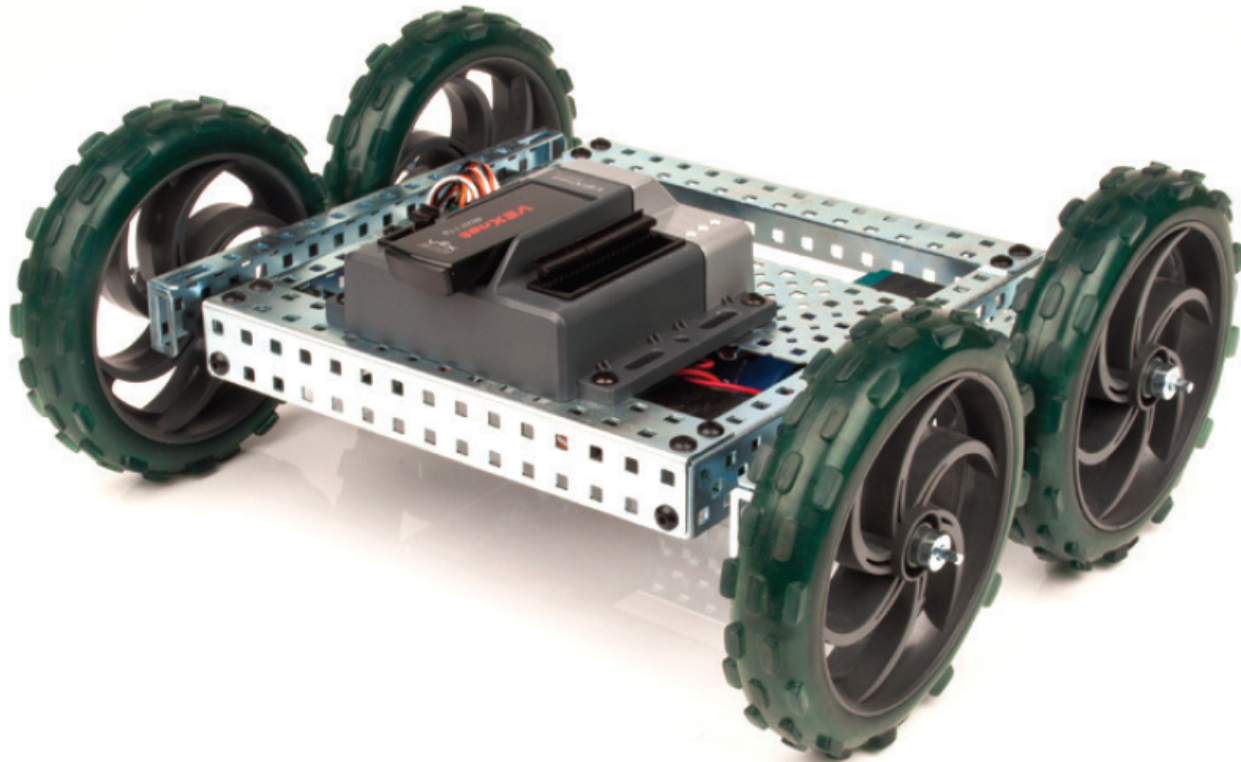


GUIDE FOR BUILDING THE **TUMBLER**



You may be getting the parts you need from storage bins or by unpacking a new protobot kit. Familiarize yourself with the parts – name, codes, sizes before beginning to build



