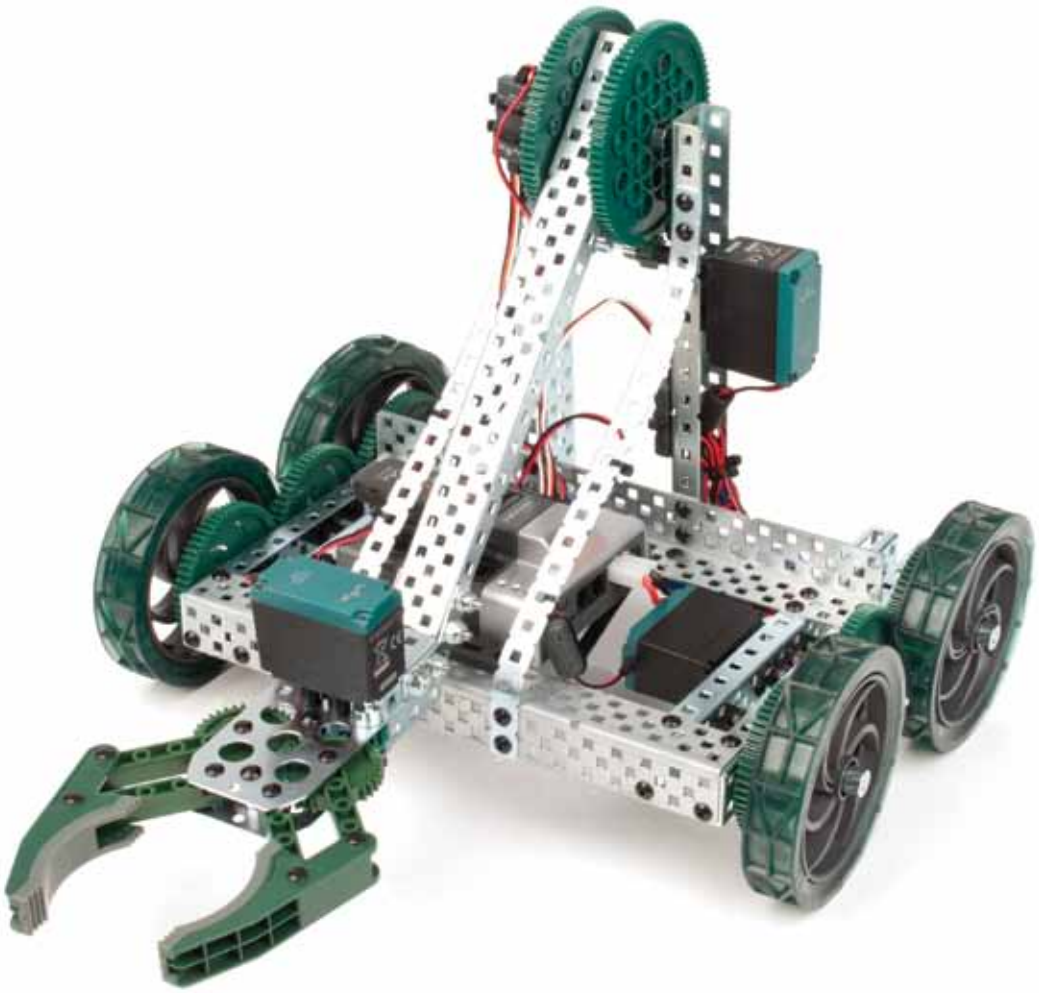


VEX®

ROBOTICS DESIGN SYSTEM

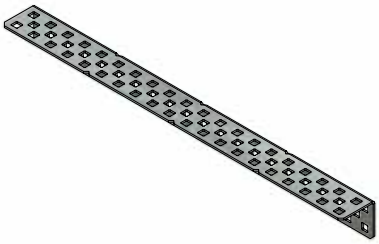
GUIDE FOR BUILDING THE

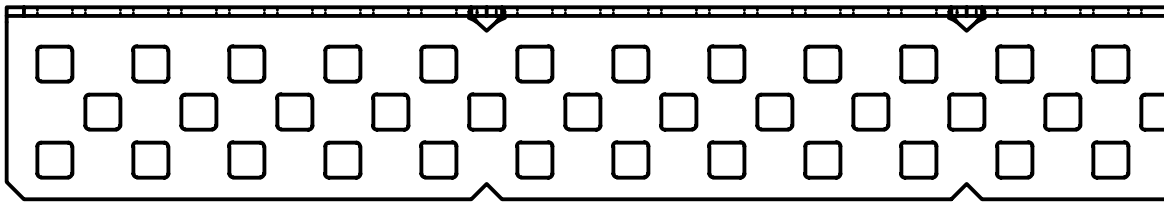
CLAWBOT

NOTE: This kit requires other components which are not included in order to build a complete working robot. The primary additional required component is a compatible VEX EDR robot control system.

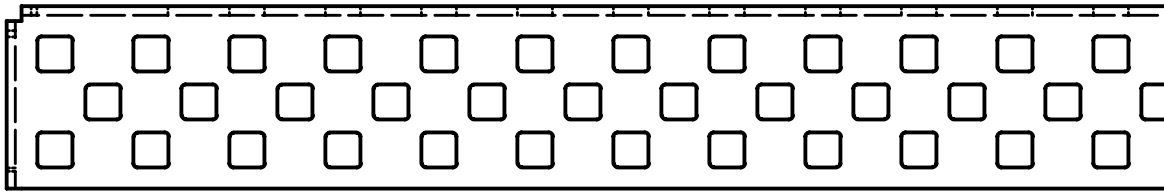
REFERENCE:

5 HOLE 10 HOLE 15 HOLE

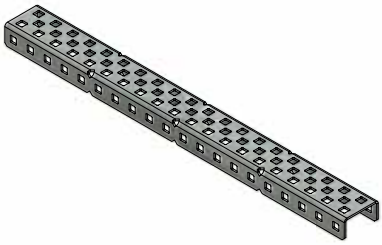


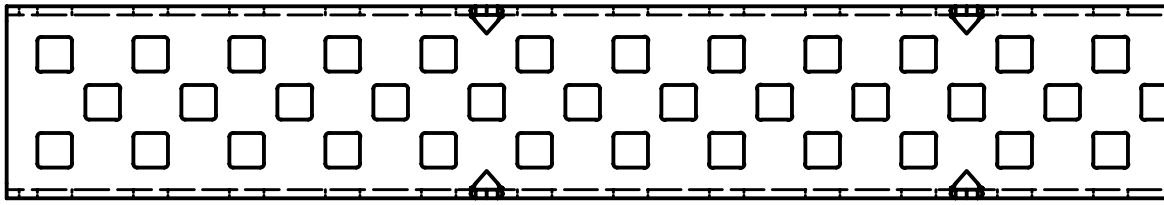


[A20] CHASSIS BUMPER ANGLE, 20-HOLES LONG

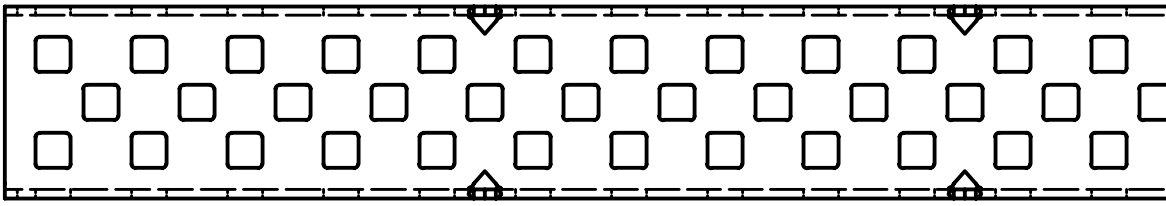


[R16] CHASSIS RAIL, 16-HOLES LONG

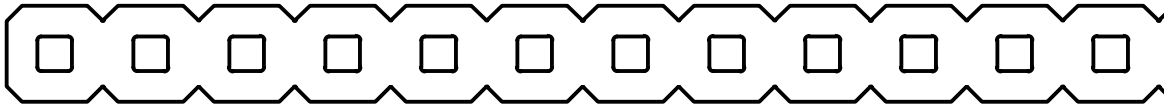




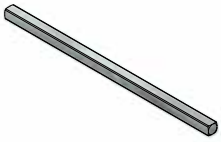
[C20] C-CHANNEL, (1X2X1) 20-HOLES LONG

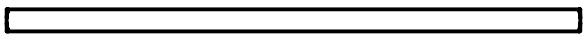


[C15] C-CHANNEL, (1X2X1) 15-HOLES LONG

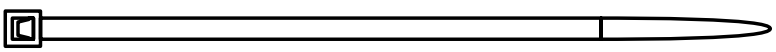


[B20] BAR, 20-HOLES LONG





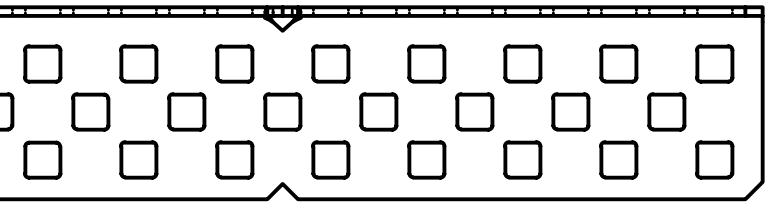
[SH-3] VEX 3" SQUARE SHAFT

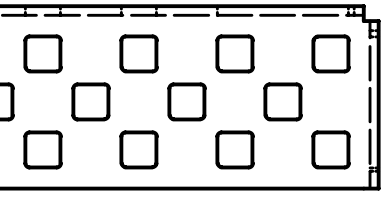


[ZIP] 4" ZIP TIE

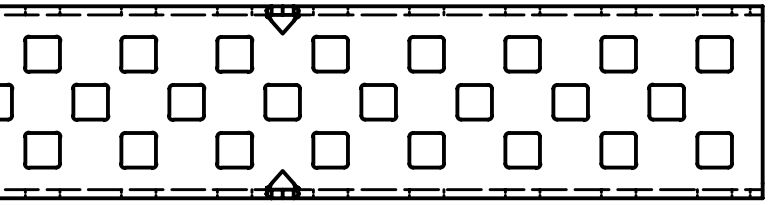
REFERENCE:

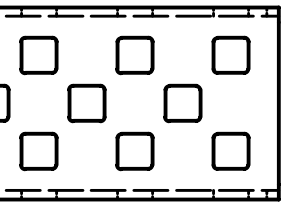
20 HOLE



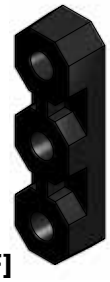


25 HOLE

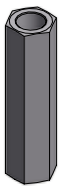




30 HOLE



[BF]
BEARING FLAT



[ST-1]
8-32 THREADED STANDOFF (1" LONG)

