



AUTOMATIC SCORING




Version 2021




Version 2019

BUMPER CONTROLLER

Installation Manual

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STELTRONIC AUTOMATIC BUMPER CONTROLLER (2019)

CONNECTIONS FOR THE STELTRONIC BUMPER CONTROLLER (2019 MODEL)

Installing the Steltronic Dual Lane Bumper Controller consists of removing the wires from the Brunswick motor that are connected to the Brunswick bumper controller electrical box and connecting them to the Steltronic Dual Lane bumper controller. The Brunswick high voltage motor has 1 cable for the motor power (Black cable jacket with 4 power wires), and another cable (Grey cable jacket) with 5 wires for the limit switches.

WARNING: YOU MUST VERIFY THE FUNCTION/COLOR OF EACH WIRE THAT IS USED ON THE BRUNSWICK MOTOR ASSEMBLY.

Based on previous installations, we have determined the colors of the wires for you, however you need to verify that each colored wire is still correct in what it does for the motor.

Brunswick Bumper Motor
Assembly



Steltronic Bumper Controller
(Version 2019)



BRUNSWICK MOTOR CABLE CONDUCTOR COLOR LEGEND

- **Motor Cable (Black cable jacket)**

- I. **RED Wire:** Winding in the motor to RAISE the bumpers.
- II. **BLACK Wire:** Winding in the motor to LOWER the bumpers.
- III. **WHITE Wire:** A/C Neutral connection.
- IV. **GREEN Wire:** Ground connection.

- **Limit Switches Cable (Grey cable jacket)**

- V. **BROWN Wire:** Common wire for both UP and Down limit connections.
- VI. **ORANGE Wire:** Down limit switch connection.
- VII. **BLUE Wire:** Up limit switch connection. In the later versions of the bumper assembly, this wire is YELLOW.
- VIII. **RED Wire:** Not used
- IX. **Black Wire:** Not used

VERIFYING THE LIMIT SWITCHES

With the motor in its full downward position (Bumpers Down), please verify the limit switches are working properly. With an electrical ohm meter, you should have NO continuity (an open circuit) on the BLUE (maybe yellow) and BROWN wires.

With the motor in its full upward position (Bumpers Up), please verify the limit switches are working properly. With an electrical ohm meter, you should have NO continuity (an open circuit) on the ORANGE and BROWN wires.

VERIFYING THE HIGH VOLTAGE CONNECTIONS

The Brunswick motor has dual windings, and when you apply A/C power to the RED Brunswick motor wire (Hot Line Voltage) and WHITE (Neutral) wires, the motor will run in a direction to RAISE the bumpers.