[NK]
8-32 KEPS NUT



[SS2]
1/4" MOTOR SCREW



[SP1]
SPACER THIN



[S2]
1/4" SCREW



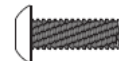
[COL]
COLLAR



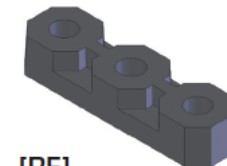
[S3]
3/8" SCREW



[BR]
POP RIVETS

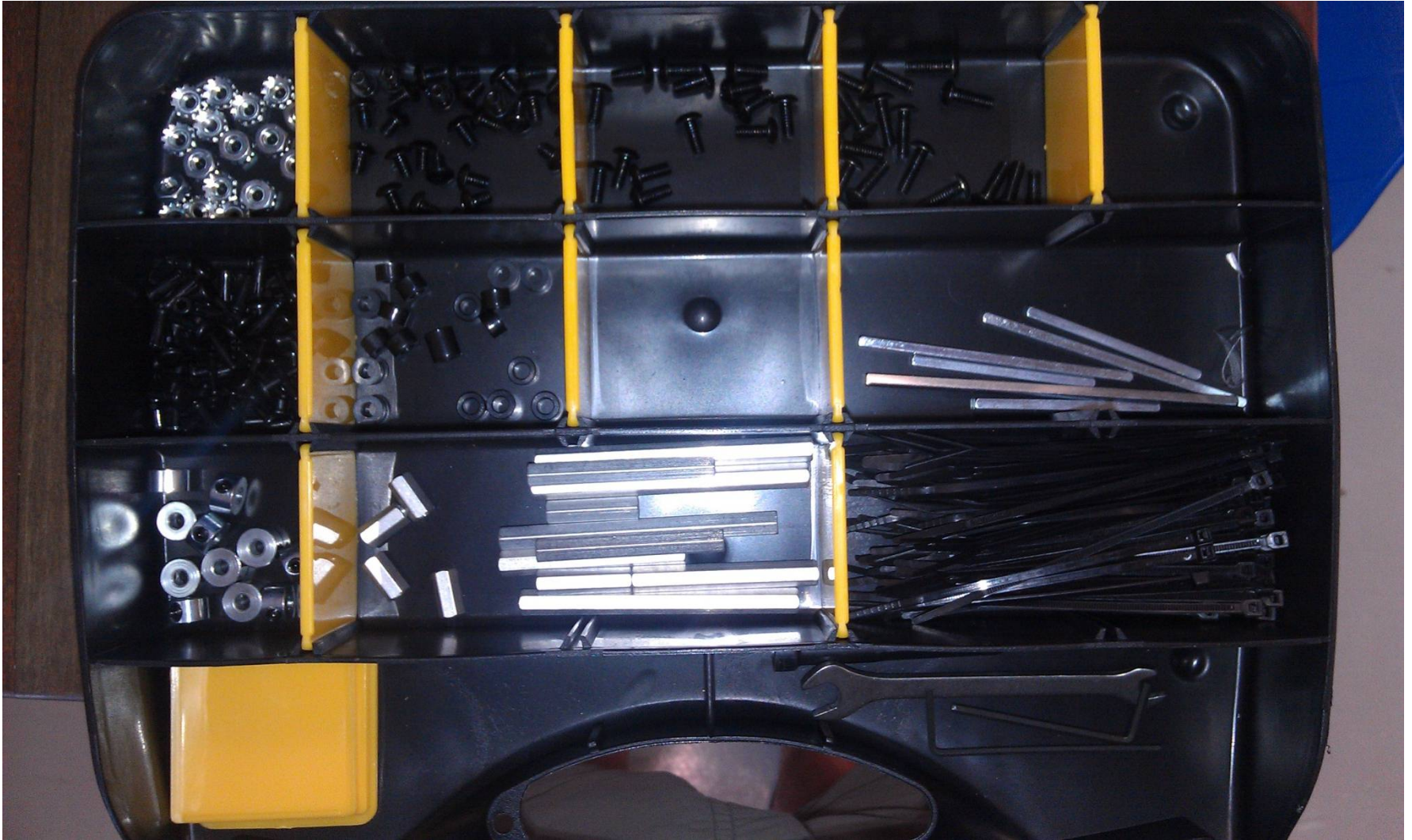


[S4]
1/2" SCREW



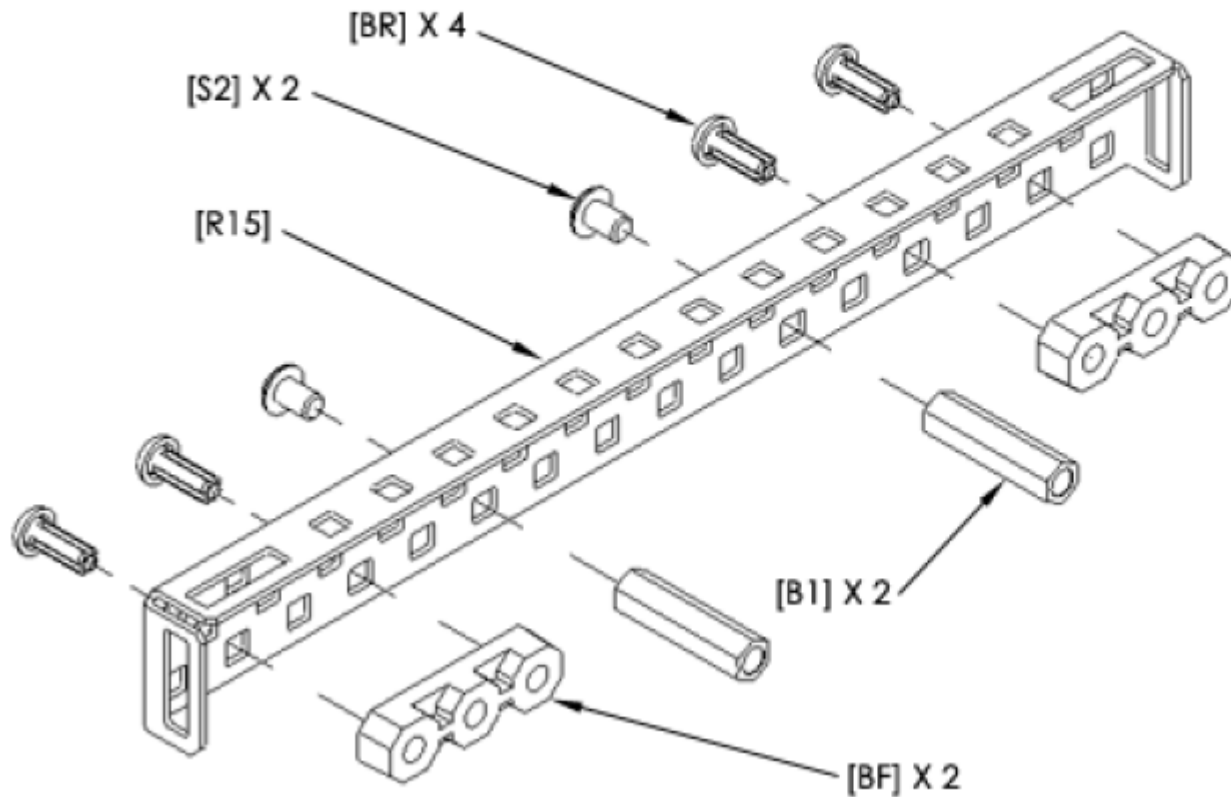
[BF]
BEARING FLAT

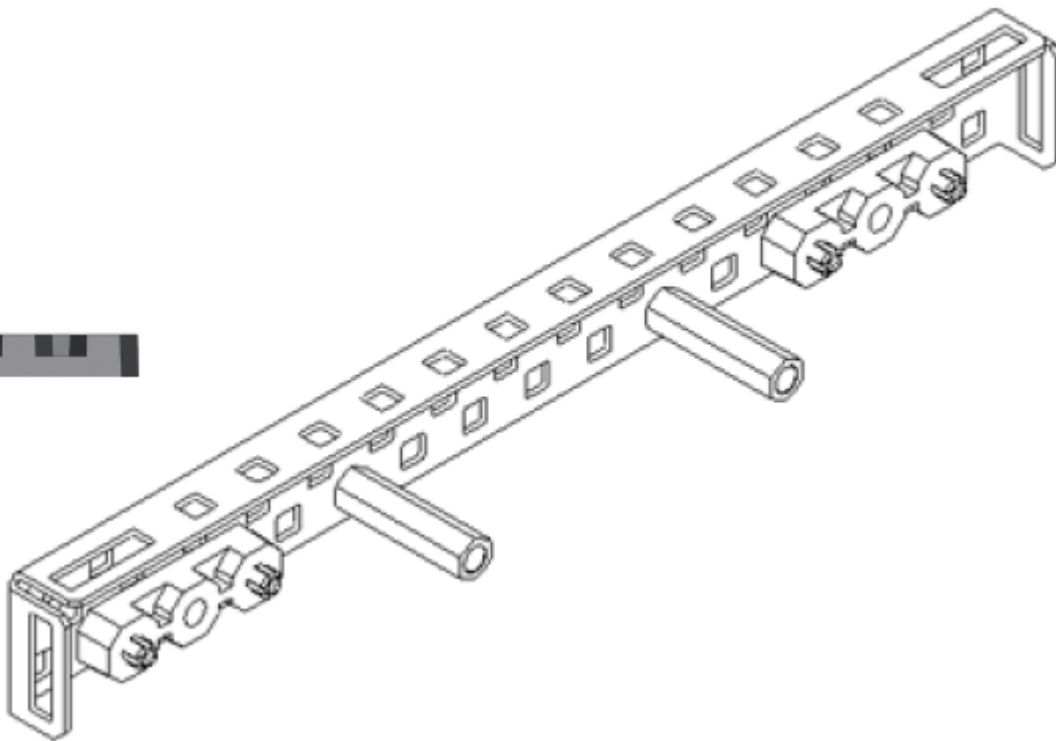
Use a team tray to keep parts organized. This will save you lots of time in all future build and break downs.



