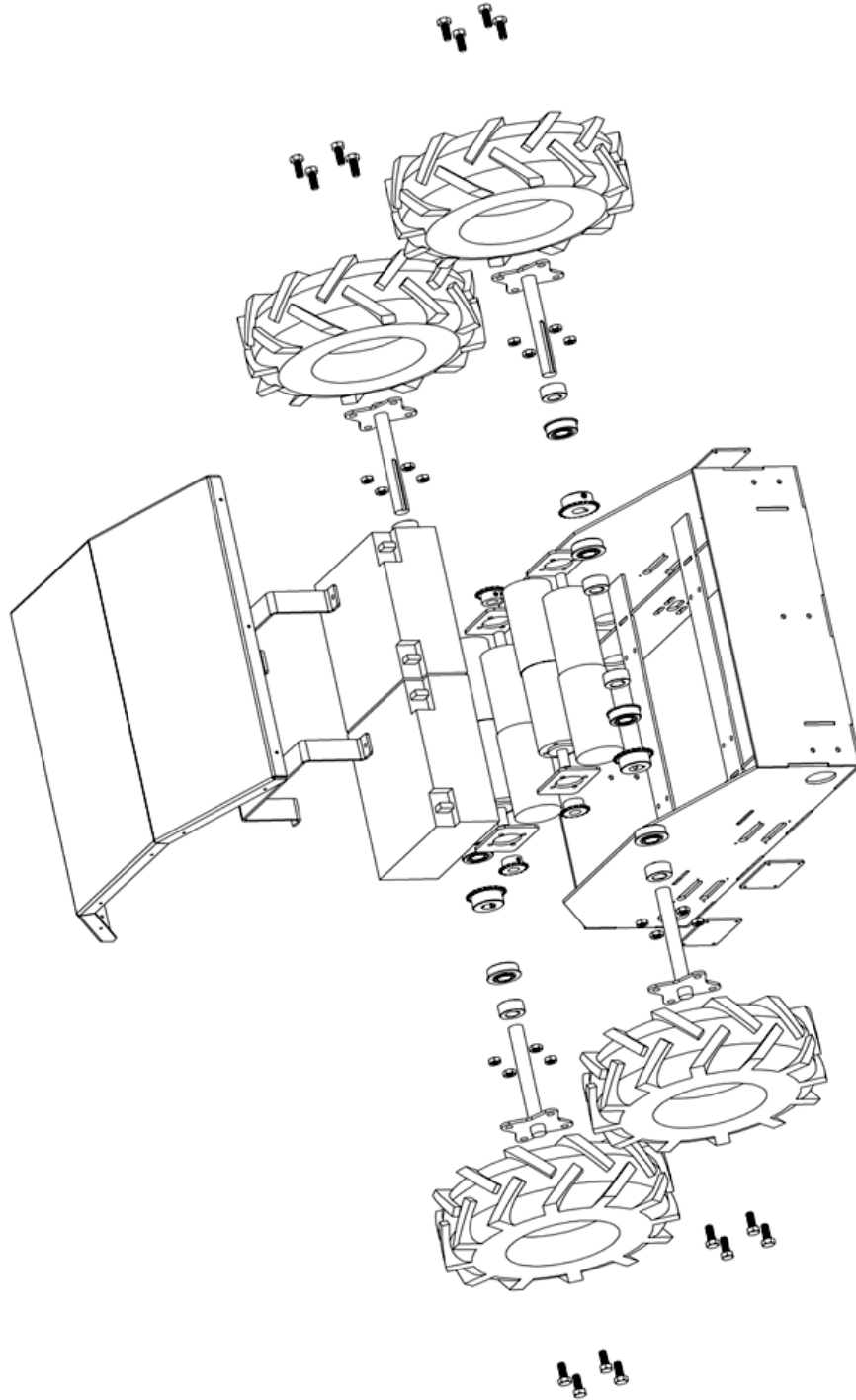


Figure 1: Exploded view sketch

Mechanical Assembly

1. Mount the motors as shown in Figure 2, 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.

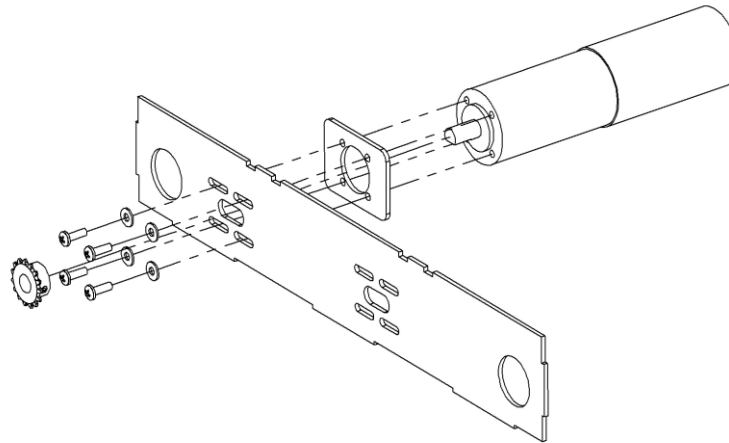


Figure 2: Exploded view sketch of motor mounting

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.

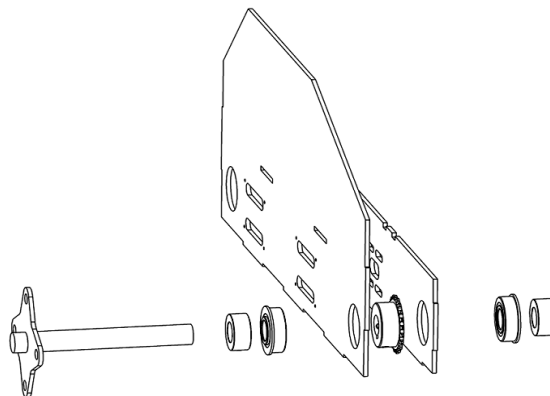


Figure 3: Axle assembly



Figure 4: Sprocket with key installed

