Steltronic

AUTOMATIC SCORING

Version 2021

Version 2019

BUMPER CONTROLLER

Installation Manual

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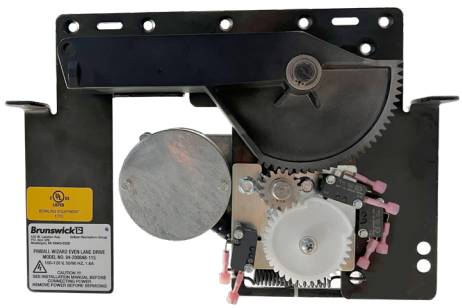
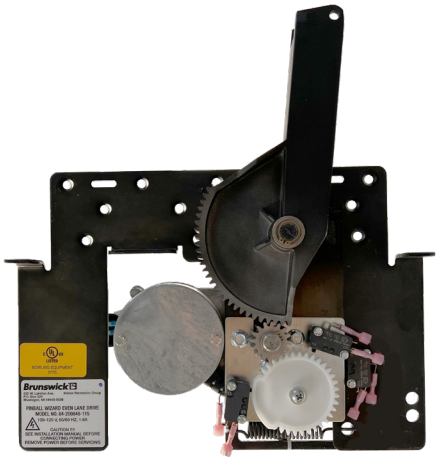
Installing the Steltronic Dual Lane Bumper Controller consists of removing the wires from the Brunswick motor that are connected to the Brunswick bumper controller electrical box and connecting them to the Steltronic Dual Lane bumper controller. The Brunswick high voltage motor has 1 cable for the motor 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.

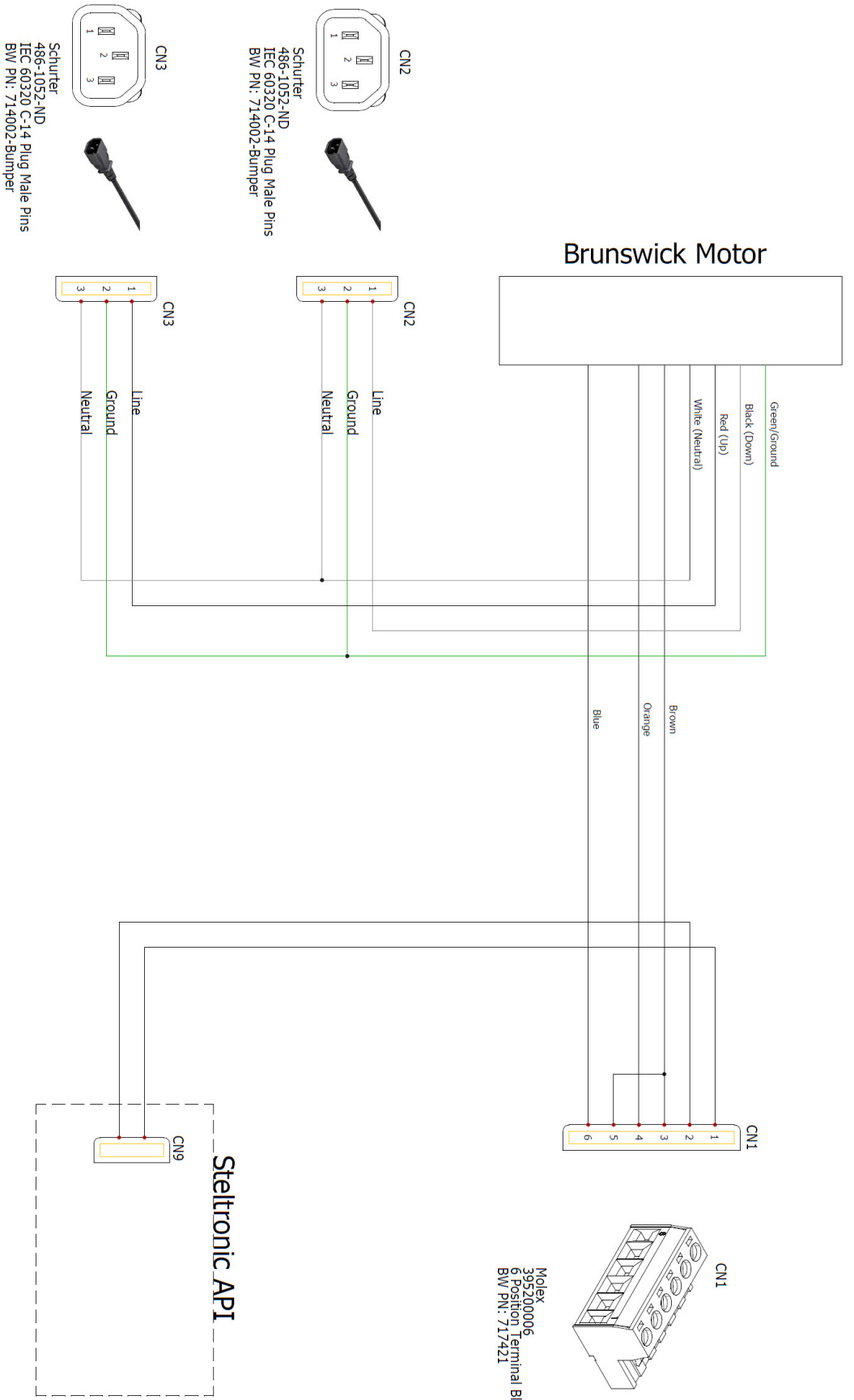
The Brunswick motor has dual windings, and when you apply A/C power to the Brunswick motor BLACK wire (Hot Line Voltage) and WHITE (Neutral) wires, the motor will run in a direction to LOWER the bumpers.