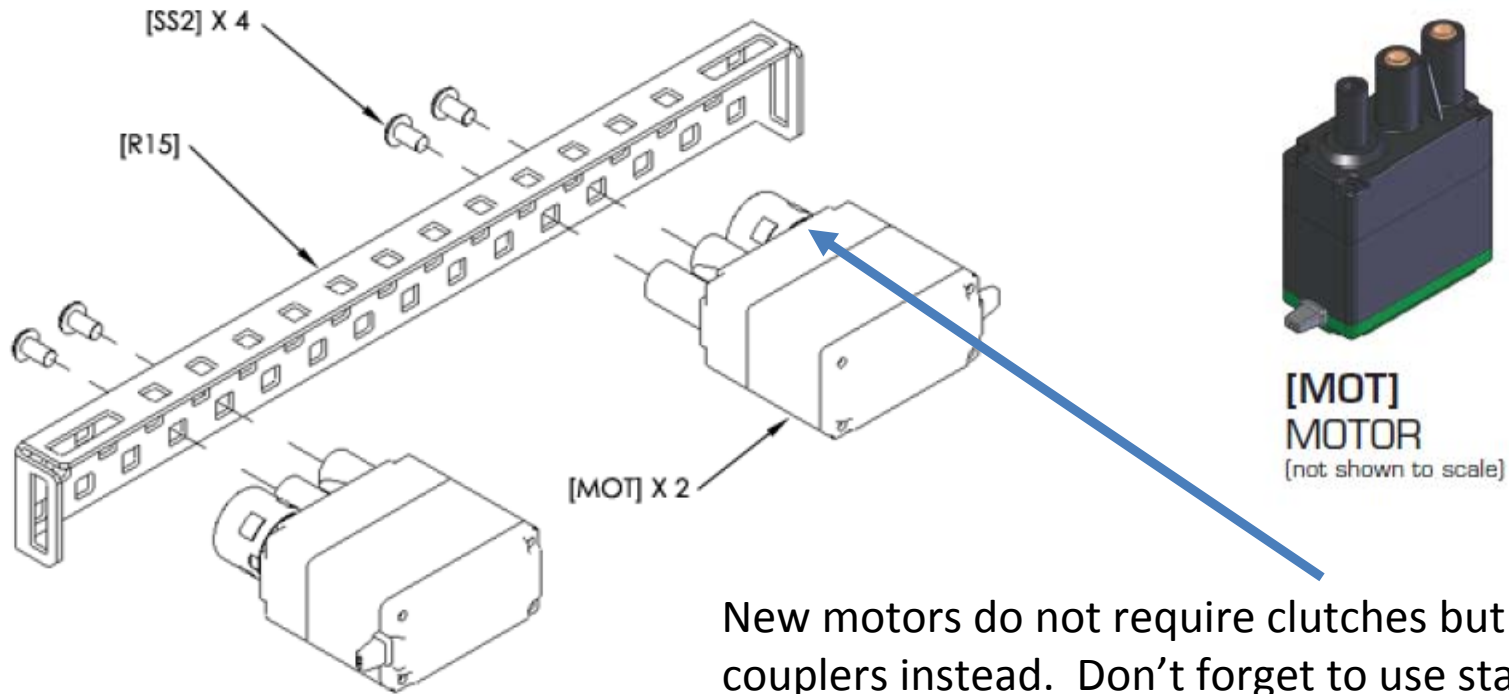
Tumbler Right Side Drive

- Locate one Chassis Rail [R15].
- Fasten two Bearing Flats [BF] to the Chassis Rail using two Bearing Rivets [BR] for each Bearing Flat.
- Fasten two 1" Beams [B1] to the Chassis Rail using using #8-32 x 1/4" screws [S2].





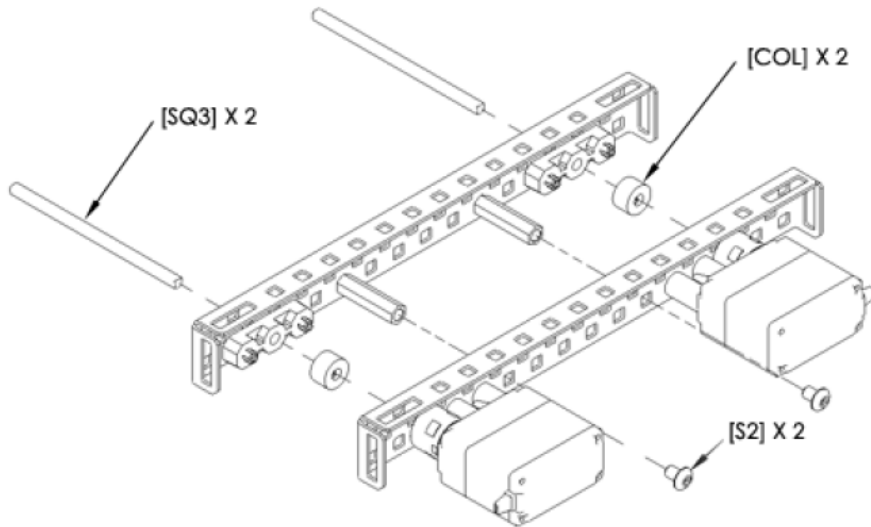
- Locate an additional Chassis Rail [R15] from the kit.
- Fasten two motors [MOT] to the Chassis Rail using two #6-32 x 1/4" screws [SS2] per motor. Make sure the motors are oriented correctly.