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. Refer to Figure 5. You will want full links as shown in the figure to insert the master link through. You will be removing the outer cross-links.

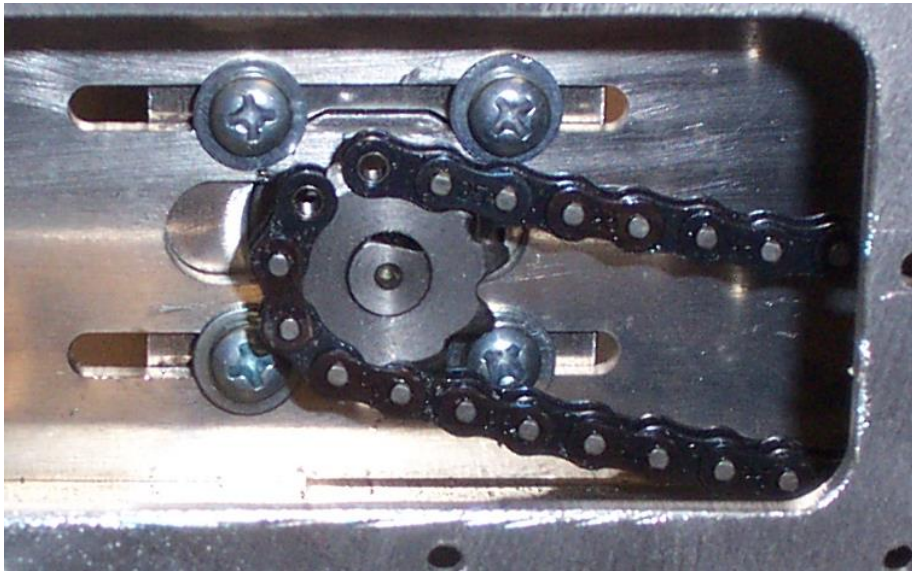


Figure 5: Chain layout

8. The easiest way to cut the chain is with a chain breaker tool, illustrated in Figure 6.



Figure 6: Chain breaker tool

9. Alternatively, clamp the chain in a vise and grind/file the ends of the pins down. Then drive the pin through the chain. Refer to Figure 7, Figure 8, and Figure 9.