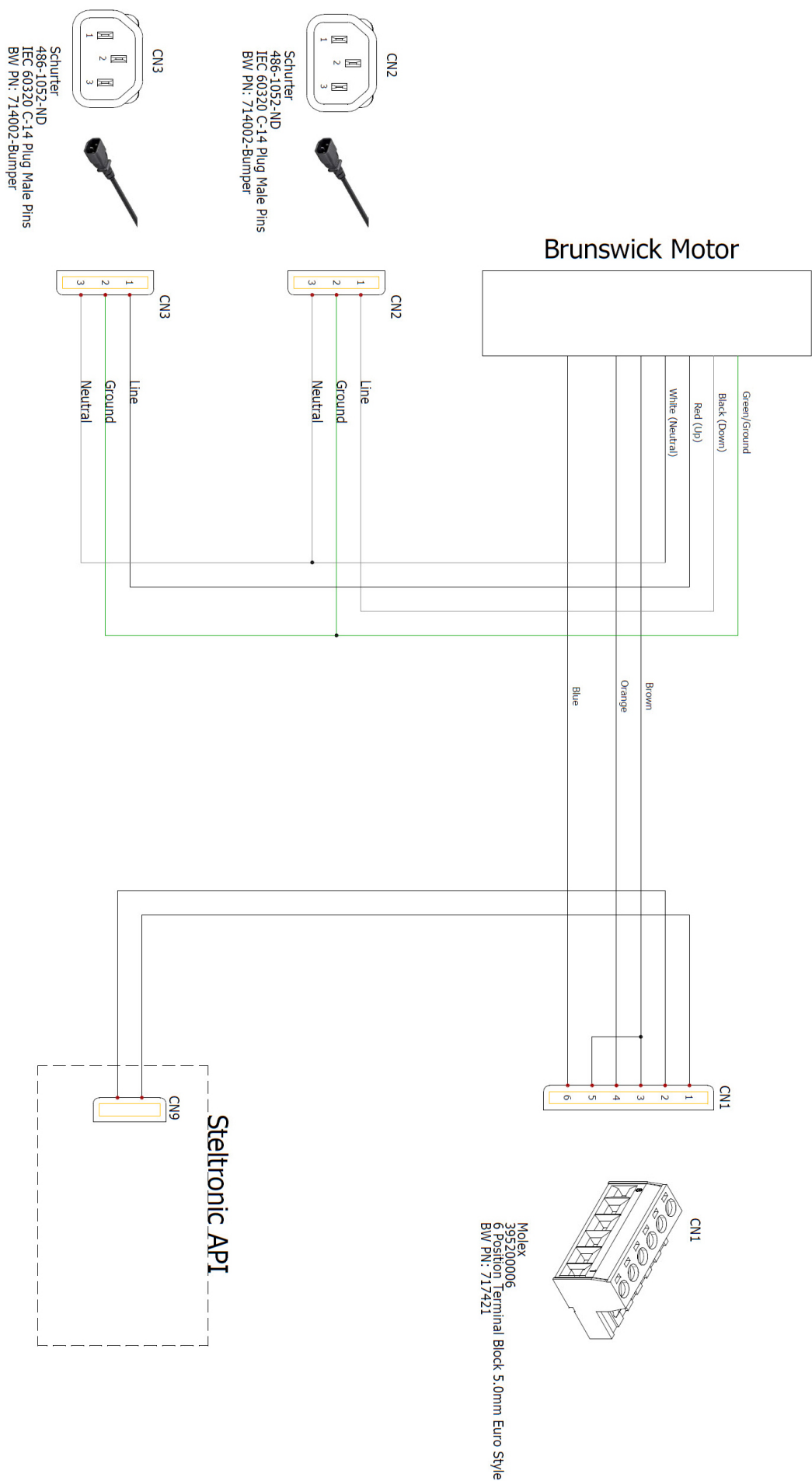
The Brunswick motor has dual windings, and when you apply A/C power to the Brunswick motor BLACK wire (Hot Line Voltage) and WHITE (Neutral) wires, the motor will run in a direction to LOWER the bumpers.

WARNING: CONSTANT VOLTAGE APPLIED TO THE MOTOR WILL RUN THE MOTOR CONTINUOUSLY AND THE LIMIT SWITCHES ARE DESIGNED TO REMOVE POWER WHEN THE MOTOR HAS REACHED ITS FULL UPWARD/DOWNWARD POSITIONS.

NOTE: IN THE NEWER BRUNSWICK MOTOR CABLE, THE RED WIRE IS FOR LOWERING THE BUMPERS AND THE BLACK WIRE IS FOR RAISING THE BUMPERS. YOU NEED TO MAKE THESE CONNECTIONS APPROPRIATELY ON THE STELTRONIC MOTOR CONTROLLER PCB CONNECTIONS.

WARNING: If you connect the wires into the wrong locations of the Steltronic bumper controller hardware, the PCB can be damaged/burned and the warranty will be void.

When connecting the high voltage wires to the supplied connectors from Steltronic, please follow the schematic on the next page.



STELTRONIC AUTOMATIC BUMPER CONTROLLER (2021)

CONNECTIONS FOR THE STELTRONIC BUMPER CONTROLLER (2021 MODEL)

Installing the Steltronic Dual Lane Bumper Controller consists of removing the wires from the Brunswick motor that are connected to the Brunswick bumper controller electrical box and connecting them to the Steltronic Dual Lane bumper controller. The Brunswick high voltage motor has 1 cable for the motor power (Black cable jacket with 4 power wires), and another cable (Grey cable jacket) with 5 wires for the limit switches.

WARNING: YOU MUST VERIFY THE FUNCTION/COLOR OF EACH WIRE THAT IS USED ON THE BRUNSWICK MOTOR ASSEMBLY.