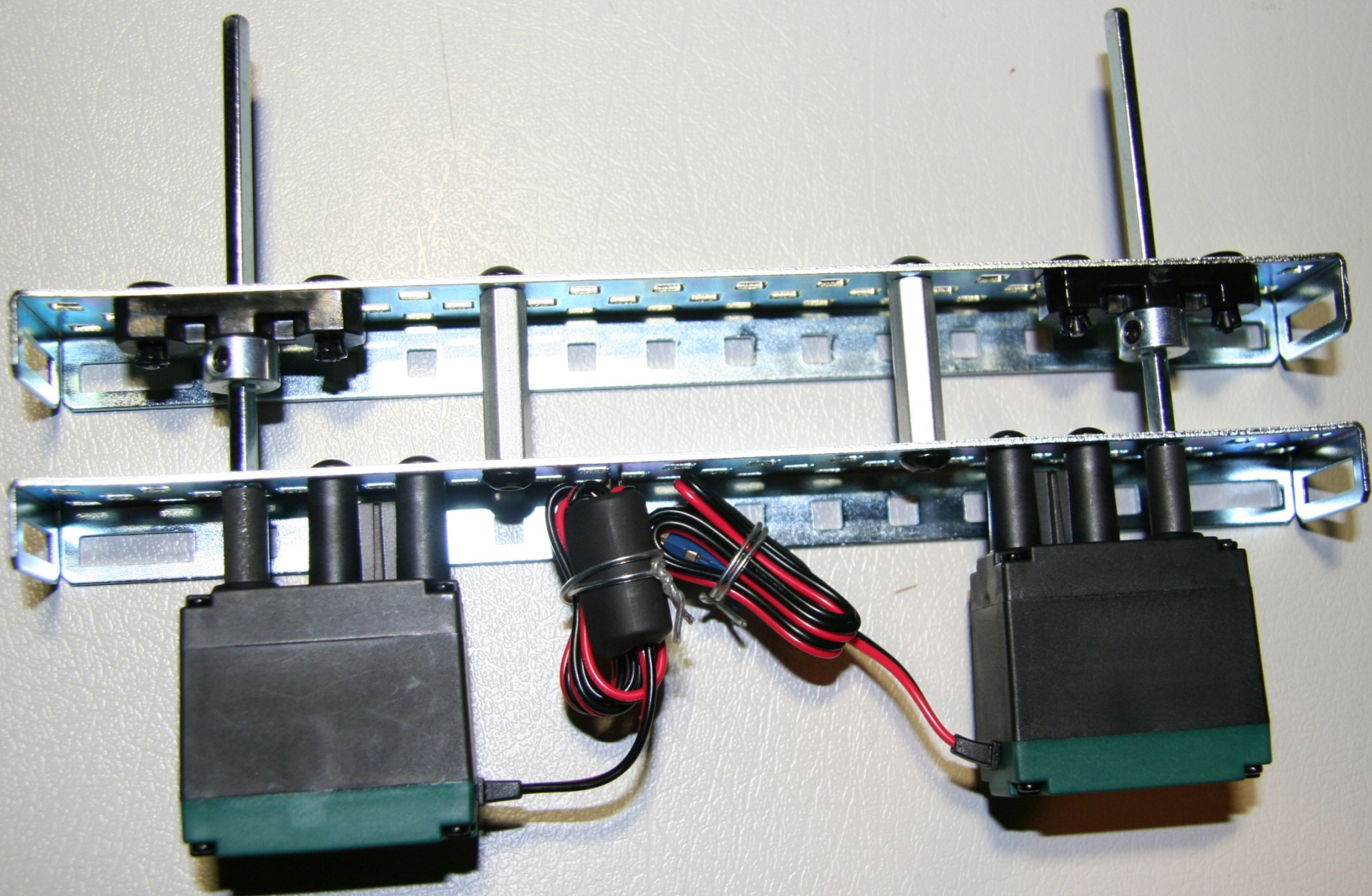


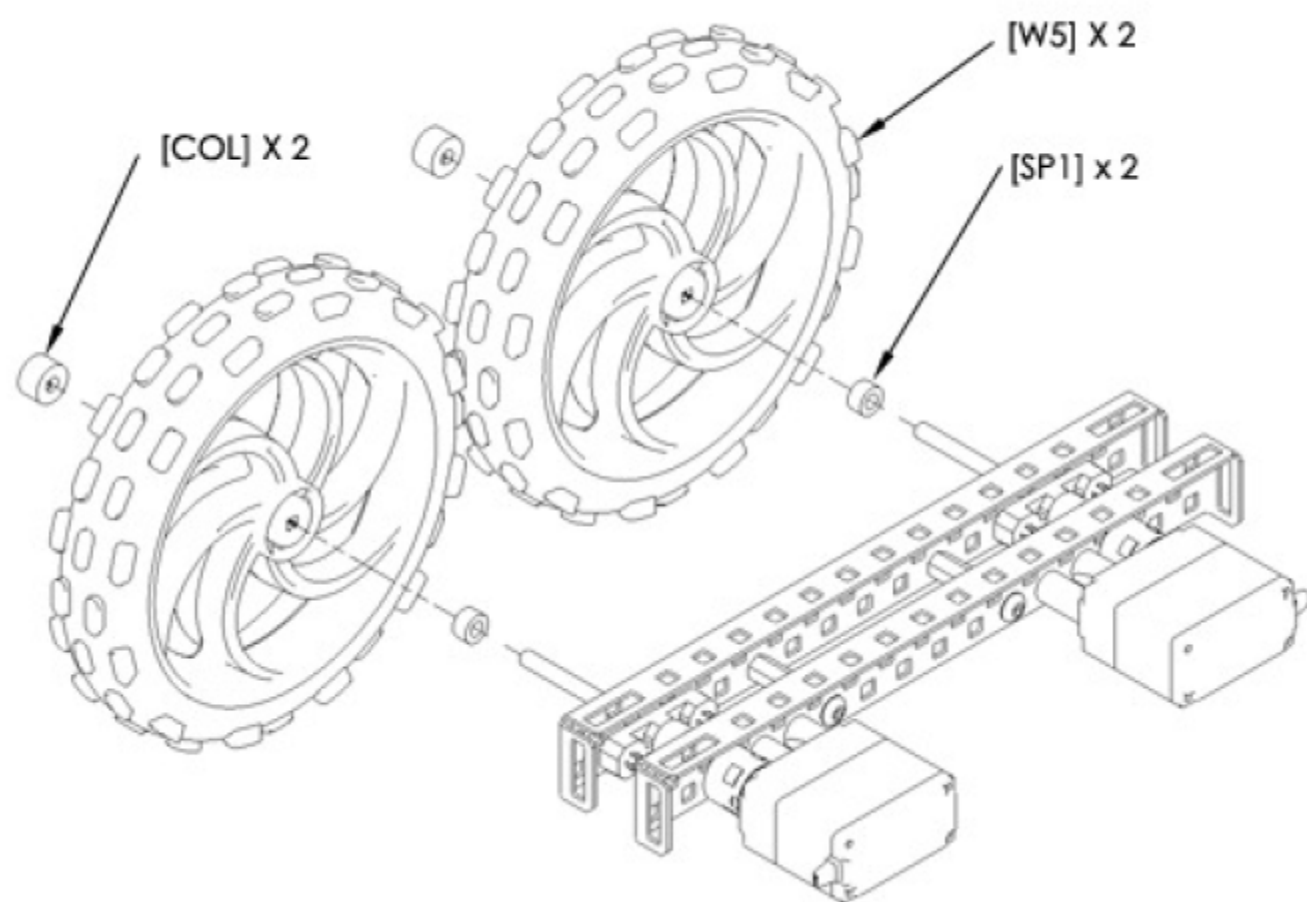
New motors do not require clutches but use shaft couplers instead. Don't forget to use stainless steel screws (not the black ones) to mount motors.