Figure 7: Chain Cutting Setup



Figure 8: Chain grinding/breaking



Figure 9: Chain Link removal

10. Install the master link as shown in Figure 10.
11. Repeat for the other four wheels.

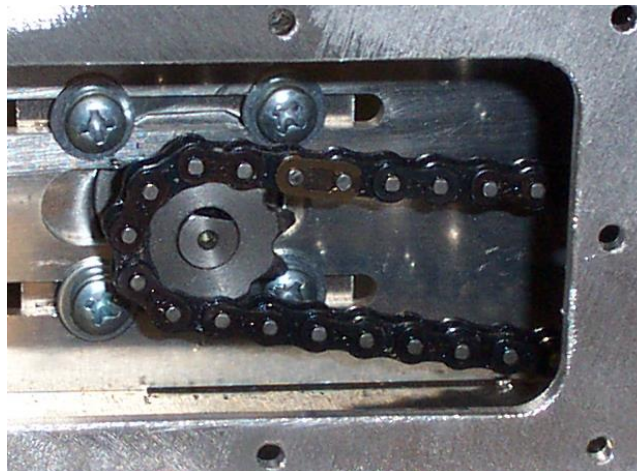


Figure 10: Master Link Installation



Mounting Electrical Components

12. Mount batteries 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 rear plate of the chassis is a good place for it. Make sure that it is mounted low enough that it doesn't interfere with the lid. Drill a ½" hole.
14. Drill a hole near the switch to mount the charging jack.
15. Mount the motor controller to the front or rear plate of the chassis. If using 12Ah batteries, the motor controller will fit between the two batteries. A custom plate will need to be installed to mount it there.