[BR-I]
BEARING POP-RIVET (INSIDE)

[BR-O]
BEARING POP-RIVET (OUTSIDE)

[CPLR]
MOTOR COUPLER

[CP]
MOTOR COUPLER POST

[SP4.8]
THIN SPACER (4.8 MM)

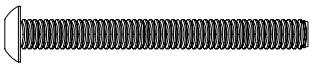
[COL]
SHAFT COLLAR WITH 8-32 X 1/8" SETSCREW

[NK]
#8-32 KEPS NUT

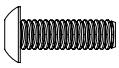
[NL]
#8-32 NYLOCK NUT

[SS-L]
LONG MOTOR SCREW W/ NYLON LOCKING PATCH

[SS-S]
SHORT MOTOR SCREW W/ NYLON LOCKING PATCH



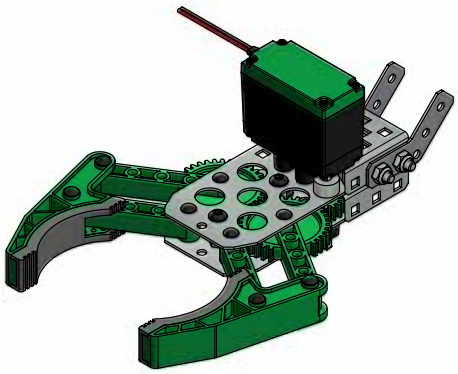
[S12]
#8-32 BUTTON HEAD SCREW X 1.5" LONG



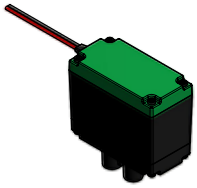
[S4]
#8-32 BUTTON HEAD SCREW X 1/2" LONG

[S2]
#8-32 BUTTON HEAD SCREW X 1/4" LONG

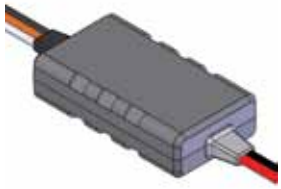
REFERENCE:



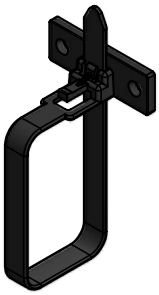
[CLAW]
CLAW ASSY
(shown not to scale)



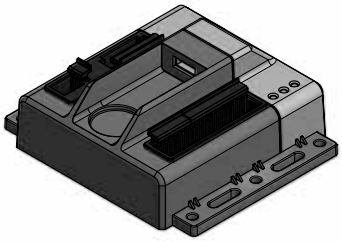
[M393]
2-Wire Motor 393 Module
(shown not to scale)



[MC29]
MOTOR CONTROLLER 29
(shown not to scale)



[BST]
VEX Battery Strap
(shown not to scale)

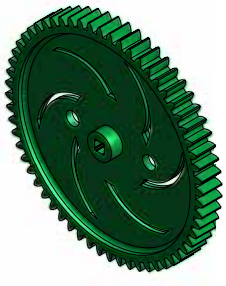


[CTX]
CORTEX
(shown not to scale)

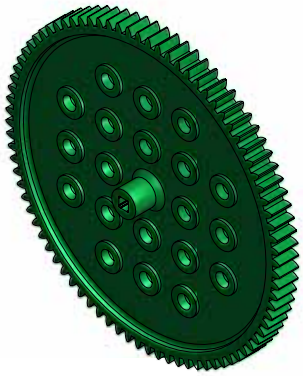
[VNET]
VEXnet Key
(shown not to scale)

[BATT]
7.2V RECHARGEABLE BATTERY
(shown not to scale)

[G12]
GEAR, 12 TOOTH
(shown not to scale)



[G60]
GEAR, 60 TOOTH
(shown not to scale)



[G84]
GEAR, 84 TOOTH
(shown not to scale)

[W4]
VEX WHEEL (4" DIAMETER)
(shown not to scale)

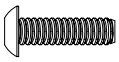
REFERENCE:

5/64”

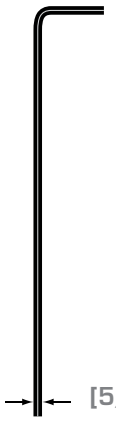
3/32”

WRENCH

[SS-S] 1/4” MOTOR SCREW



[SS-L] 1/2” MOTOR SCREW



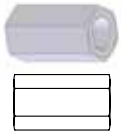
[5/64”]

[NK] 8-32 KEPS NUT

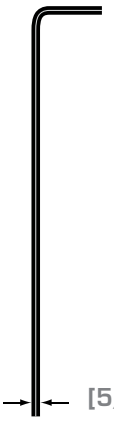
[NL] 8-32 LOCK NUT

[11/32”]

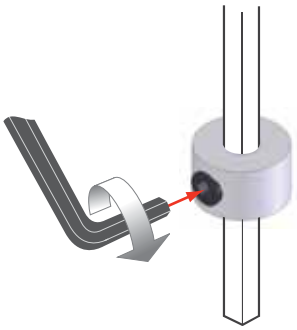
[1/4”]



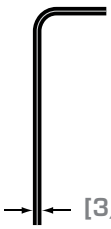
[ST-1]



[5/64”]

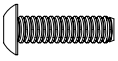


[COL] COLLAR

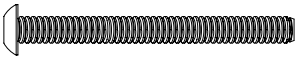


[3/32”]

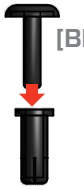
[S2] 1/4” SCREW



[S4] 1/2” SCREW

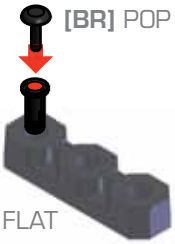


[S12] 1.5” SCREW



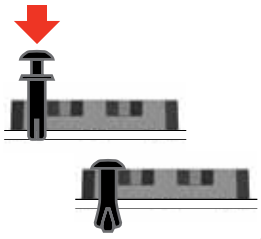
[BR-I]

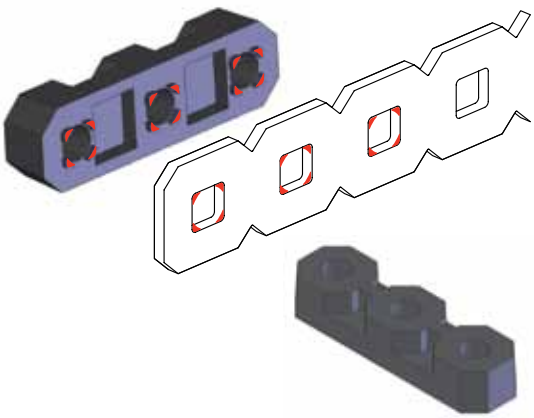
[BR-O]



[BR] POP RIVETS

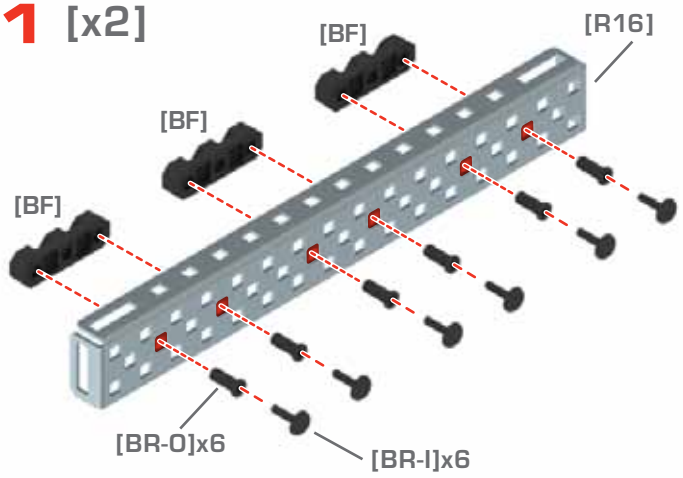
[BF] BEARING FLAT





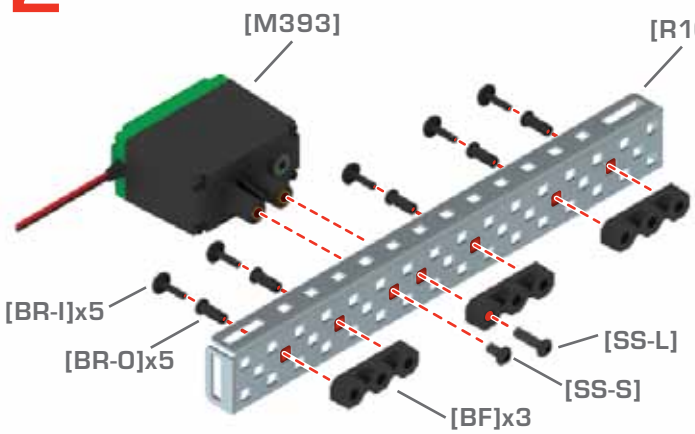
[BF] BEARING FLAT

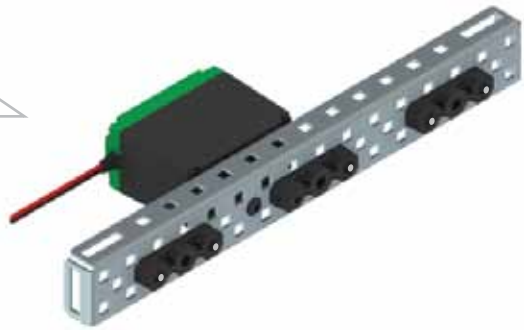
1 [x2]



[x2]

2





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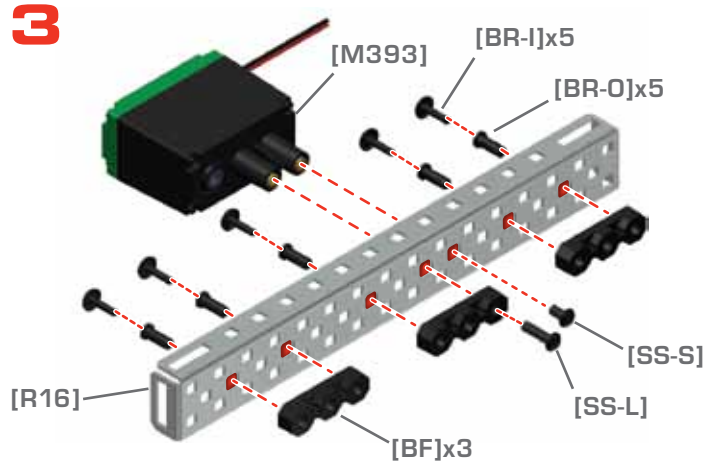
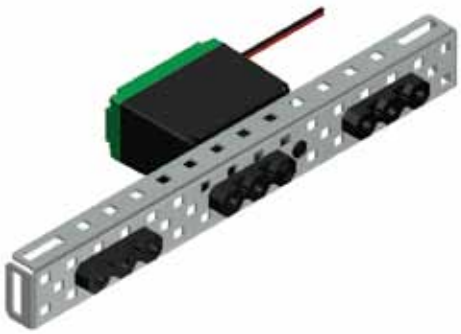
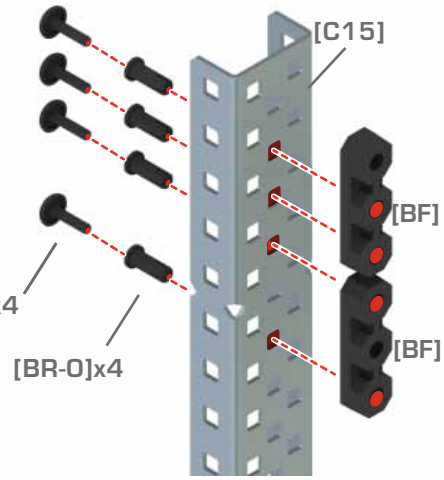