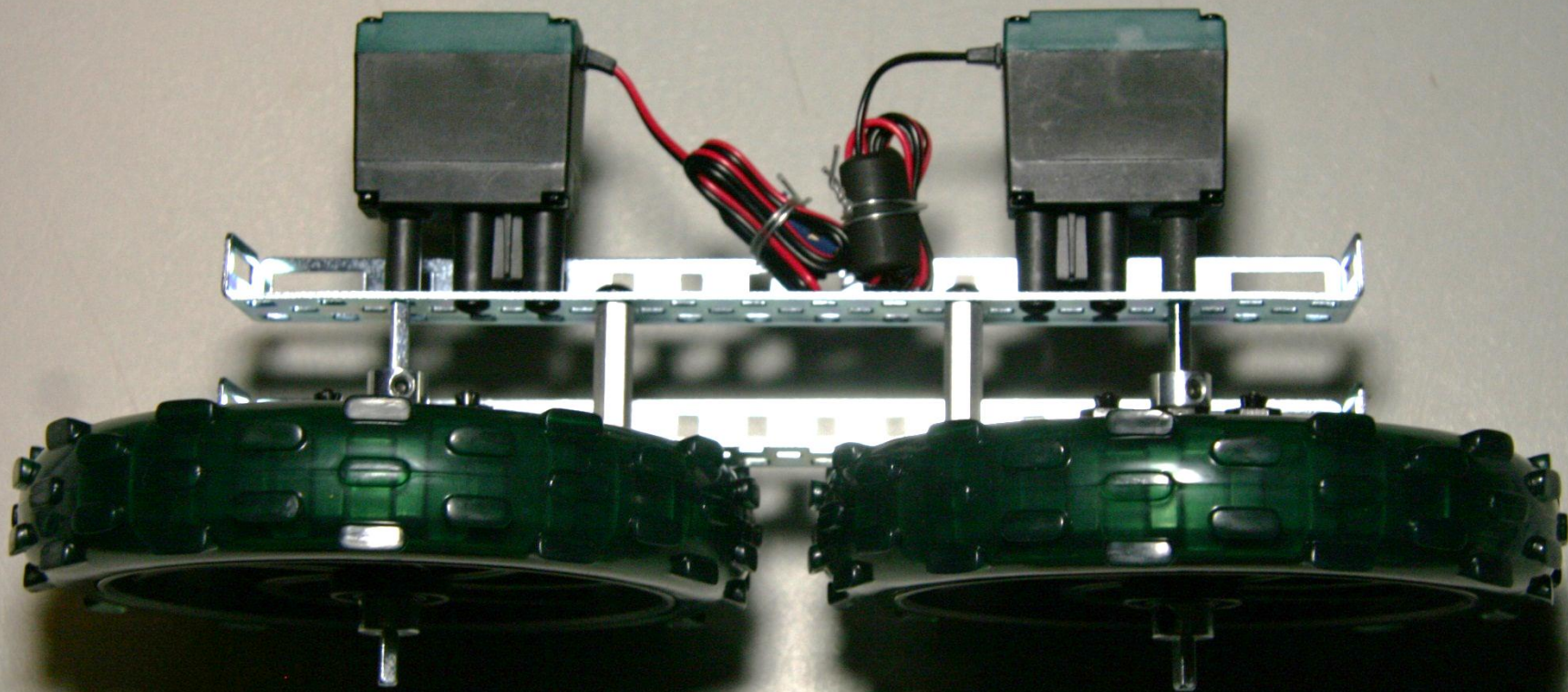


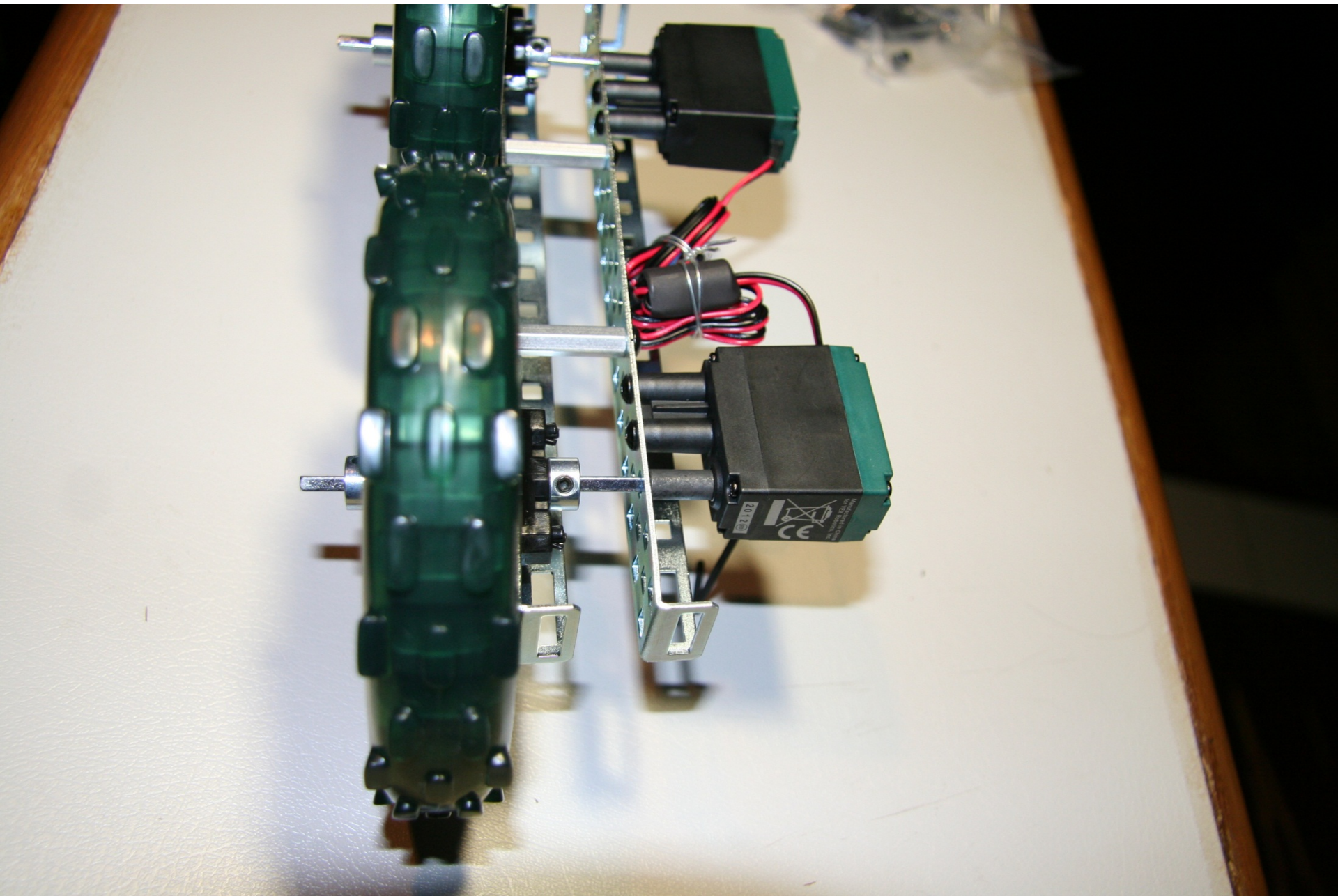
- Orient the two assemblies and connect them by inserting #8-32 x 1/4" Screws [S2] into the end of the Beams.
- Insert a 3" Shaft [SQ3] into each motor, adding a Collar [COL] to the shaft as you insert it through the two rails.
- When you have seated the shaft into the motor, slide the collar against the Bearing Flat and tighten. The collar prevents the shaft from coming out of the motor.









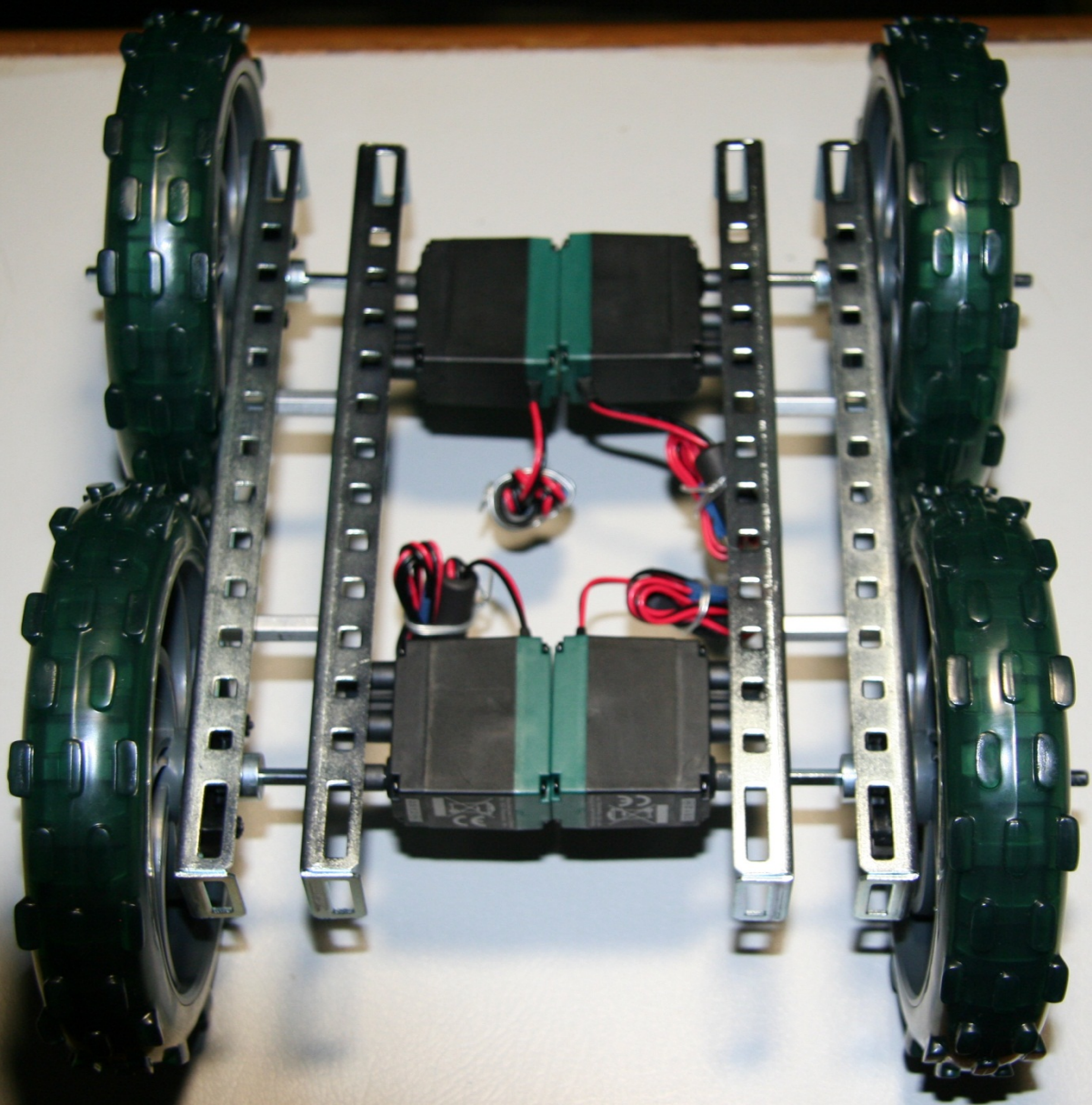


Assemble the Left Side Drive

You now build the left side of the drive train.

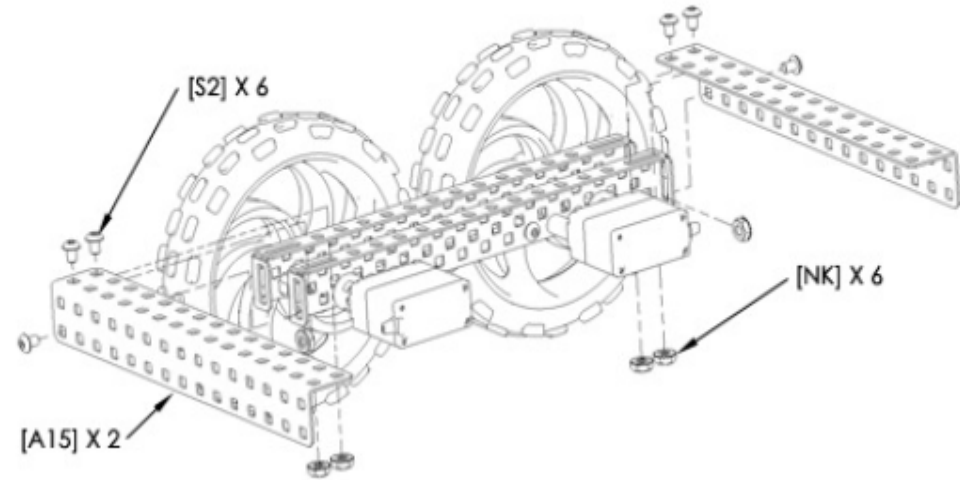
This is a repeat of the previous steps to build a mirror image of the right side you just completed.





