4WD & 6WD Wheelchair ATR Assembly Manual

Follow this manual for assembly of the 4WD WC ATR and the 6WD WC ATR, as well as the 4WD and 6WD snowplow. The pictures in this manual are taken from any of these assemblies so the robot you receive may look a little different than the robots in the pictures. The assembly steps, however, are the same.

Preparing the Motors

There is a brake on the wheelchair motors that should be removed before assembly. There is also aluminum plate that needs to be removed. Follow these steps (If you selected to add encoders on the motors, the brake has already been removed. Skip to step 5.):

1. Remove the back cover of the motor

2. Remove the brake by taking out two screws.

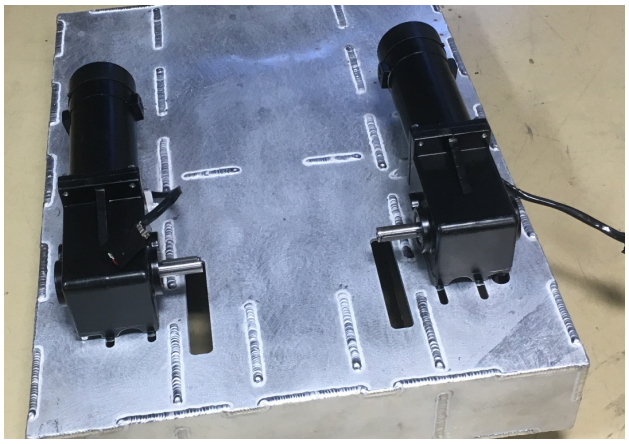
3. Cut the two white wires. These are no longer used.

4. Cut the connector off of the motor and remove the two white wires by pulling them through the wire jacket.

5. Remove the six socket head screws holding the aluminum plate to the bottom of the motor. Remove the aluminum plate, it will not be used. Set the screws aside, these will be used to mount the motors to the chassis.

Mechanical Assembly

1. Align the motors as shown below, with the shaft facing inward and toward the front of the chassis.

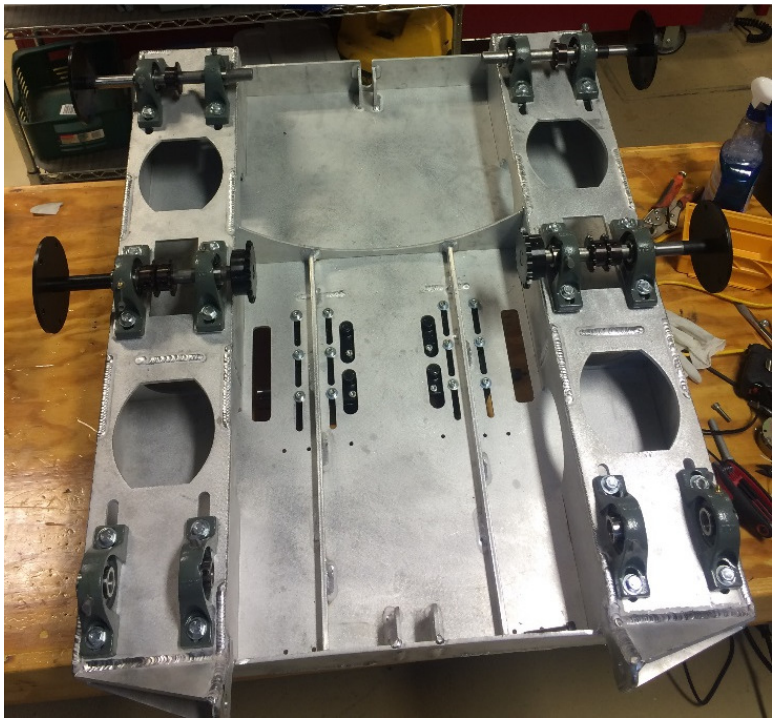


2. Mount the motors with the socket head screws that you removed from them along with the washers provided in the kit. Tighten but not all the way so that the motors can still slide in the slots. The chains will need to be tensioned later on by moving the motors in the slots.