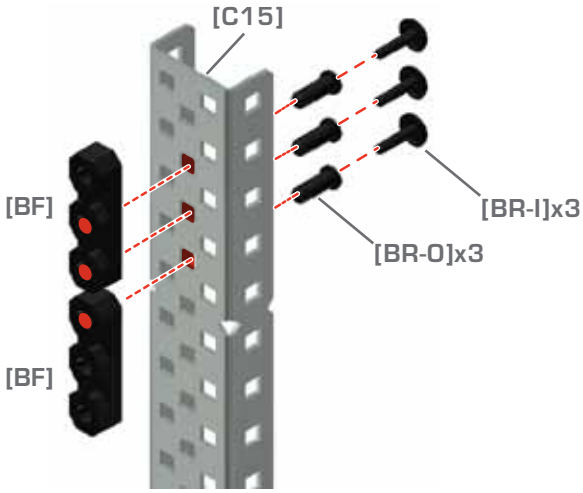


VEX ROBOTICS DESIGN SYSTEM

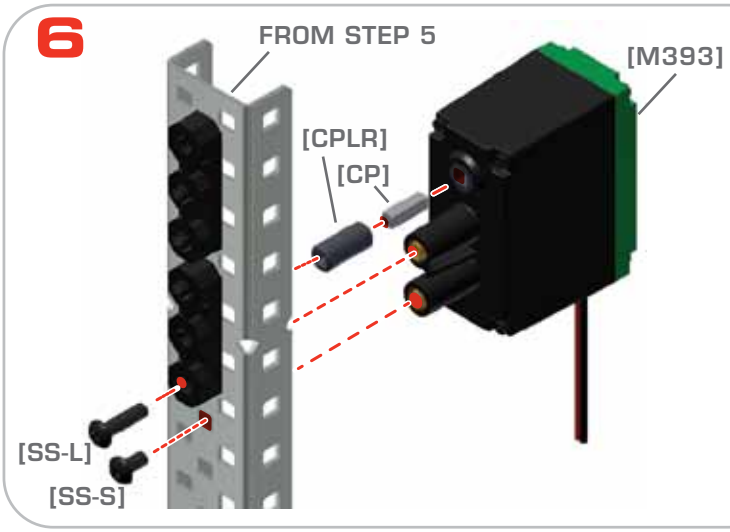
4


[C15]
[BF]
[BF]
[BR-I]x4
[BR-O]x4

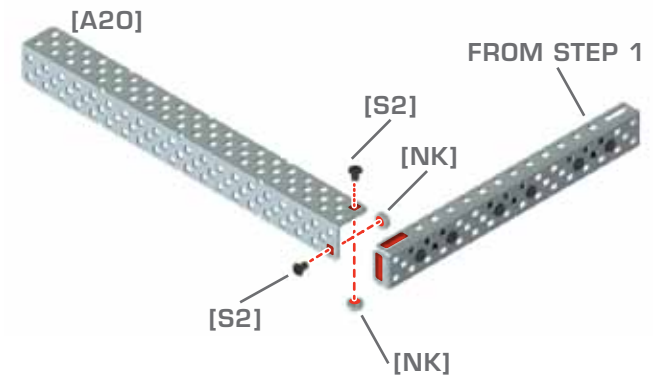
5


[C15]
[BF]
[BF]
[BR-I]x3
[BR-O]x3

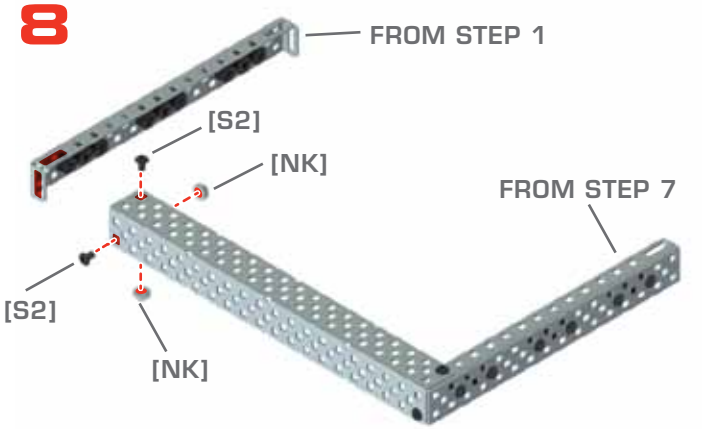
6


FROM STEP 5
[M393]
[CPLR]
[CP]
[SS-L]
[SS-S]

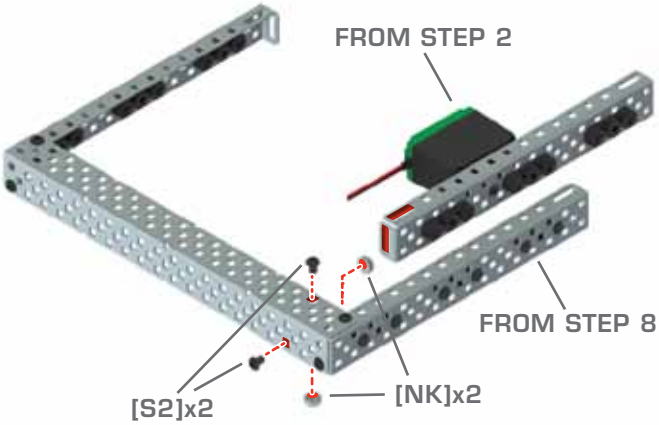
7

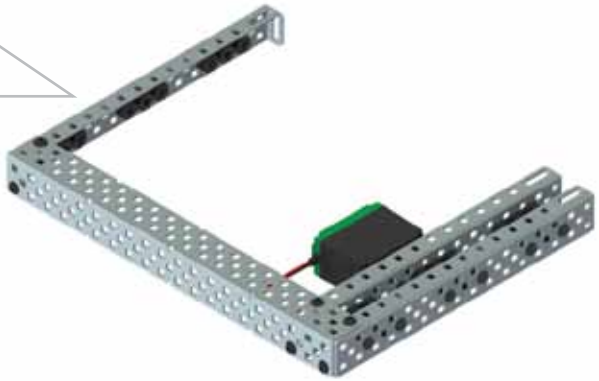

[A20]
FROM STEP 1
[S2]
[NK]
[S2]
[NK]

8


FROM STEP 1
[S2]
[NK]
FROM STEP 7
[S2]
[NK]

9


FROM STEP 2
FROM STEP 8
[S2]x2
[NK]x2



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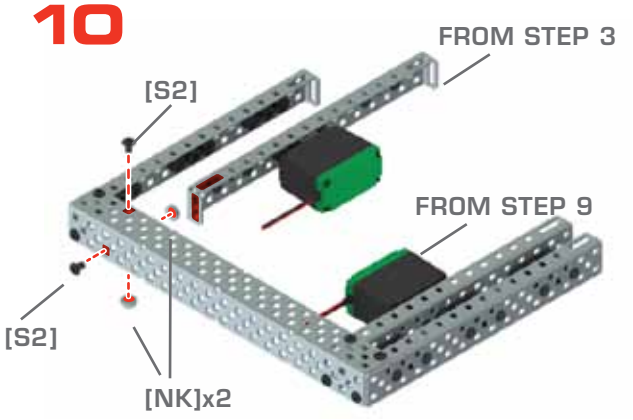
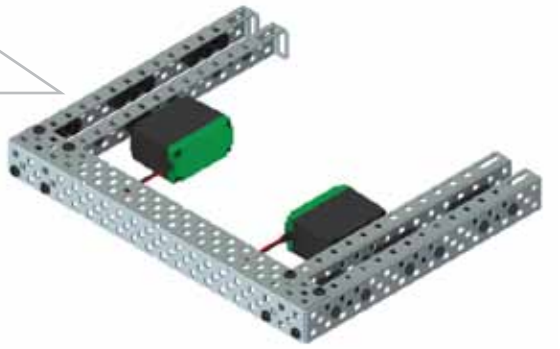
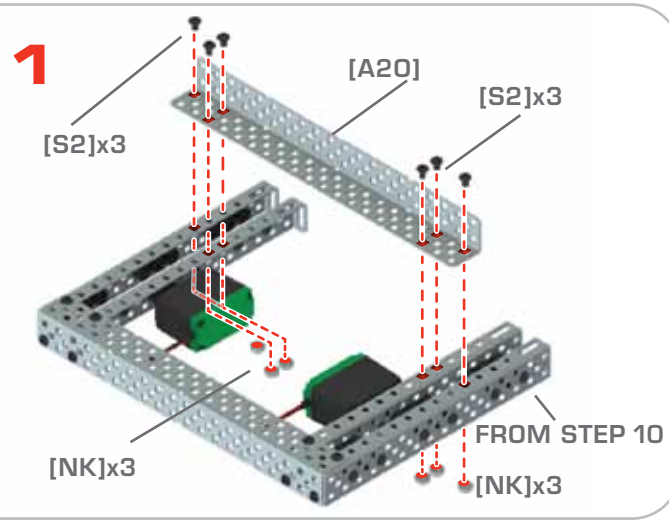
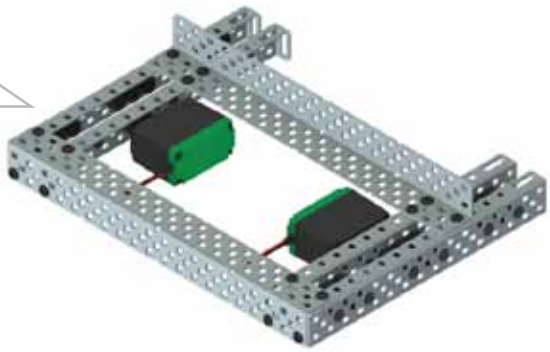