Assemble the Base

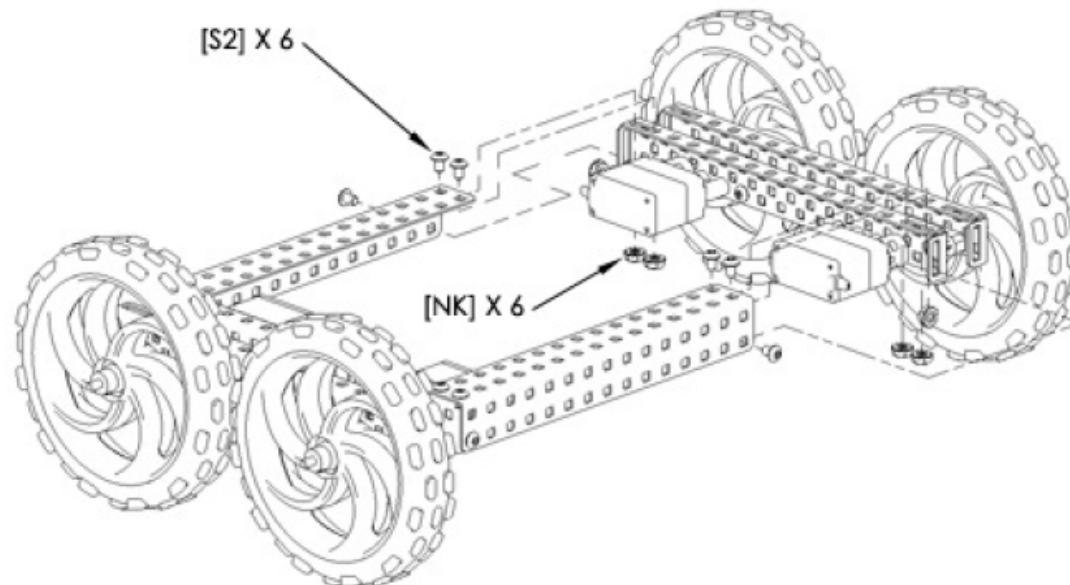
- Bolt a Chassis Bumper [A15] to one end of the right side drive assembly using three #8-32 x 1/4" screws [S2] and corresponding Keps Nuts [NK] for each joint.
- Add a second Chassis Bumper as shown.