Based on previous installations, we have determined the colors of the wires for you, however you need to verify that each colored wire is still correct in what it does for the motor.

Brunswick Bumper Motor
Assembly



Steltronic Bumper Controller
(Version 2021)



BRUNSWICK MOTOR CABLE CONDUCTOR COLOR LEGEND

- **Motor Cable (Black cable jacket)**

- X. RED Wire:** Winding in the motor to RAISE the bumpers.
- XI. BLACK Wire:** Winding in the motor to LOWER the bumpers.
- XII. WHITE Wire:** A/C Neutral connection.
- XIII. GREEN Wire:** Ground connection.

- **Limit Switches Cable (Grey cable jacket)**

- XIV. BROWN Wire:** Common wire for both UP and Down limit connections.
- XV. ORANGE Wire:** Down limit switch connection.
- XVI. BLUE Wire:** Up limit switch connection. In the later versions of the bumper assembly, this wire is YELLOW.
- XVII. RED Wire:** Not used
- XVIII. Black Wire:** Not used

VERIFYING THE LIMIT SWITCHES

With the motor in its full downward position (Bumpers Down), please verify the limit switches are working properly. With an electrical ohm meter, you should have NO continuity (an open circuit) on the BLUE (maybe yellow) and BROWN wires.

With the motor in its full upward position (Bumpers Up), please verify the limit switches are working properly. With an electrical ohm meter, you should have NO continuity (an open circuit) on the ORANGE and BROWN wires.

VERIFYING THE HIGH VOLTAGE CONNECTIONS

The Brunswick motor has dual windings, and when you apply A/C power to the RED Brunswick motor wire (Hot Line Voltage) and WHITE (Neutral) wires, the motor will run in a direction to RAISE the bumpers.

The Brunswick motor has dual windings, and when you apply A/C power to the Brunswick motor BLACK wire (Hot Line Voltage) and WHITE (Neutral) wires, the motor will run in a direction to LOWER the bumpers.

WARNING: CONSTANT VOLTAGE APPLIED TO THE MOTOR WILL RUN THE MOTOR CONTINUOUSLY AND THE LIMIT SWITCHES ARE DESIGNED TO REMOVE POWER WHEN THE MOTOR HAS REACHED ITS FULL UPWARD/DOWNWARD POSITIONS.