FROM STEP 3
[S2]
FROM STEP 9
[S2]
[NK]x2



11


[S2]x3
[A20]
[S2]x3
FROM STEP 10
[NK]x3
[NK]x3



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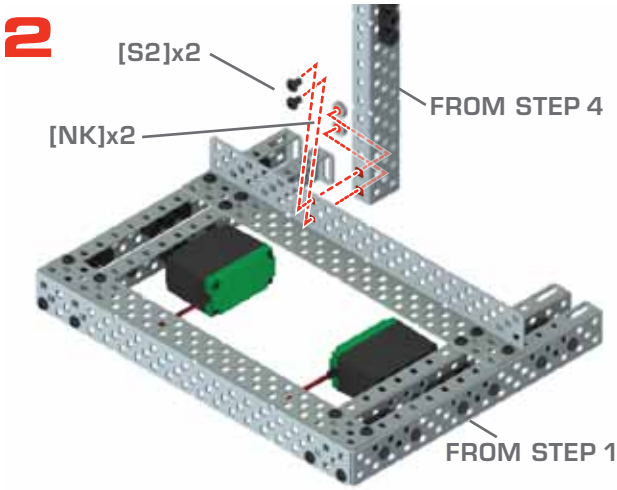
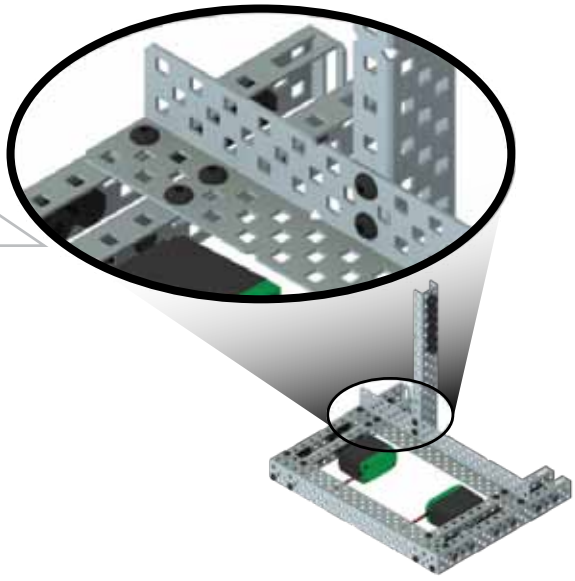

[S2]x2
FROM STEP 4
[NK]x2
FROM STEP 11



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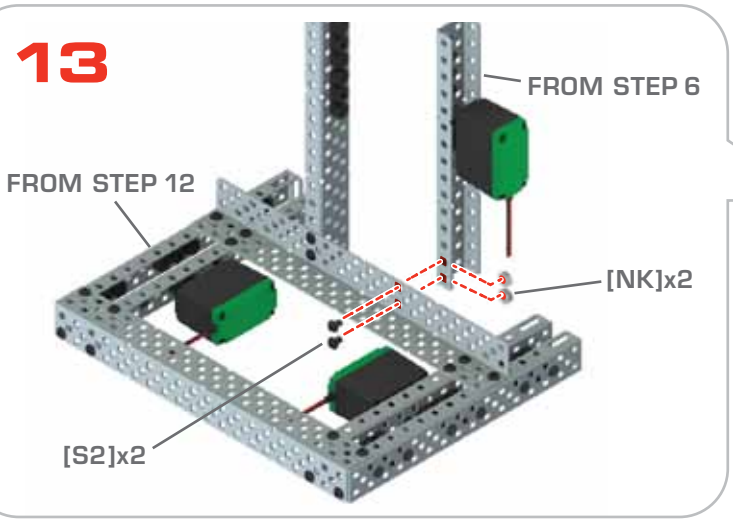

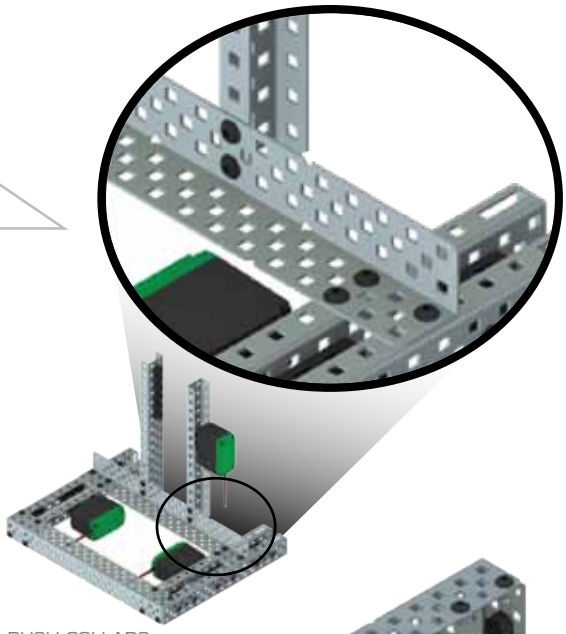

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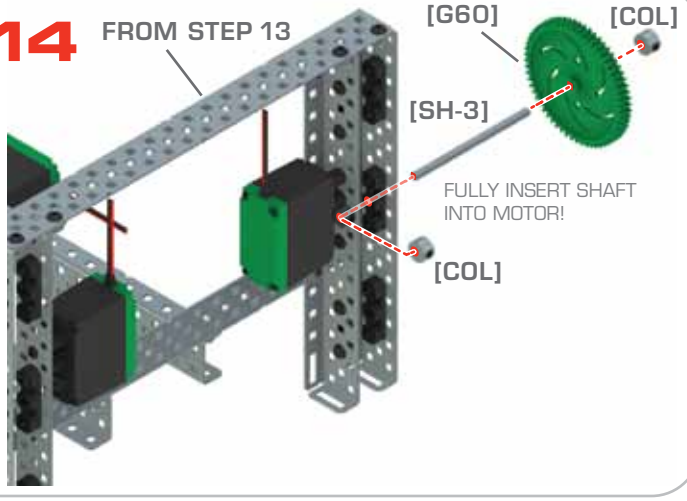

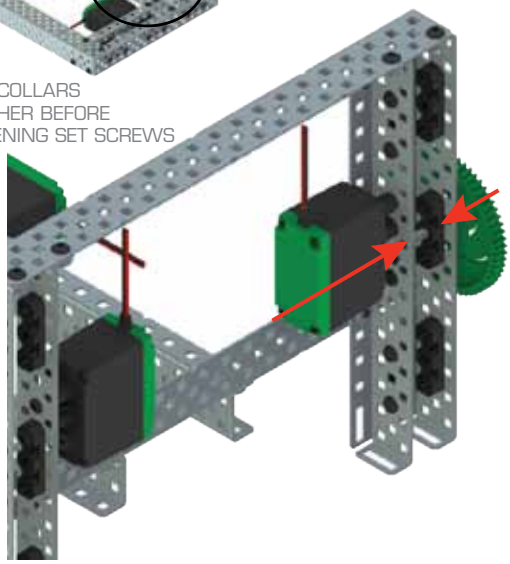

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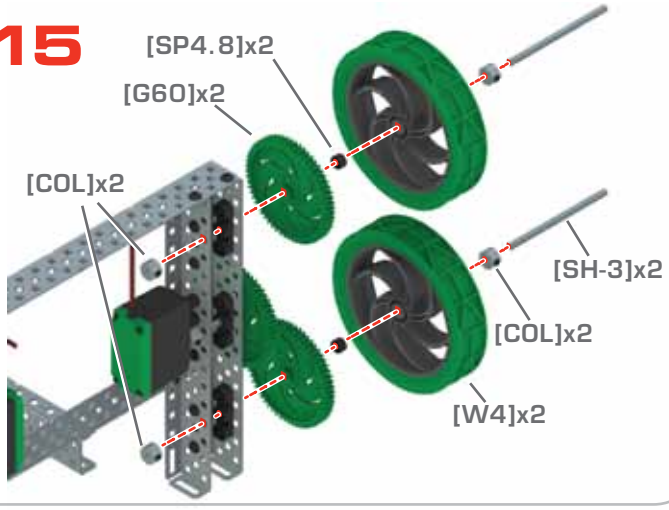