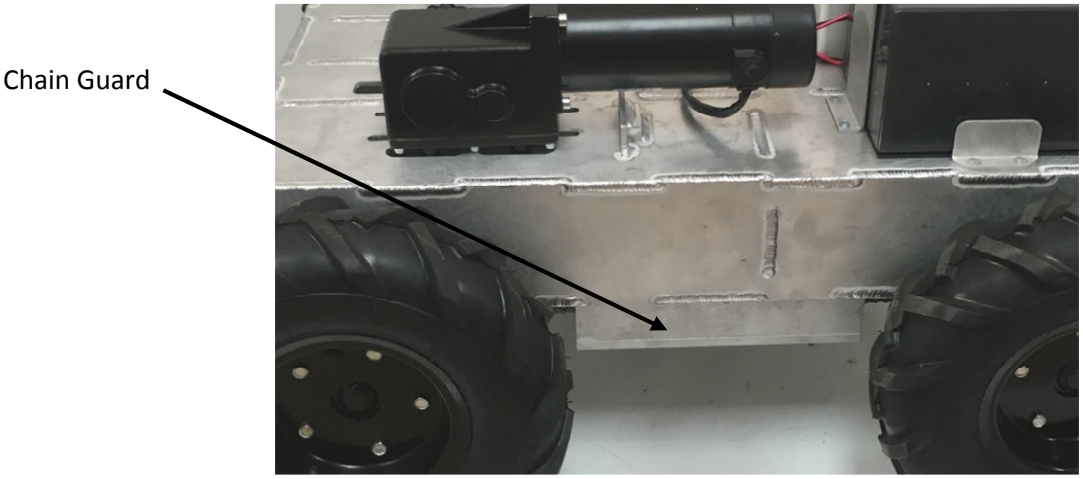
3. Mount bearings on the bottom of the chassis using the provided 3/8” hardware. Then slide all the wheels into the bearings, making sure to slide the #35 wheel coupling sprockets (and keys) on the shaft between the beaings as shown below. Do not tighten the set screws in the bearings yet as you may need to adjust positioning of the shafts later. The 6WD configuration is shown below. For the 4WD robot, there will only be one #35 15 tooth sprocket per wheel (4 total). Next, slide the #40 sprockets with keys onto the ends of the drive shafts and align them with the chain slots. You can tighten set screws on sprockets but you may have to adjust them later.

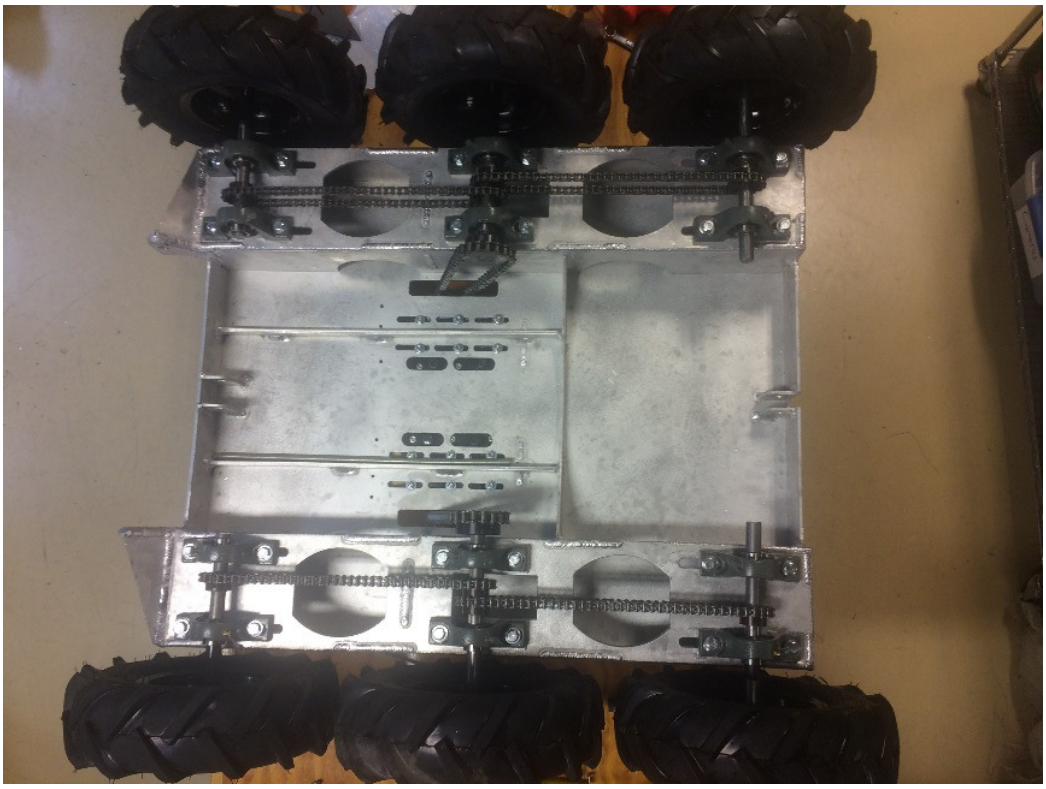
   For the 6WD robot, you may have to shim the bearings so that all wheels touch the ground so after mounting bearings and before installing the sprockets, slide the wheel axles into the bearings (with wheels mounted) and turn the robot over on the wheels to check if the wheels

are all touching the ground. Shim the bearings as necessary. There are shims for 4 bearings provided, if necessary.