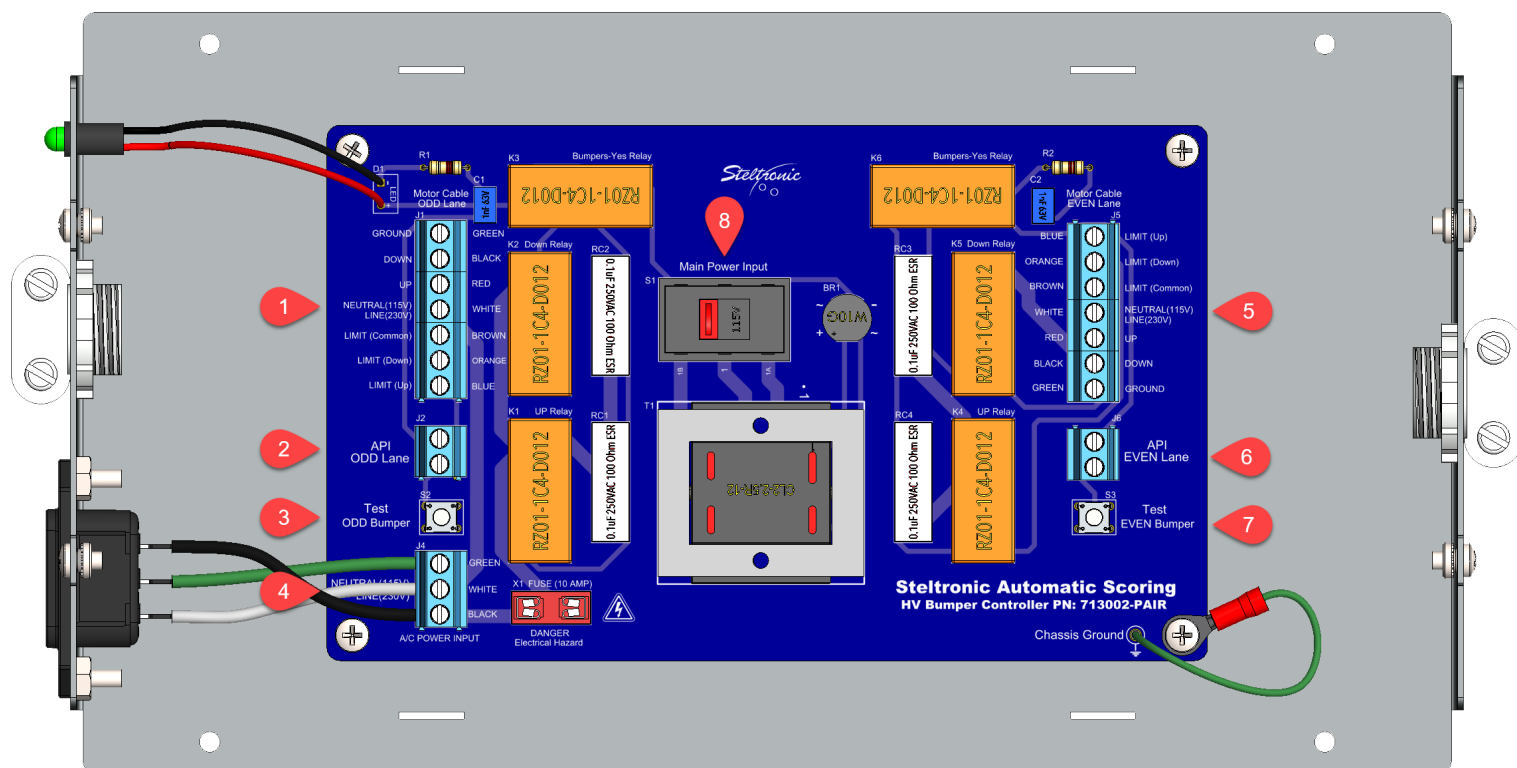
NOTE: IN THE NEWER BRUNSWICK MOTOR CABLE, THE RED WIRE IS FOR LOWERING THE BUMPERS AND THE BLACK WIRE IS FOR RAISING THE BUMPERS. YOU NEED TO MAKE THESE CONNECTIONS APPROPRIATELY ON THE STELTRONIC MOTOR CONTROLLER PCB CONNECTIONS.

WARNING: If you connect the wires into the wrong locations of the Steltronic bumper controller hardware, the PCB can be damaged/burned and the warranty will be void.

When connecting the Brunswick cable to the PCB connectors, please follow the direction on the next page.