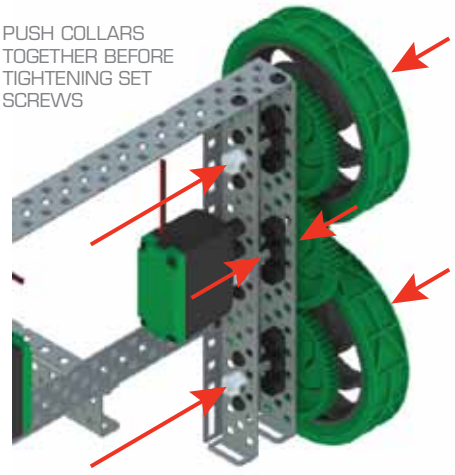

VEX ROBOTICS DESIGN SYSTEM

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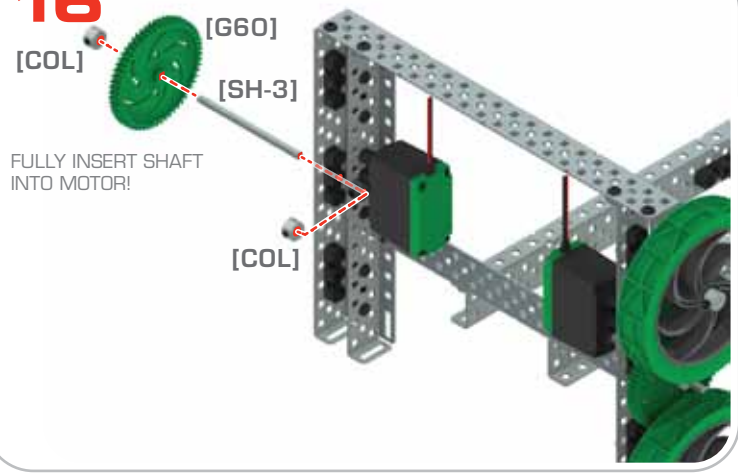
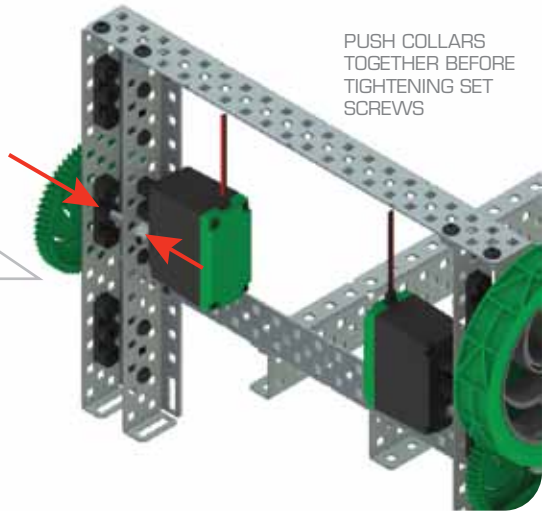
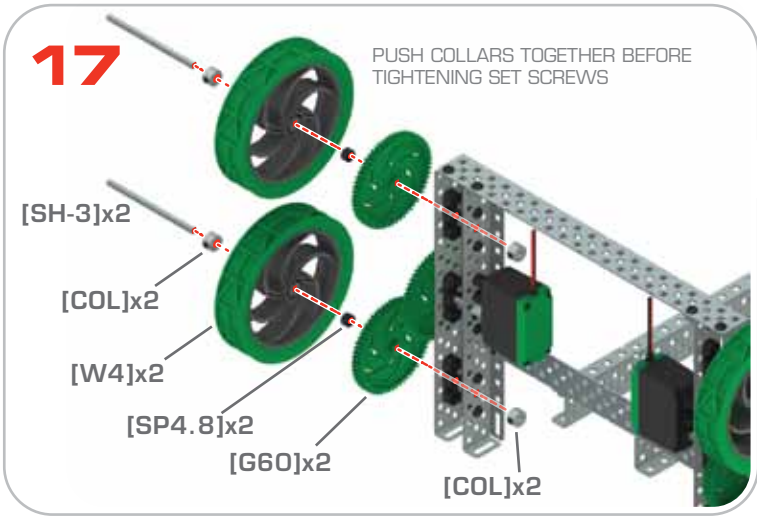
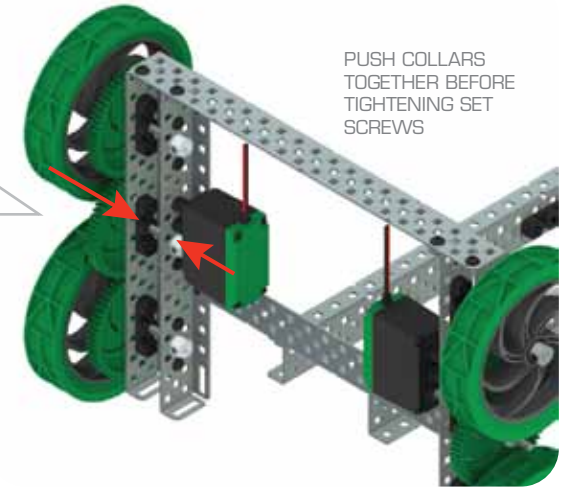

[G60]
[COL]
[SH-3]
FULLY INSERT SHAFT INTO MOTOR!
[COL]

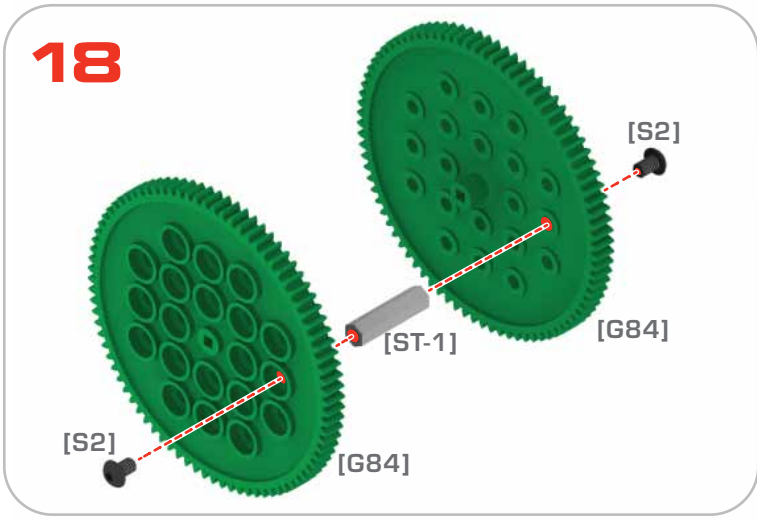

PUSH COLLARS TOGETHER BEFORE TIGHTENING SET SCREWS

17

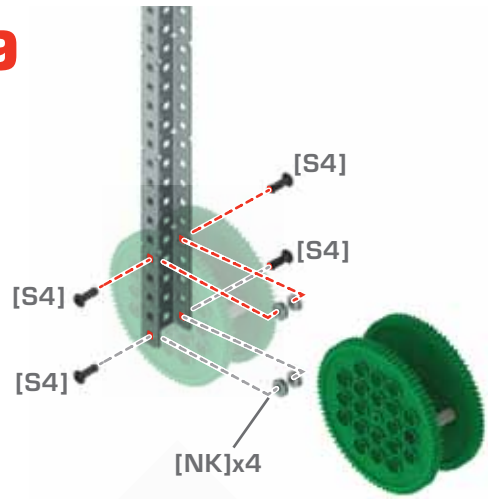

PUSH COLLARS TOGETHER BEFORE TIGHTENING SET SCREWS
[SH-3]x2
[COL]x2
[W4]x2
[SP4.8]x2
[G60]x2
[COL]x2


PUSH COLLARS TOGETHER BEFORE TIGHTENING SET SCREWS

18


[S2]
[G84]
[ST-1]
[S2]
[G84]

19



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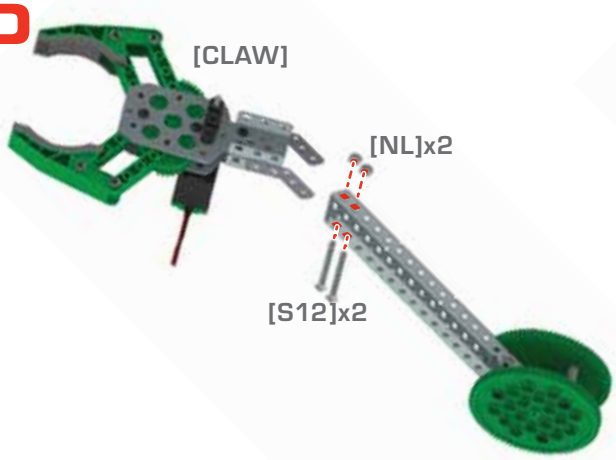

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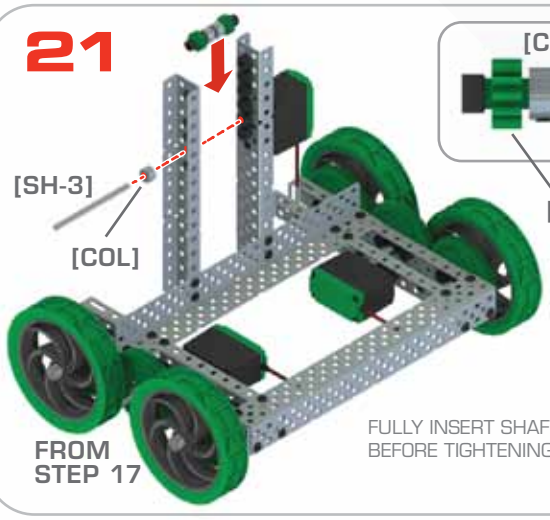
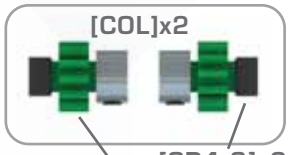
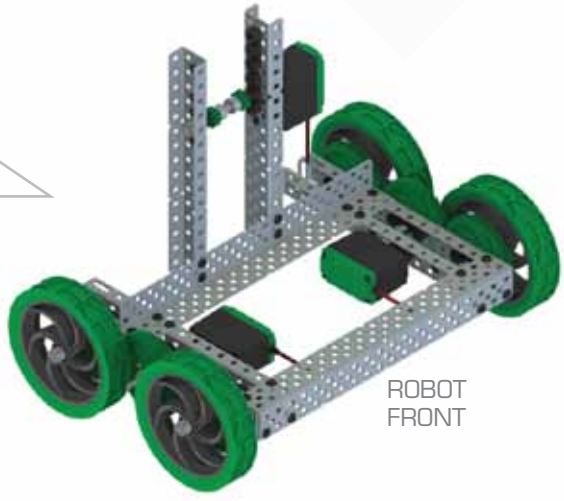