Electrical Assembly

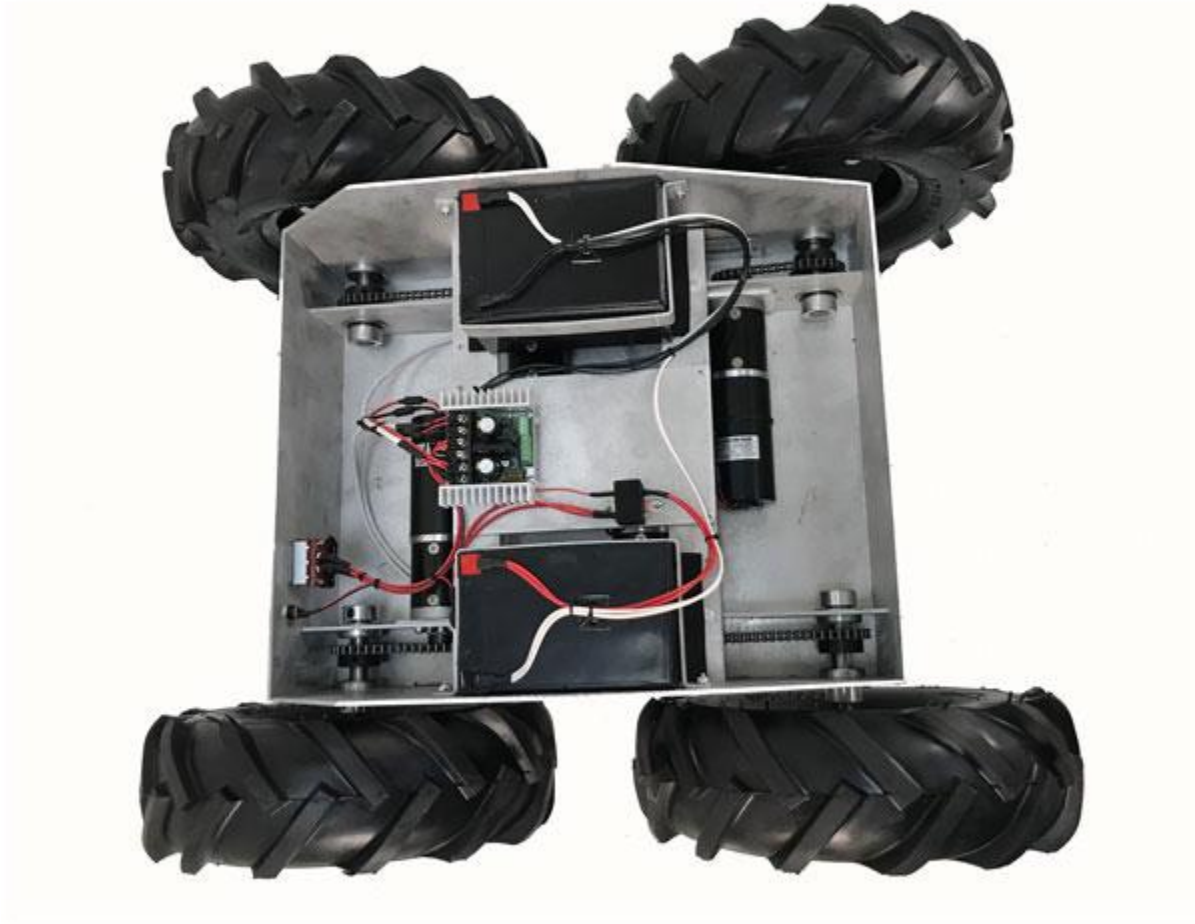


Figure 11: Assembled Robot

For electrical assembly please follow the schematic below:

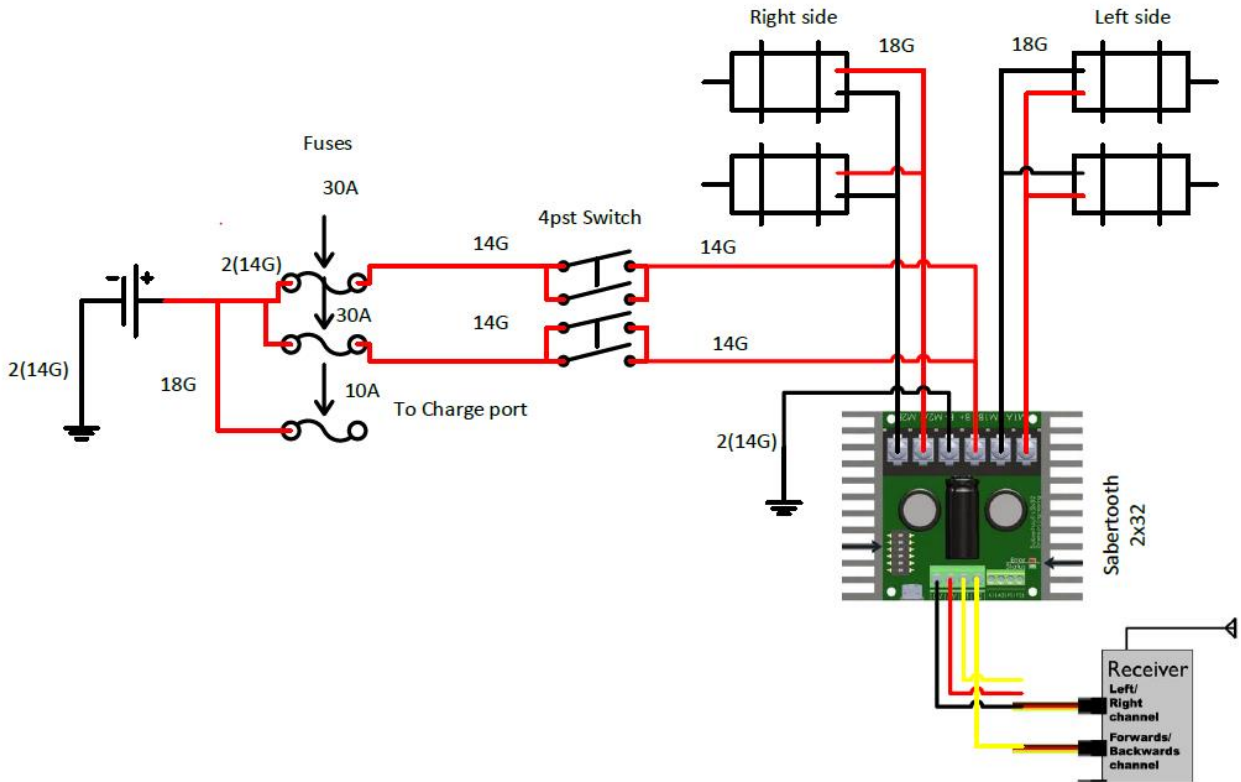


Figure 12: IG52 Motor Wiring Schematic

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](#)

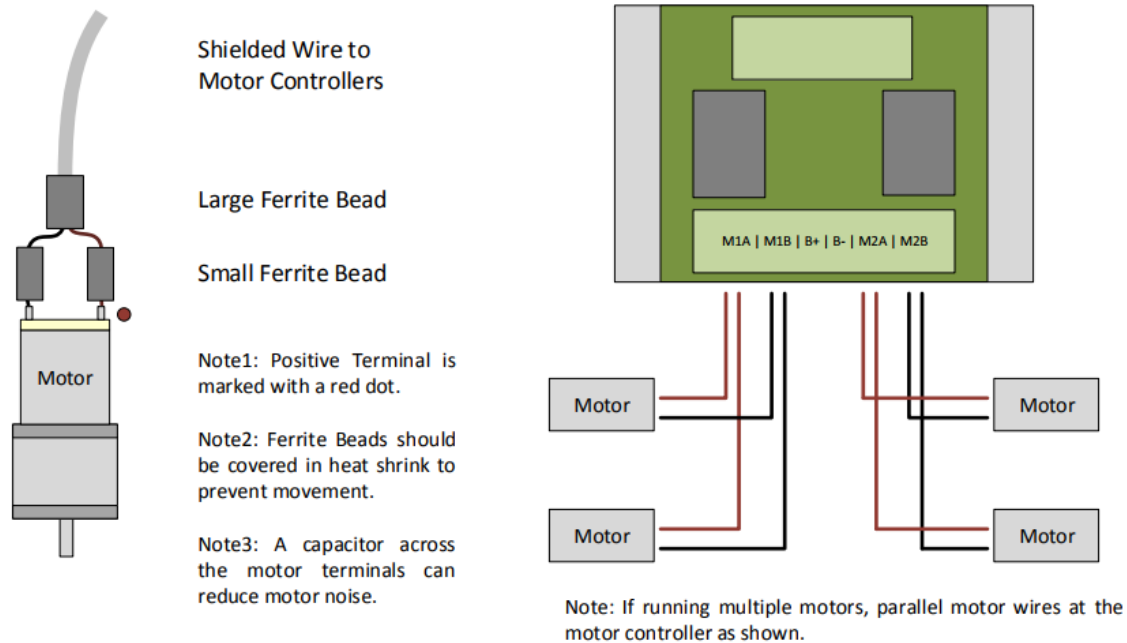


Figure 13: Motor Wiring and Motor Controller Circuit

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 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.
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.



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4. In the event a dispute or controversy arises, such dispute or controversy (including claims of default) shall be brought in the courts of Wake County, North Carolina and the plaintiff hereby agrees to this choice of venue.