CONNECTIONS FOR THE STELTRONIC BUMPER CONTROLLER PCB

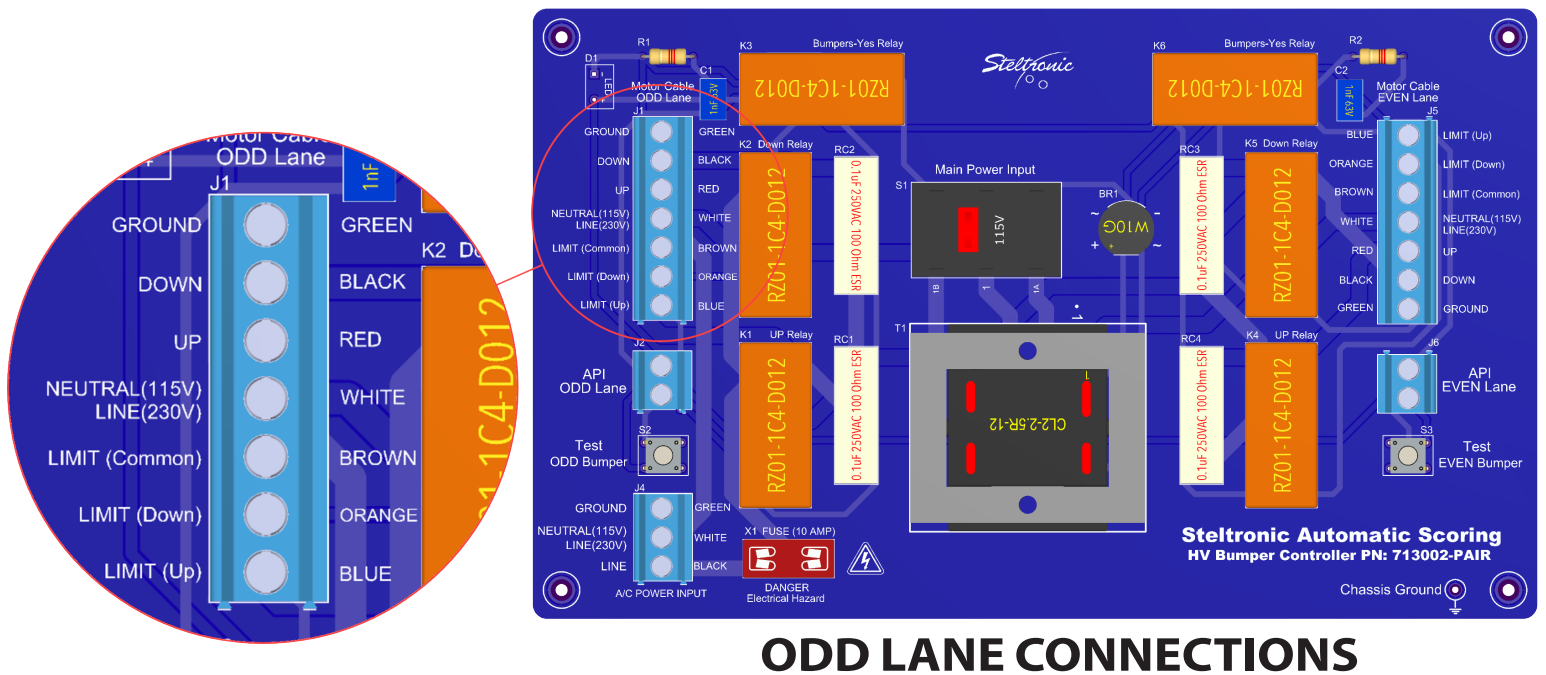
DANGER: DISCONNECT ALL INCOMING MAIN POWER TO THIS CONTROLLER BEFORE MAKING ANY CONNECTIONS.



From the RED bulleted numbers above, these connections are detailed below.