FULLY INSERT SHAFT INTO MOTOR
BEFORE TIGHTENING SHAFT COLLARS



VEX ROBOTICS DESIGN SYSTEM

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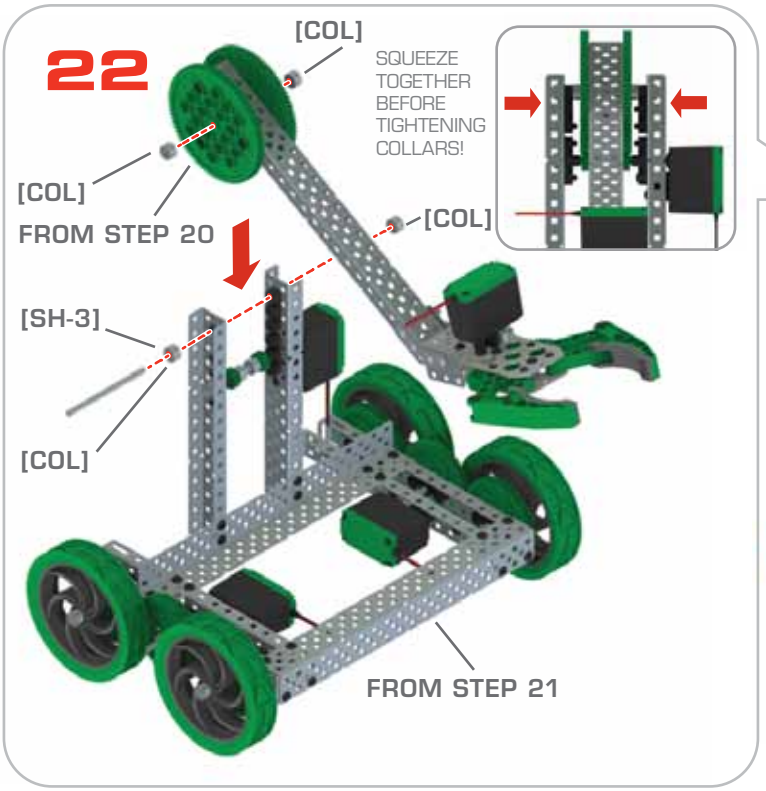
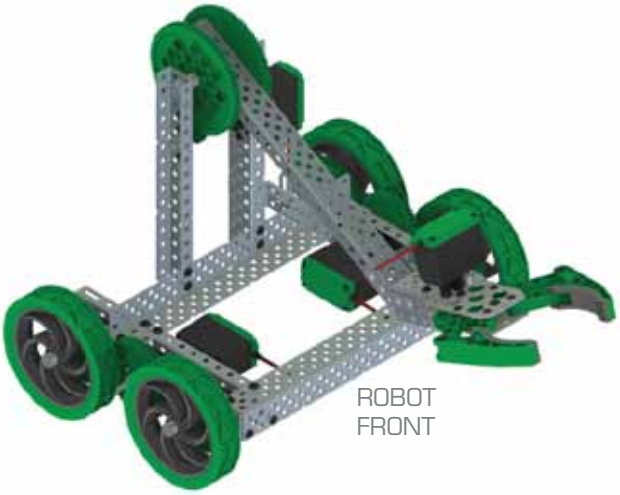
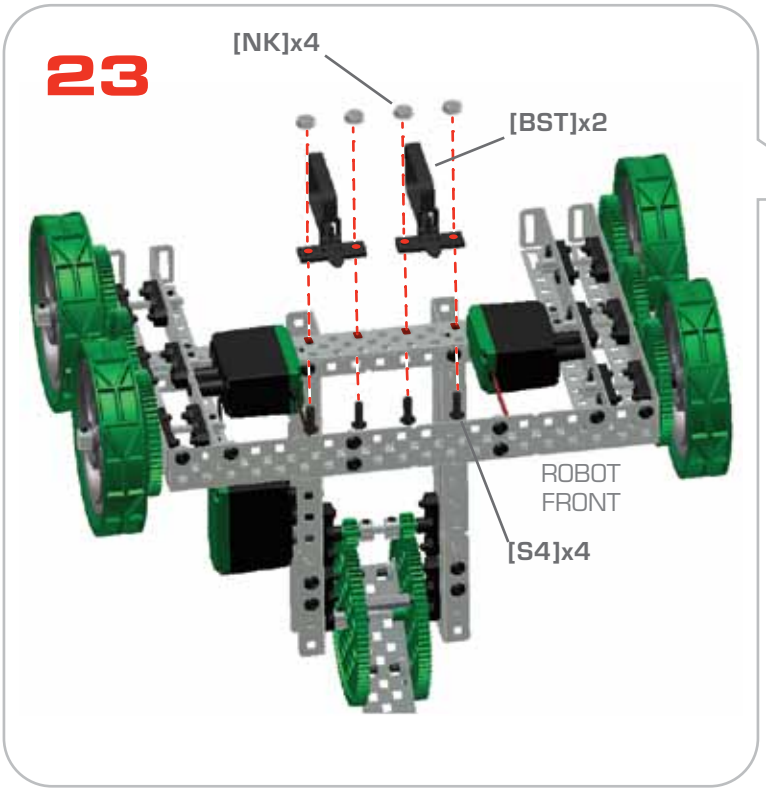
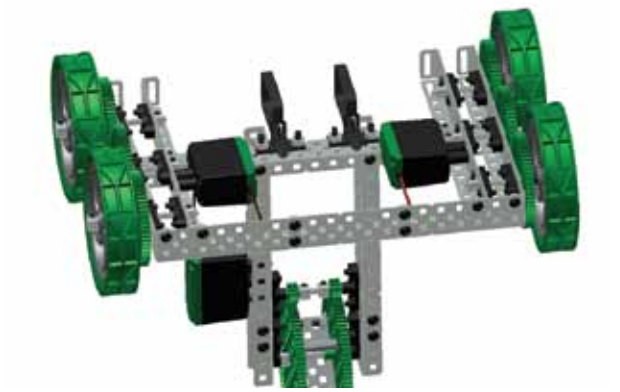




*CHECK THAT ARM ROTATES UP AND DOWN SMOOTHLY WITH ONLY MINOR MOTOR RESISTANCE

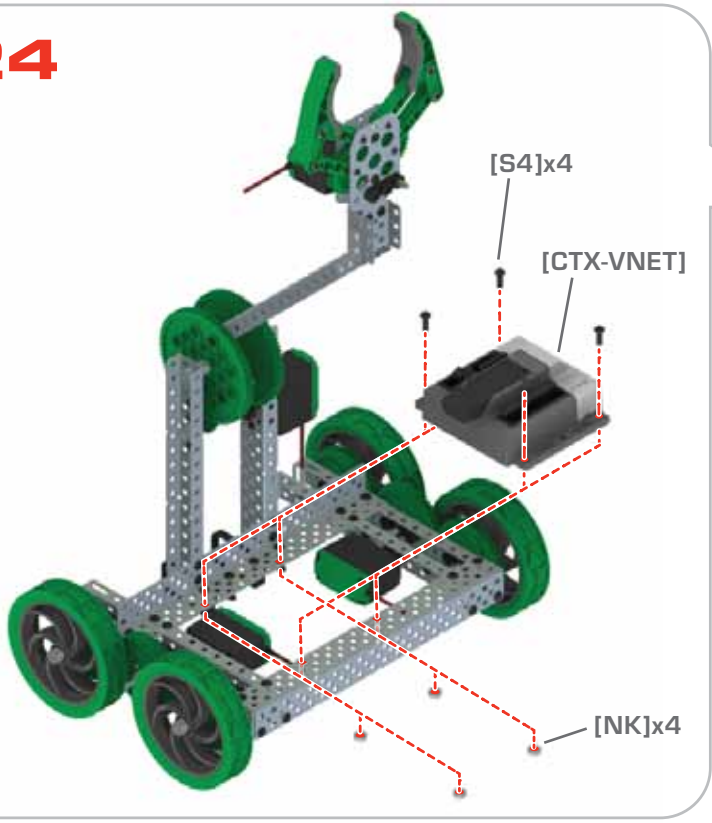
23

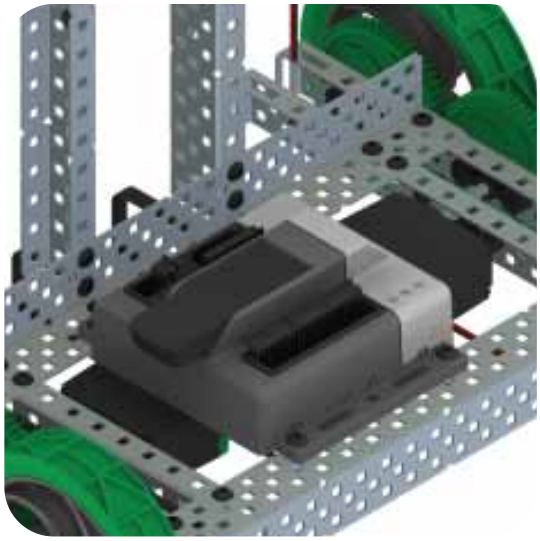




MOUNT BATTERY STRAP UNDER CHASSIS

24





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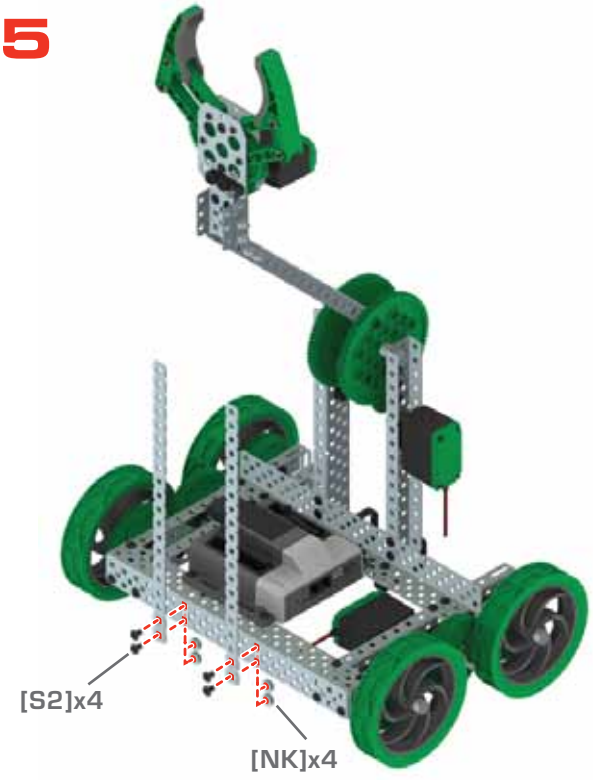

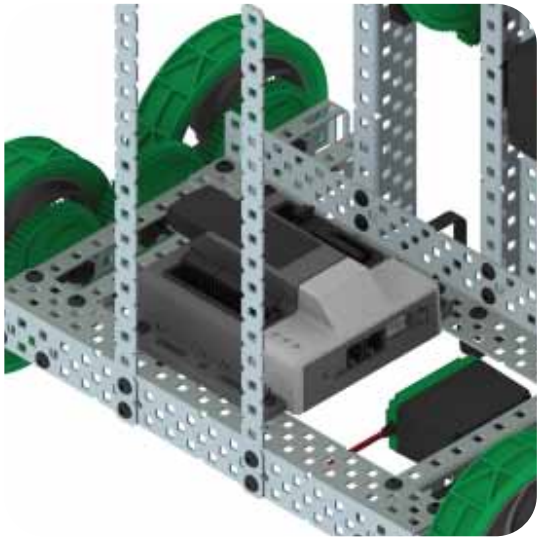

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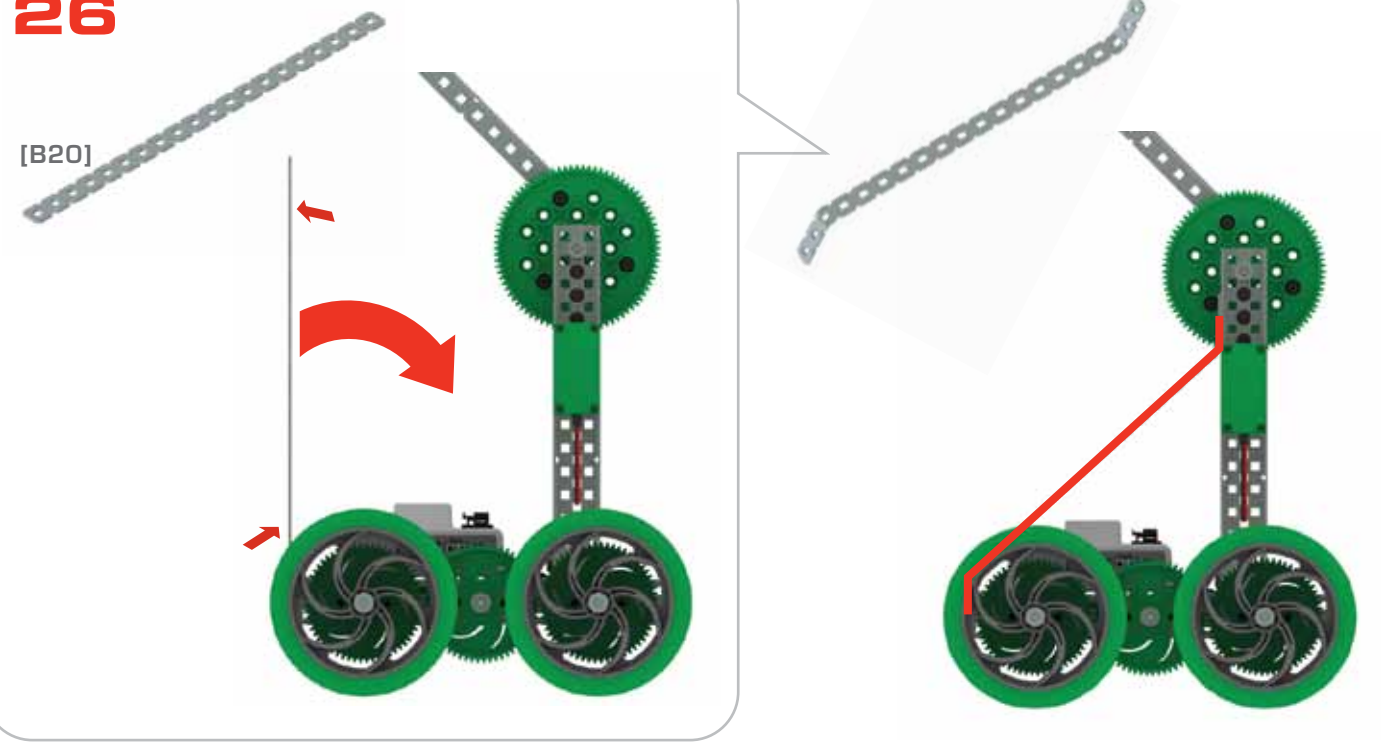

