

Armstrong's Operator Handbook



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Operator Joystick

Button + Axis

Up on Joystick - Up on Arm Angle
Down on Joystick - Down on Arm Angle
Left on Joystick - In on Arm Extension
Right on Joystick - Out on Arm Extension
Left Rotation on Joystick - Down on Wrist
Right Rotation on Joystick - Up on Wrist



Three Main Operations

Scoring

Substation
Pickup

Ground
Pickup

SCORING

If scoring high or mid cones press the trigger once to open the intake. Then, once scoring is complete, regardless of operation hold carry pose to move inside frame perimeter. This also resets the state machines that govern arm operation, allowing the process to begin again.

Scoring Instructions

START HERE

Press/hold carry pose button to reset the scoring positioning to go to arm + wrist angle with no extension. Usually this is already done after acquiring a game piece.

If the arm has missed scoring a cone, you can move back to step three. This will raise the arm back above the scoring location and allow repositioning. Additionally, if the arm is consistently too low or too high, hit the re-zero button. Make sure to inform the rest of drive team that you are resetting.

Hold the button for the desired scoring location. This should move the arm angle and wrist angle to the correct location. Do this once near the community to avoid fouls while being as fast as possible.

Release the state change button. Then release the button for the desired scoring location and re-hold it. This will either eject the gamepiece from the robot for both low scoring and cubes; or move the cone onto the pole for high and mid cones. Only do this step once the drive has finished alignment. Audibly announce that you are scoring to tell the driver that they should avoid moving.

Hold the state change button. While holding the button, release the button for the desired scoring location and re-hold it. This will move the arm extension to the correct length. This step should be done after the driver has mostly aligned the chassis to avoid hitting the arm on things. If the arm is visibly not positioned correctly, issue commands to the driver to adjust left, right, in, or out.

Substation Pickup

STEP 1

Press the intake trigger to open/close the intake depending on desired gamepiece. The LED's will turn purple for open/cube and yellow for closed/cone. This should be done as soon as possible after scoring is completed.

STEP 2

Hold the double substation pickup button. This will move the arm to the correct position, with the intake spinning. This should be done once inside the loading zone and facing vaguely the correct direction. If the arm is too low or too high, press the re-zero button. Avoid extending while facing the opposing alliance's community to avoid fouls. Extend as early as possible to allow the driver to position without having to worry about the arm.

STEP 3

After acquiring the desired gamepiece hold the carry pose to return to transit mode inside the frame perimeter. If you attempted to pickup a cone and the grip is not good, utilize the adjust cone grip button. Holding the button moves the arm and wrist to be completely upside-down. Now use the trigger to open and close the intake while waiting .25 of a second. This should allow gravity to reposition the cone.

Ground Pickup

STEP 1

Press the intake trigger to open/close the intake depending on desired gamepiece. The LED's will turn purple for open/cube and yellow for closed/cone. This should be done as soon as possible after scoring is completed.

STEP 2

Hold the ground intake button to go to ground intake position. This will automatically go to the correct position for each gamepiece. This position is below or at the bumper level of other robots so do not be overly concerned about picking up gamepieces by other robots. However, the movement of the arm downwards can potentially incur fouls if it hits another robot.

For tipped cones, the driver will attempt to maneuver the robot so the base of the cone is inside the bumper slot. While this positioning is occurring, hold the tipped cone pickup button. This will move the arm and wrist to the correct angles. Once the driver has acquired the game piece inside the slot, hold the state change button, the release and re-hold the tipped cone pickup button. This will turn on the intake and move the arm down and back up. This should acquire the game-piece. If it did not work, repeat the process. If it has not worked again turn on the intake manually and move the arm down manually.

STEP 3

After acquiring the desired gamepiece hold the carry pose to return to transit mode inside the frame perimeter. If you attempted to pickup a cone and the grip is not good, utilize the adjust cone grip button. Holding the button moves the arm and wrist to be completely upside-down. Now use the trigger to open and close the intake while waiting .25 of a second. This should allow gravity to reposition the cone.