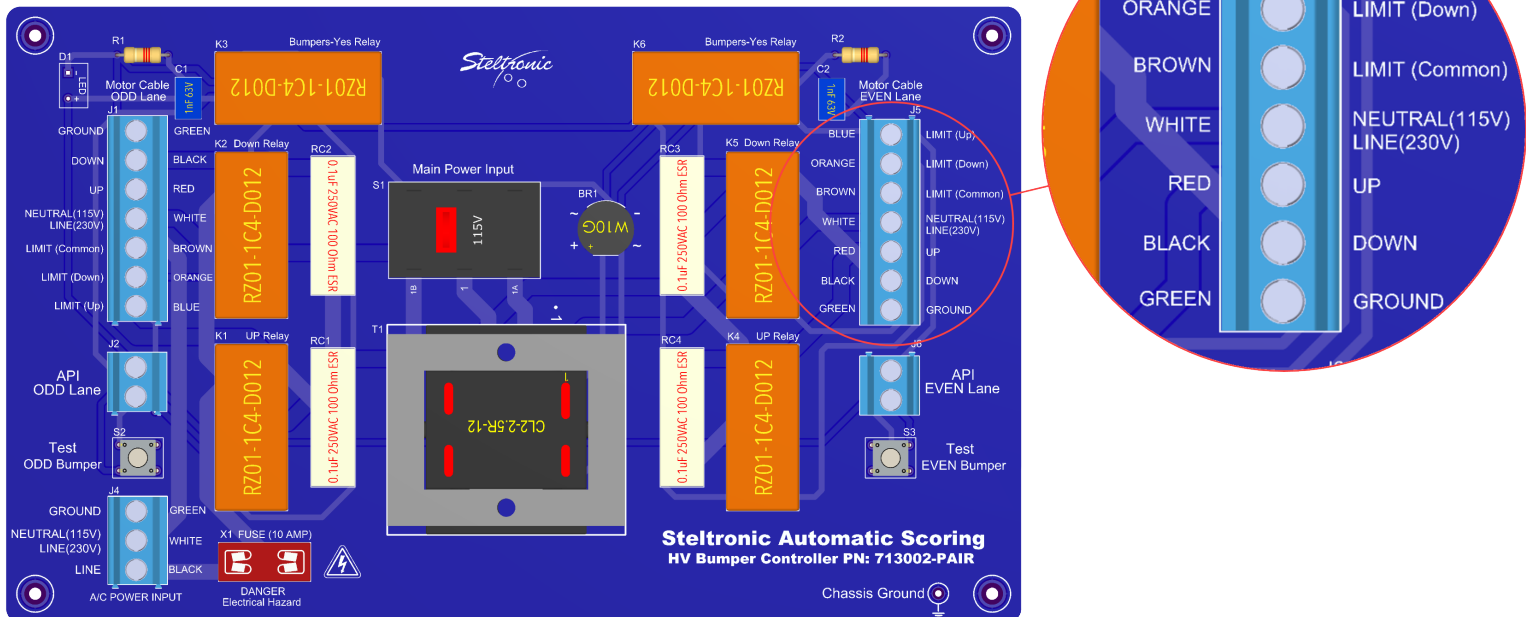
1. This connection is for the ODD lane Brunswick bumper motor. Take notice the PCB is marked with the wire color and also the action of the Brunswick motor. (Please be aware the colors of the Brunswick wires has changed with newer versions.)
2. This is the connection for the Steltronic API (Odd lane). When there is contact closure on this connector, the bumper motor should start to rise. This cable should be a 2 conductor - 20 AWG cable. You could also run a 4 conductor 20 AWG cable for connecting both of the even and odd lanes.
3. This is a test switch to see if the bumper motor will raise the bumpers. It's the same as a contact closure from the API connector as the red marker #2 above
4. This is the main power connection. Please notice, there are three connections for the main power, and the PCB is marked Ground, Line, and Neutral.
 - I. If the voltage in your bowling center is 115 VAC, connect the wires as instructed and marked on the PCB.
 - II. If the voltage in your bowling center is 220 VAC, connect the wires as instructed and marked on the PCB. Since you will probably not have a white wire in a 220 VAC center, please use the wire color supplied by the electrician.
 - III. The GROUND wire will always be ground on this PCB.
5. This connection is for the EVEN lane Brunswick bumper motor. Take notice the PCB is marked with the wire color and also the action of the Brunswick motor.
6. This is the connection for the Steltronic API (Even lane). When there is contact closure on this connector, the bumper motor should start to rise. This cable should be a 2 conductor - 20 AWG cable. You could also run a 4 conductor 20 AWG cable for connecting both of the even and odd lanes.
7. This is a test switch to see if the bumper motor will raise the bumpers on the even lane. It's the same as a contact closure from the API connector as the red marker #6 above.
8. **WARNING: MAKE THE CORRECT VOLTAGE SELECTION. INCORRECT SELECTION WILL CAUSE DAMAGE TO THIS CONTROLLER** This is the selector for the main input power of the input voltage to this controller. It's also important to know that if the motor voltage is 220VAC, then the switch should be set to 220 VAC.