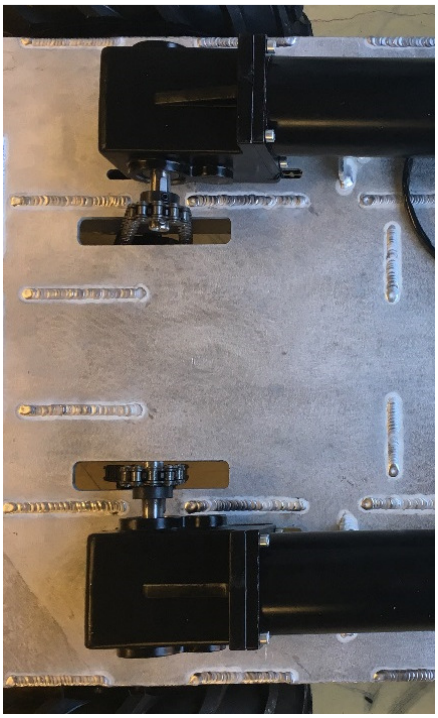


4. Couple the wheels with the provided #35 chain and connecting links. Make sure to cut the chain to a length that will allow you to take all of the slack out by tensioning it. Tensioning the chain is done by sliding the bearings that are mounted in the slotted holes. Next, mount the wheels to the axles using the five bolts that come in the wheel. If you have a 4WD Robot, install the chain guards now, while you have the robot flipped over (the 6WD robot does not need the chain guards). At this point you can also tighten all of the set screws in the bearings to keep that shafts from sliding in the bearings.

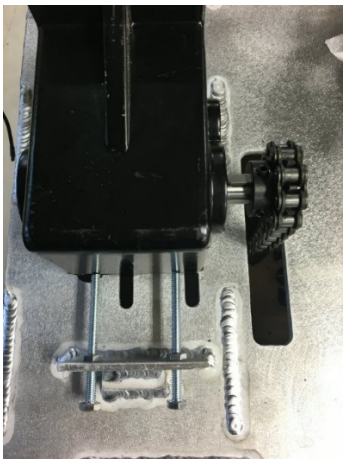




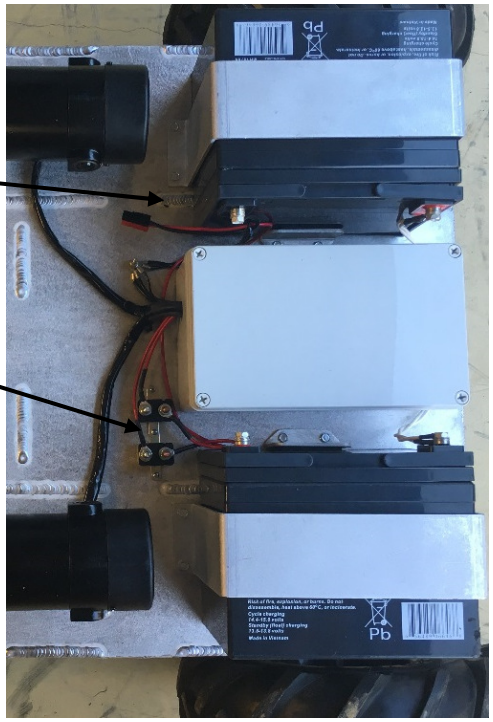
5. Slide the #40 10 tooth sprockets on the motor shafts, line them up with the slots in the chassis, and tighten the set screws. Measure and cut the #40 chain to fit around the motor and drive wheel sprockets, making sure the sprockets are aligned and the chain is clear of the sides of the slots.



6. Tension chain by loosening motor mounting bolts, screwing in jacking bolts and jam nuts, and tightening the jacking bolts against the motor. Once chain is properly tensioned, tighten jam nuts against the jacking plate to keep the jacking bolts from loosening then retighten the motor bolts.



7. Mount batteries with battery brackets and provided hardware as shown below. Mount electronics box, circuit breakers, and grounding lug as well. Mount items shown in electronics box below to the aluminum backplate.



8. You are now done with the main mechanical assembly. For wiring, see the ATR and Vectoring Robots Manual and Wiring Big Electric Motors.