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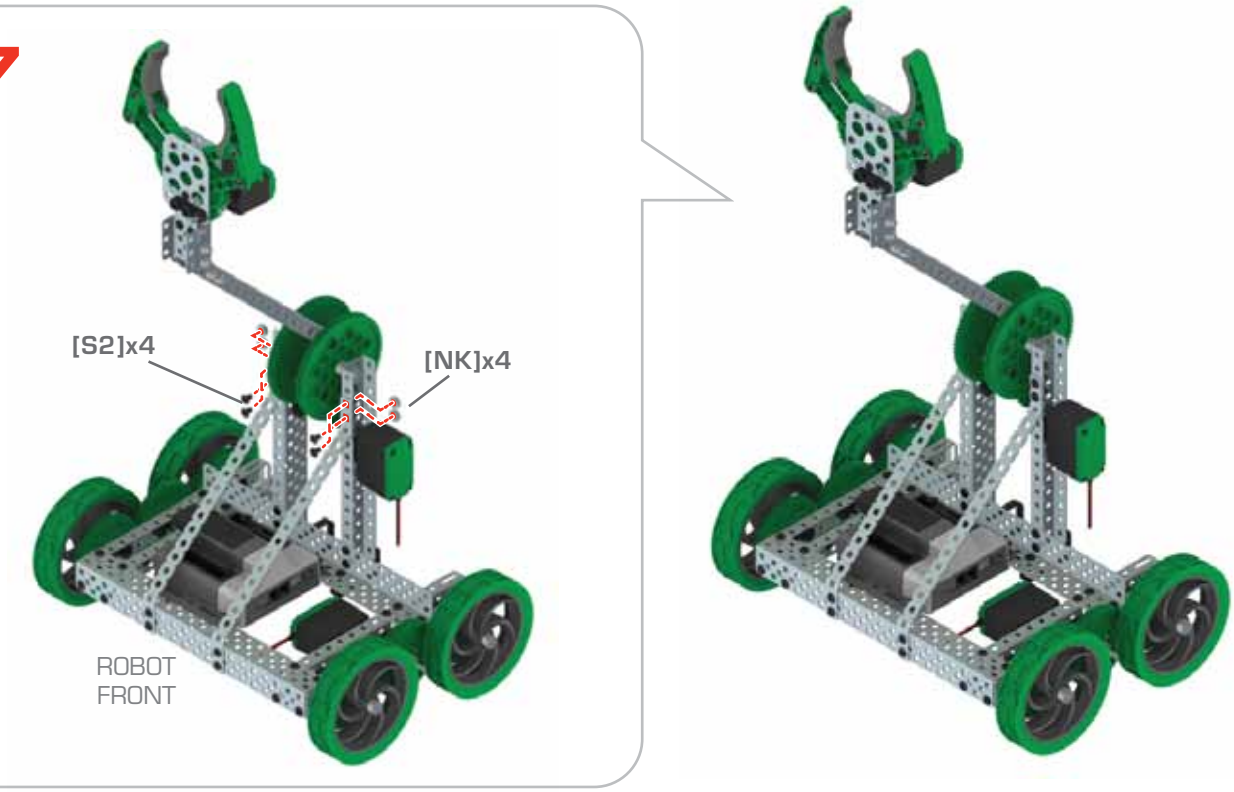
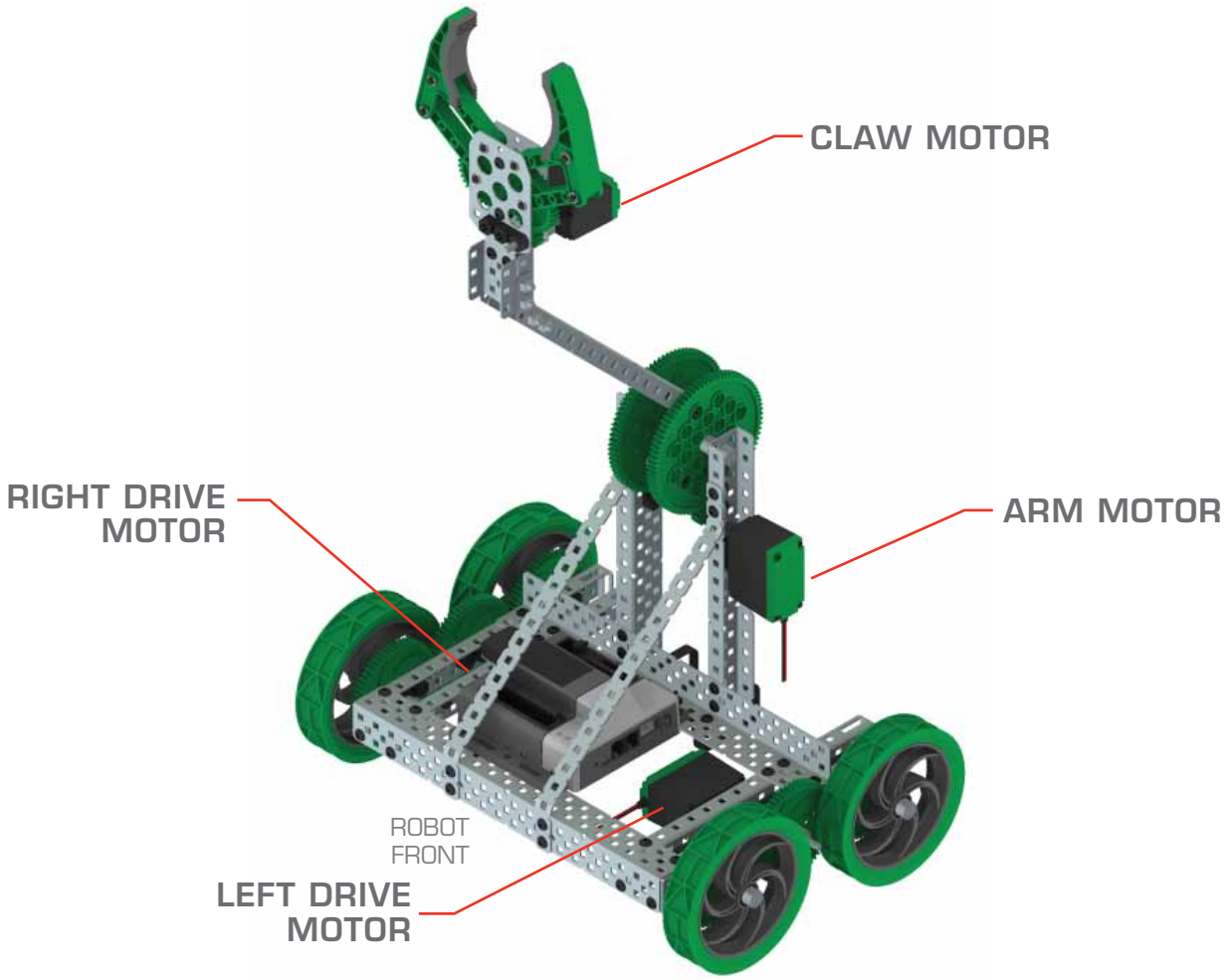
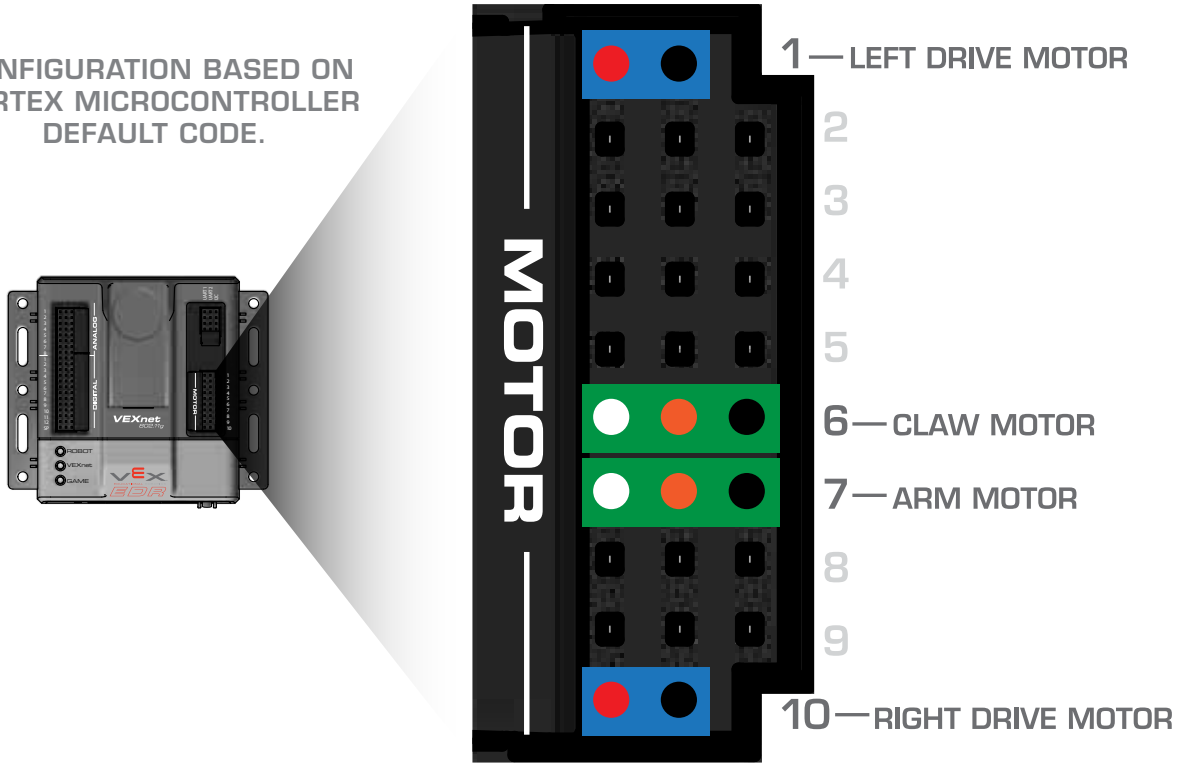
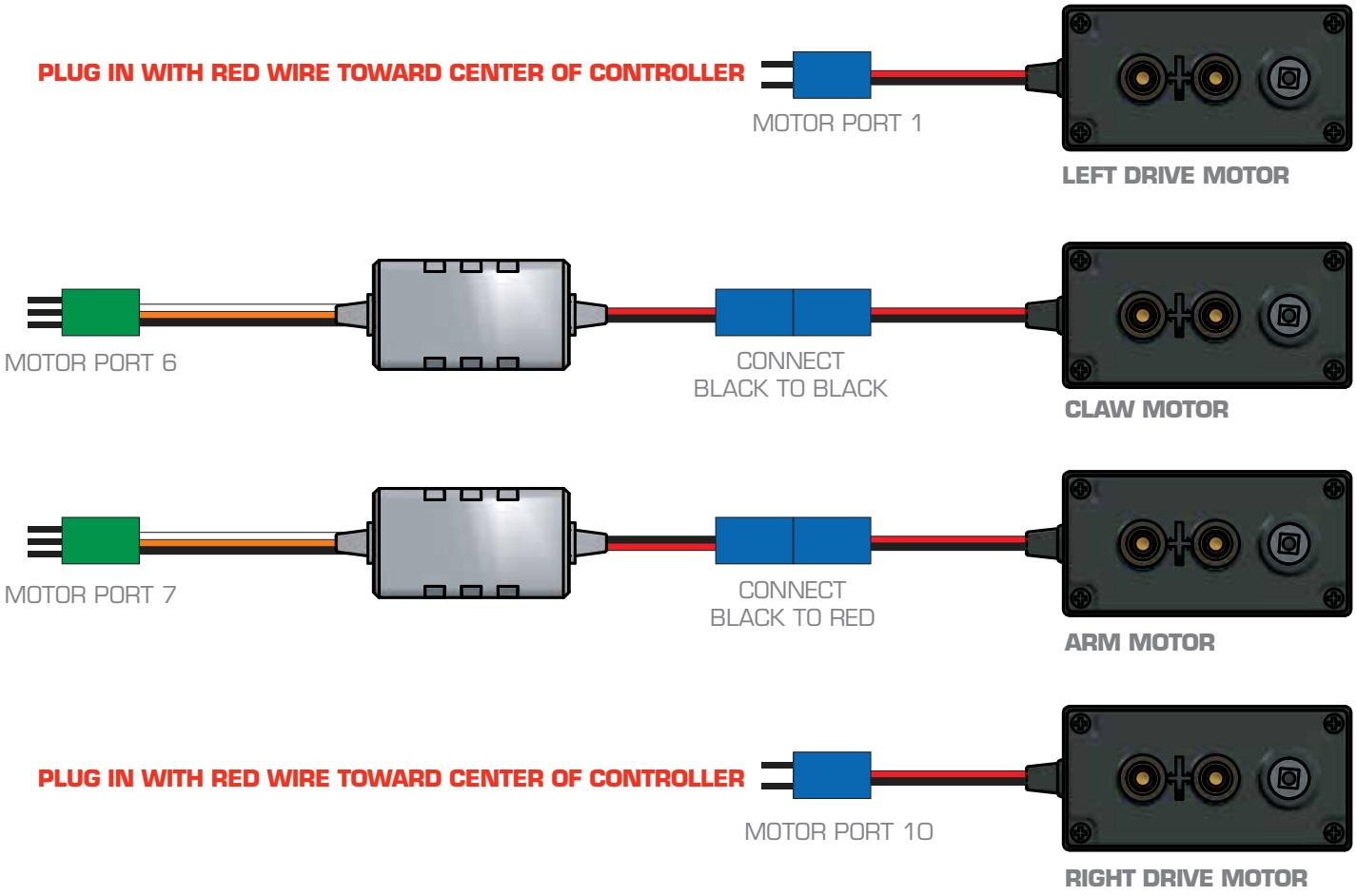