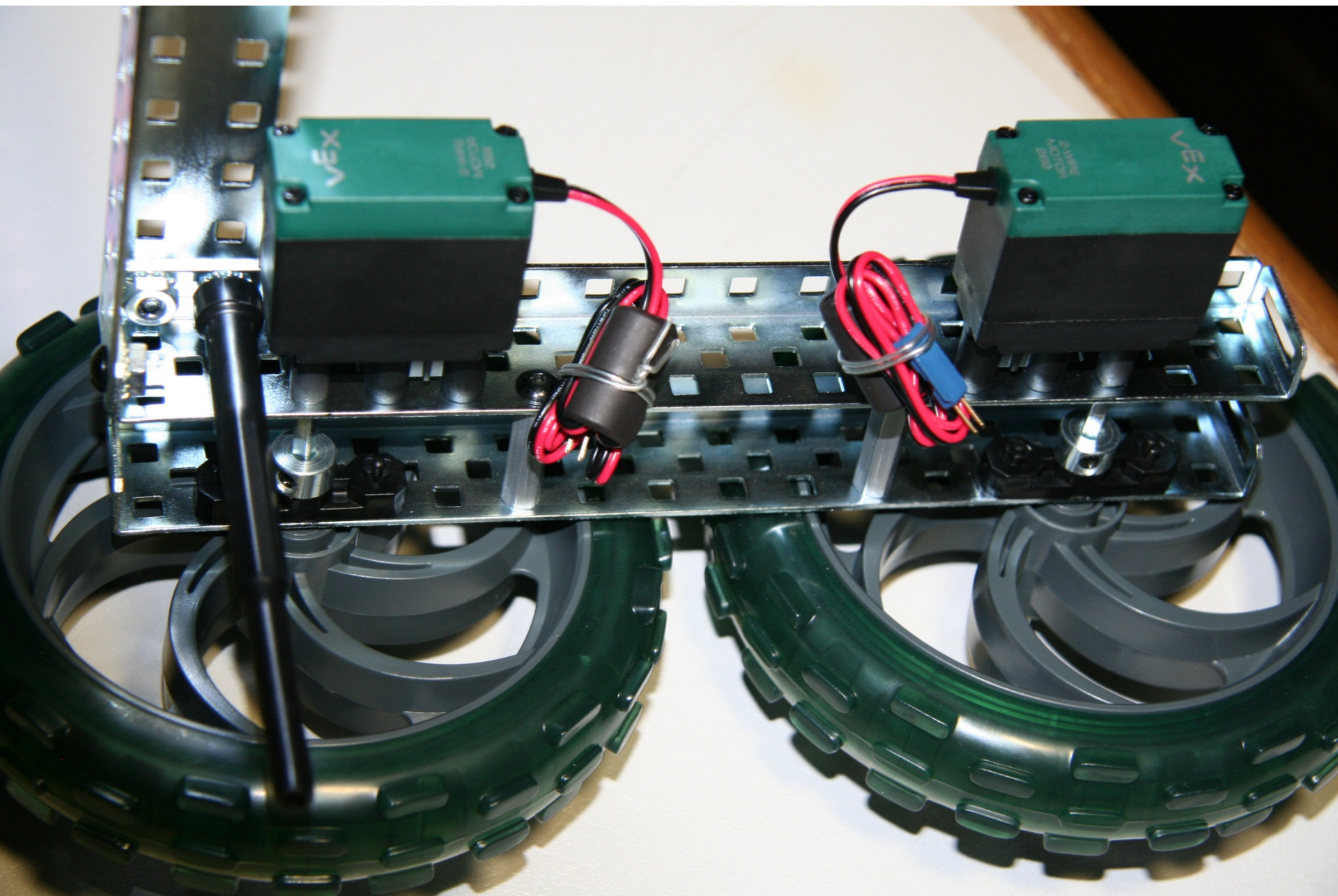


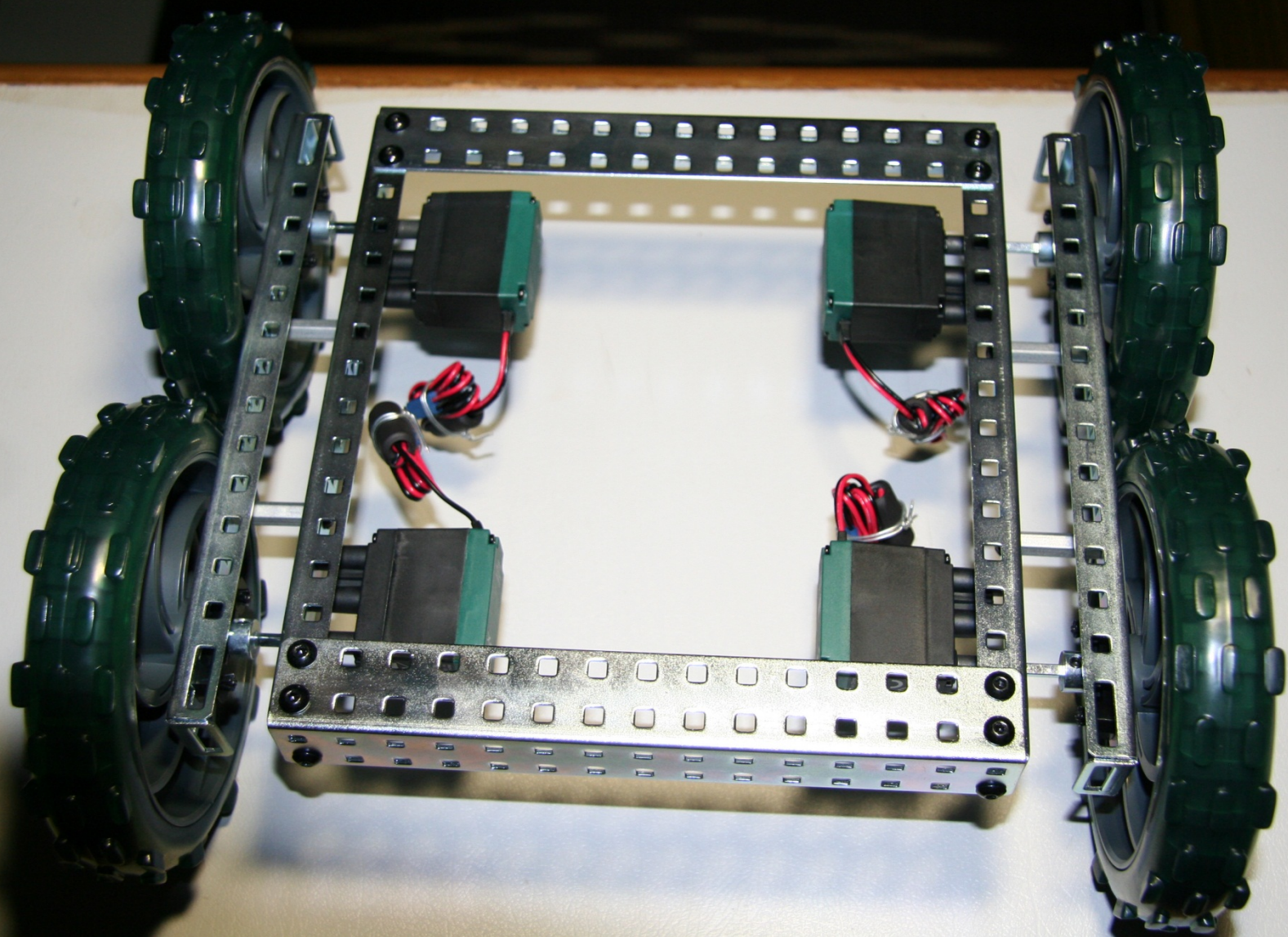
The nut starter tool is especially useful during this part of the assembly



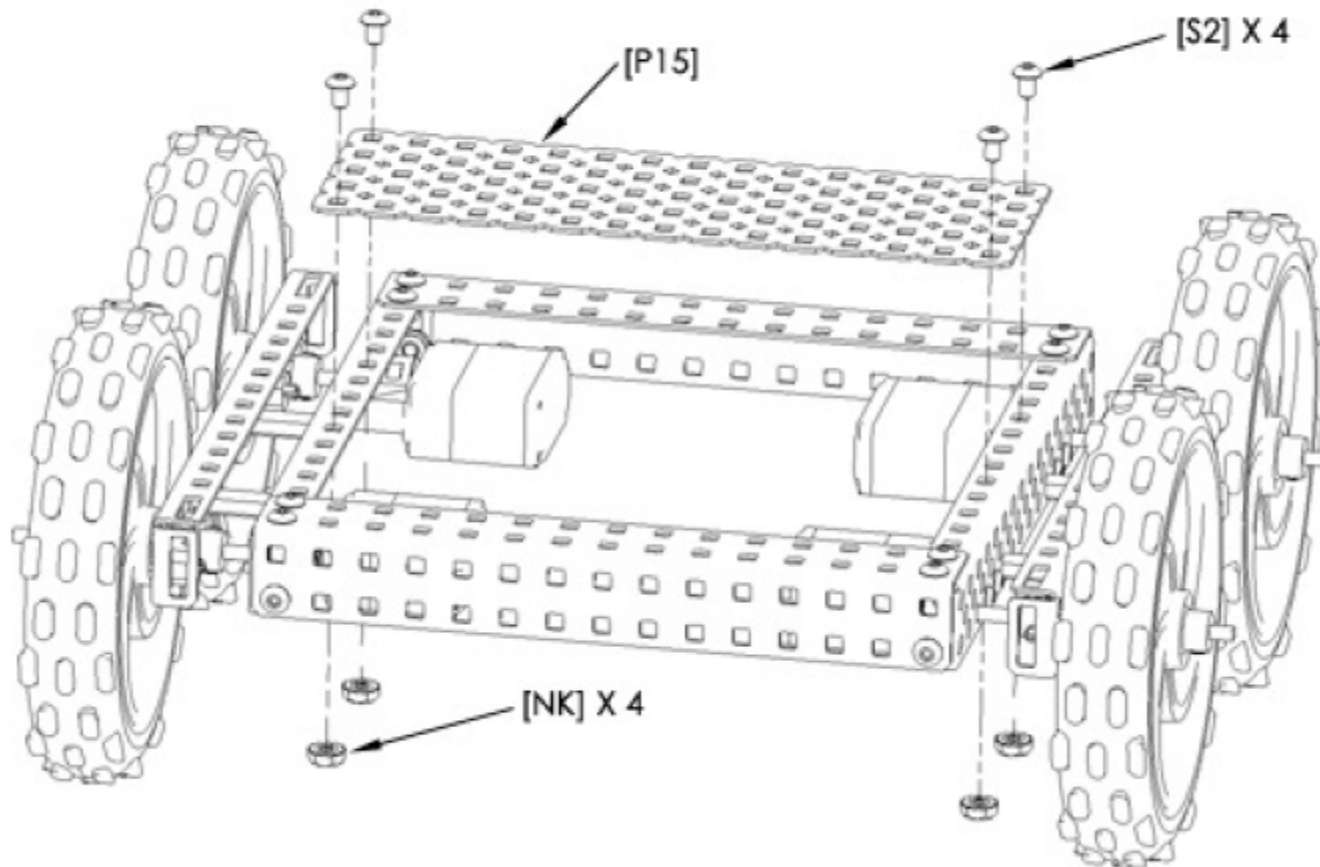
Attach the left side drive assembly using the same procedure as the previous step.