MOTOR CABLE CONNECTIONS



ODD LANE CONNECTIONS

EVEN LANE CONNECTIONS

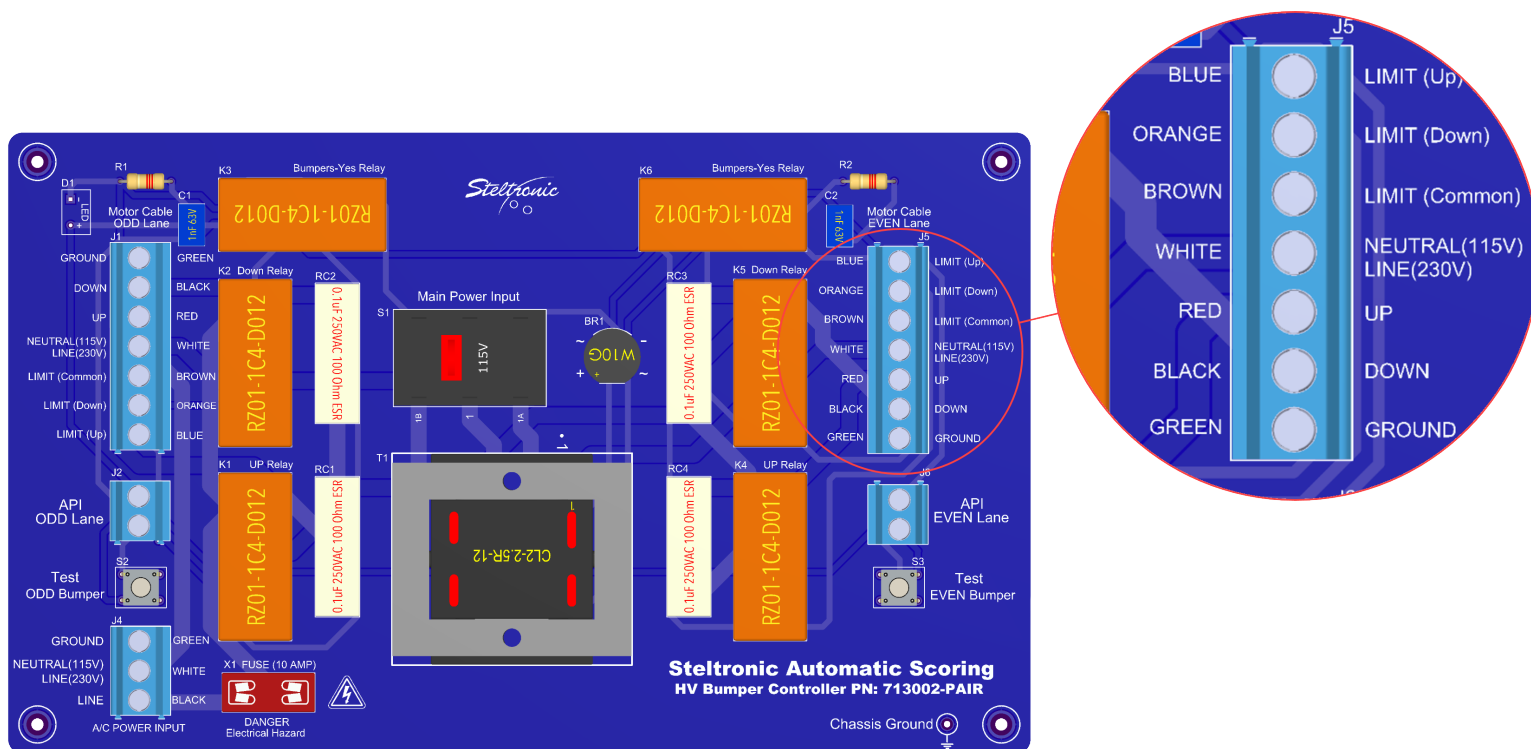


Looking at the magnified images above, you can see how to connect each of the wires from the motor and limit switch cables.

DANGER: DISCONNECT ALL INCOMING MAIN POWER TO THIS CONTROLLER BEFORE MAKING ANY CONNECTIONS.

MOTOR DIRECTION

If you press the “test” button for the odd lane, the bumpers should lift to the upward position. If you make the same test for the even lane, and you find the motor works in an opposite direction, then you will need to reverse the UP/DOWN (Red-Black) wires on the J5 connector.



So why does this happen? Because the original motors from Brunswick were originally placed on the 10 pin side of the lane, but now the motors are placed near the ball return system in the center of the pair of bowling lanes. This means the ODD lane motor shaft is pointed towards the 7 pin gutter and the EVEN lane motor shaft is pointed towards the 10 pin gutter. The interface from Steltronic assumes the motors are all on the 10 pin side with the motor shaft pointed in the direction of the 7 pin gutter.

In summary, it now means you need to locate the Brunswick bumper motors and see if they are all mounted in the same direction. If you find them mounted in different directions, you will have to change the RED/BLACK wires on the appropriate J5 connector as shown above.

DANGER: DISCONNECT ALL INCOMING MAIN POWER TO THIS CONTROLLER BEFORE MAKING ANY CONNECTIONS.