CONFIGURATION BASED ON CORTEX MICROCONTROLLER DEFAULT CODE.



VEX ROBOTICS DESIGN SYSTEM

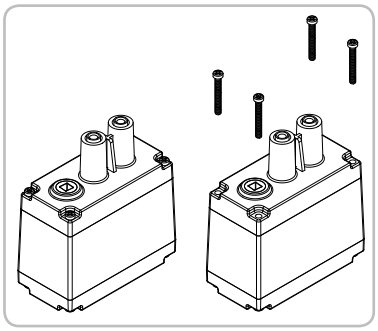


FOR MORE INFORMATION AND SUPPORT ON THE CORTEX MICROCONTROLLER AND VEXNET SYSTEM REFER TO www.VEXRobotics.com/cortex

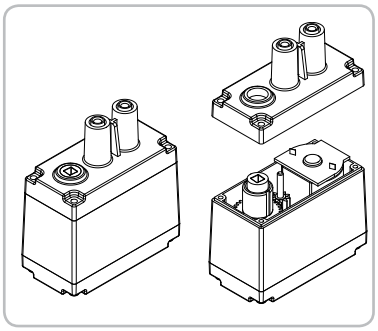
HIGH SPEED/LOW TORQUE MOTORS (Optional Configuration):

To modify the VEX 2-Wire Motor 393 into "High Speed Mode" simply swap out the final gear ratio using the included change gears with the following procedure:

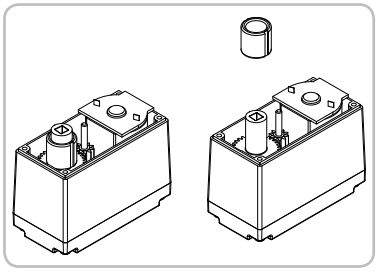
1. Remove the four screws in the corners of the front of the motor case.



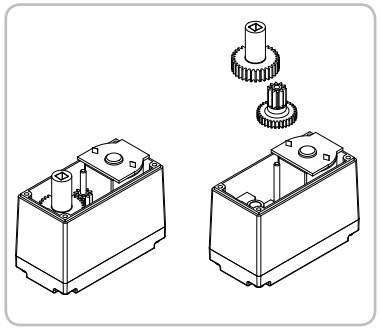
2. Lift off the top cover. Do not disturb the gears inside.



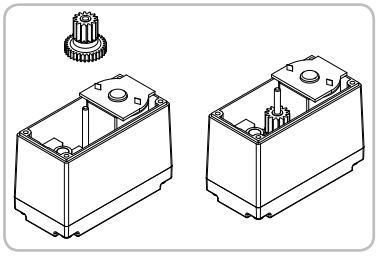
3. Lift off the output bushing and place to the side. This will be used later.



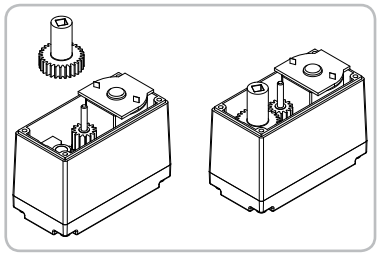
4. Remove the middle gear and the output shaft gear.



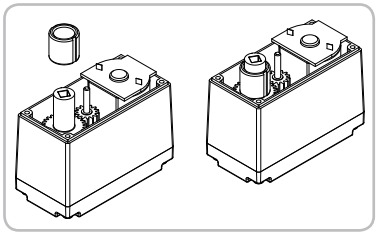
5. Install the high speed middle gear.



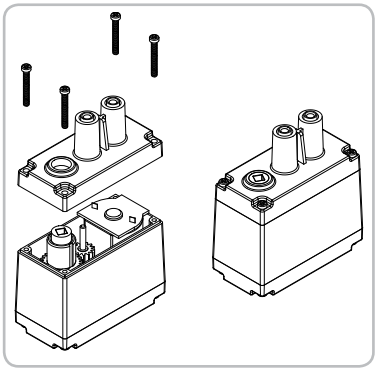
6. Install the high speed output shaft gear.



7. Install the output bushing removed in step 3. Make sure the bushing orientation is as shown.



8. Replace the cover and four screws removed in steps 1 and 2.



High Speed Mode provides 60% faster rotational speed with a 60% reduction in torque.

Expand and conquer.

Once you've mastered the CLAWBOT, we challenge you to move onto even more advanced robot designs. Of course, all VEX mechanical gears, wheels, hardware and structural metal parts are cross-compatible for endless design possibilities. With hundreds more upgrade parts and accessories, the creative possibilities for your robot designs are limitless.
Visit www.VEXROBOTICS.com for more information.

2 Wire Motor 393

SKU 276-2177

$19.99 MSRP

Tank Tread

SKU 276-2168

$29.99 MSRP

High Strength Gear Kit

SKU 276-2250

$29.99 MSRP

2.75" Omni Wheels

SKU 276-1902

$19.99 MSRP

Turntable Bearing Kit

SKU 276-1810

$19.99 MSRP

High Strength Sprocket & Chain

SKU 276-2252

$39.99 MSRP

Booster Kit

SKU 276-2232

$179.99 MSRP

Performance Tool Kit

SKU 276-1645

$39.99 MSRP

VEX ROBOTICS DESIGN SYSTEM

www.VEXROBOTICS.com

VEX ROBOTICS COMPETITION

The VEX Robotics Competition, presented by the Robotics Education and Competition Foundation, offers unique and challenging team-based games that put high school and middle school students' engineering and technology skills to the test. Students, with guidance from teachers and mentors, collaborate to build the most innovative robots possible and work together during competitions to obtain the most points possible. In addition to having a great time and building amazing robots, through their participation in the VEX Robotics Competition and their work within their team, students learn many academic and life skills.

Local VEX Robotics competitions are held in many different cities, states and countries. Visit **RobotEvents.com** to find the date and location of a VEX competition near you. Teams can register online to get an official team number, Team Welcome Kit and register for VEX Robotics Competition events.

Top teams from around the world participating in local, regional and national VEX Robotics Competitions will qualify for VEX Robotics international competitions and the VEX Robotics World Championship event held each Spring.

For more information about the VEX Robotics Competition and the VEX Robotics Design System, including various animations, videos, pictures and results from past VEX Robotics Competition events, visit **VEXROBOTICS.com.**

VEX ROBOTICS WORLD CHAMPIONSHIP

Clawbot 276-2600-0512