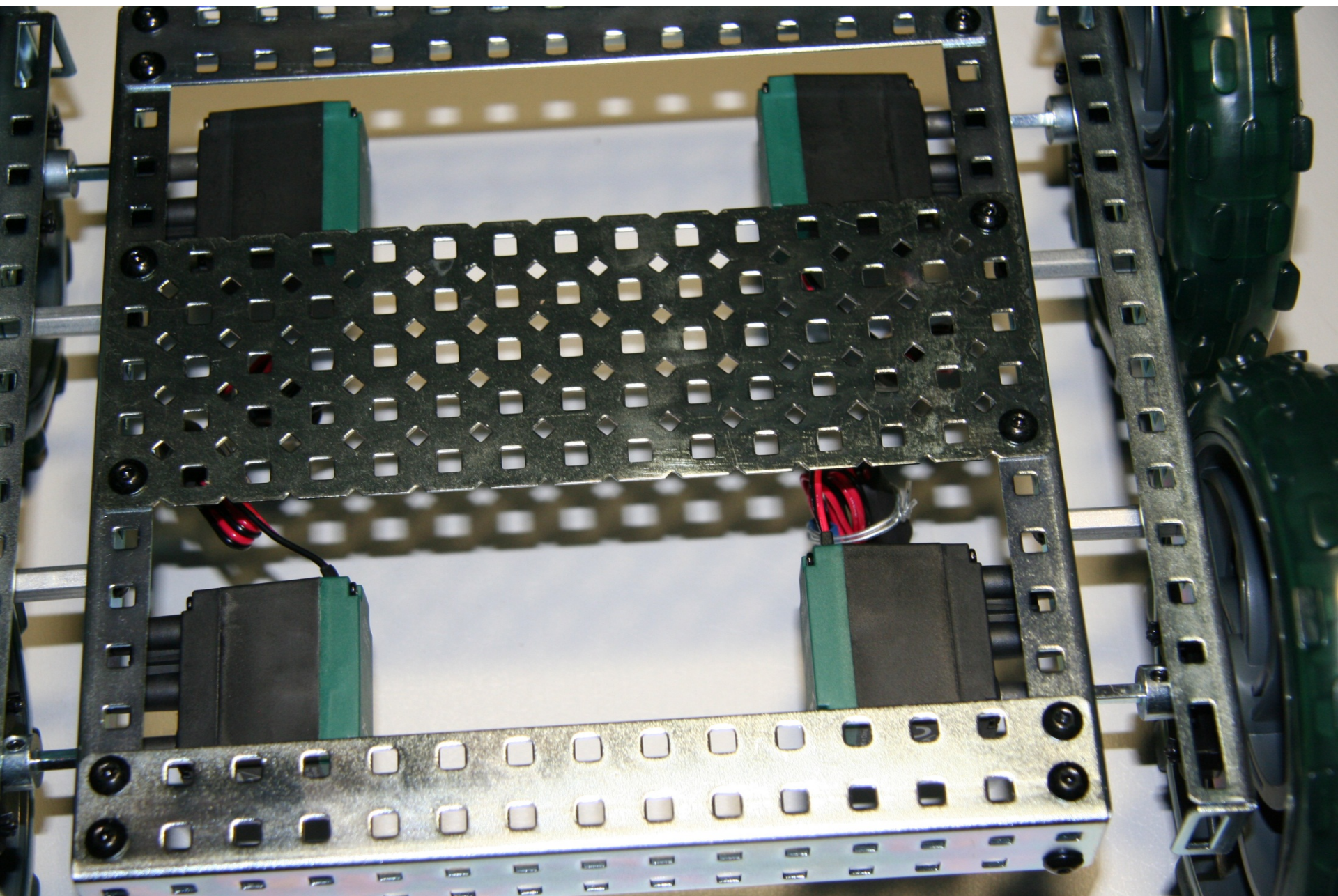






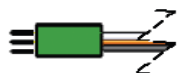
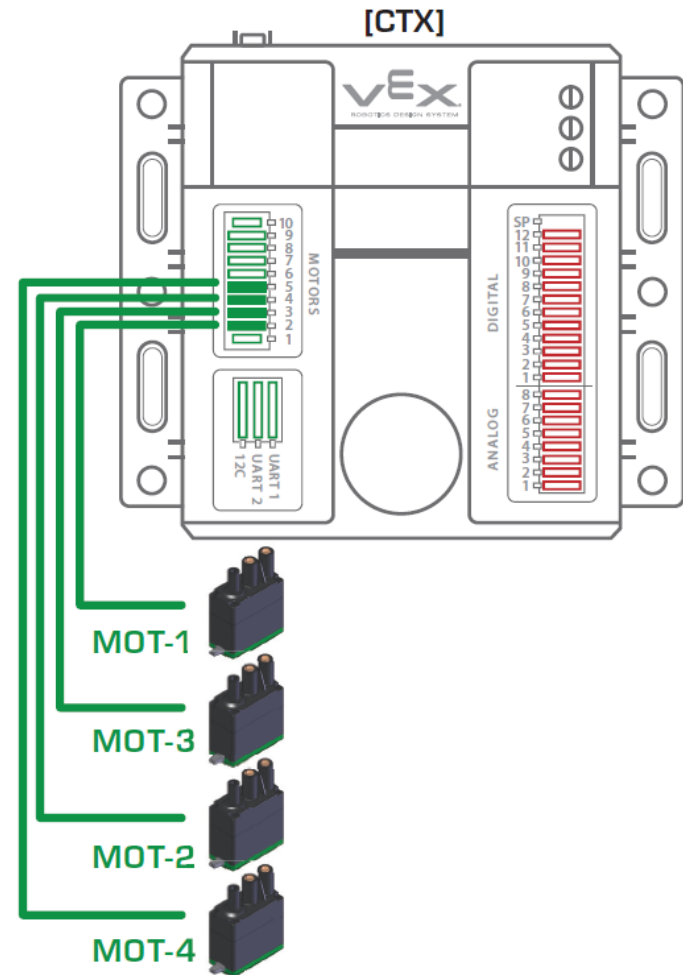
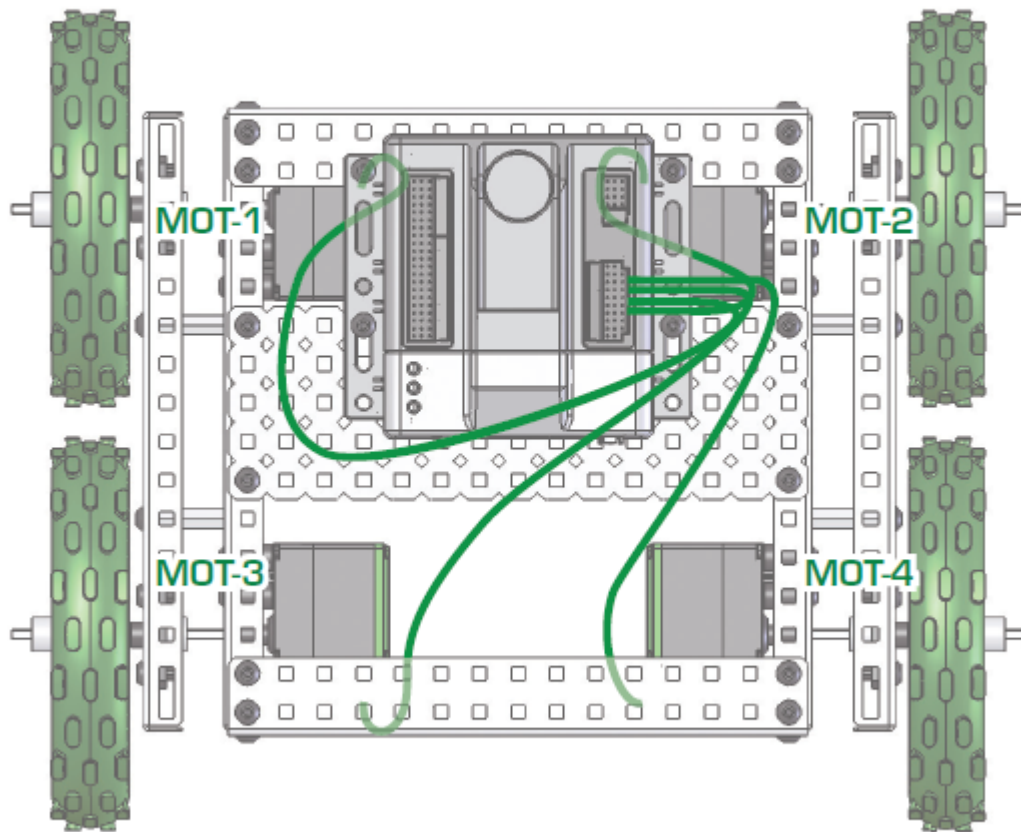
Attach a Plate 5x15 [P15] to the top of the chassis using #8-32 x 1/4" screws [S2] and Keps Nuts [NK].



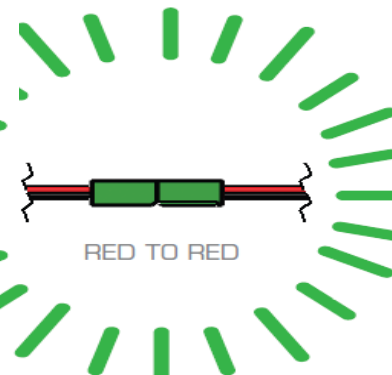


Now add the battery, cortex and connect the motors. Remember, motor controllers are also required.

[CTX] WIRING [2 WIRE MOTORS]



[M29]



RED TO RED



[MOT]