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.


Brunswick Motor
CN2
Schurter
486-1052-ND
IEC 60320 C-14 Plug Male Pins
BW PN: 714002-Bumper
CN3
Schurter
486-1052-ND
IEC 60320 C-14 Plug Male Pins
BW PN: 714002-Bumper
Green/Ground
Black (Down)
Red (Up)
White (Neutral)
Line
Ground
Neutral
Line
Ground
Neutral
Blue
Orange
Brown
CN1
Molex
39520006
6 Position Terminal Block 5.0mm Euro Style
BW PN: 717421
CN1
CN9
Steltronic API

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.

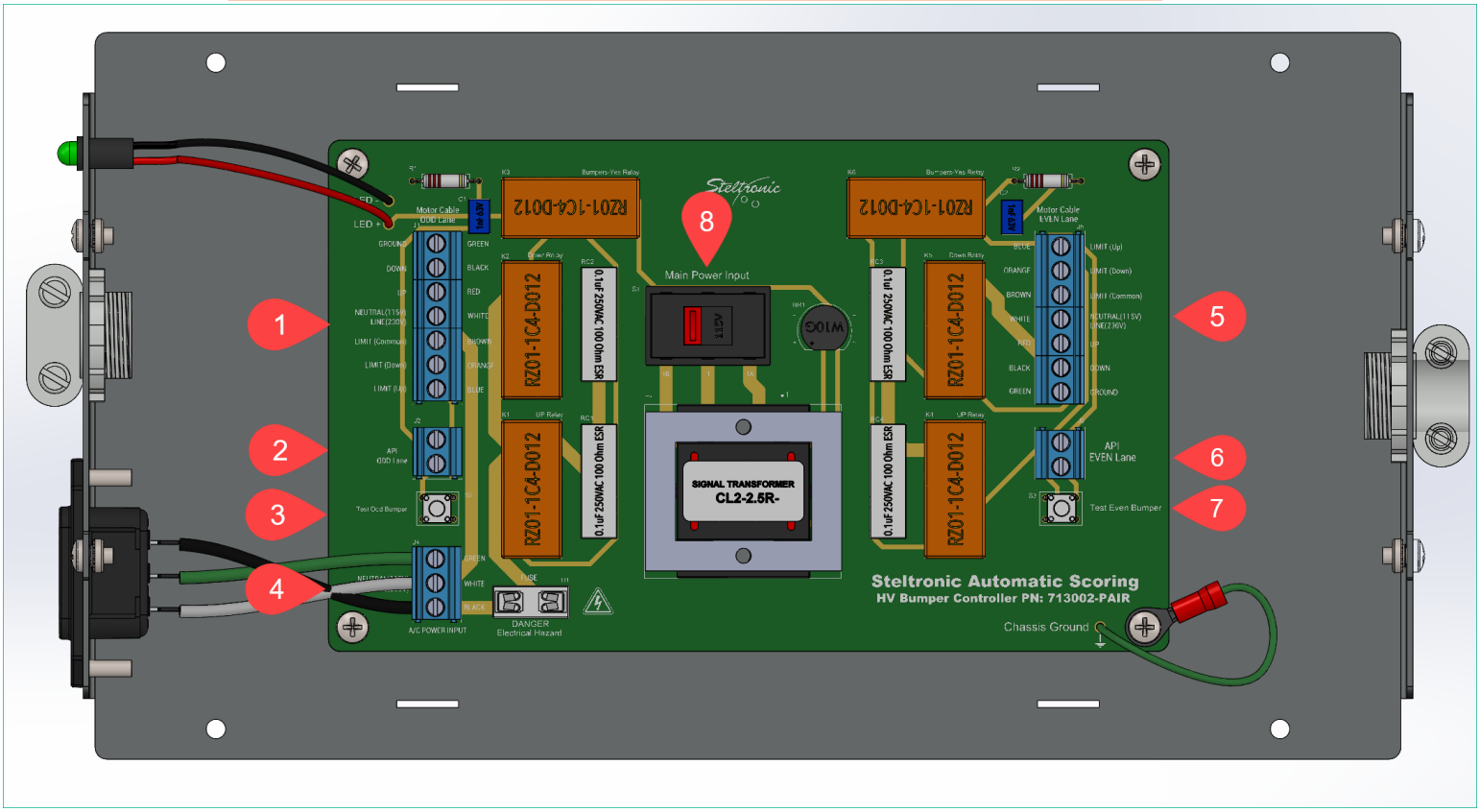
WARNING: CONSTANT VOLTAGE APPLIED TO THE MOTOR WILL RUN THE MOTOR CONTINUOUSLY AND THE LIMIT SWITCHES ARE DESIGNED TO REMOVE POWER WHEN THE MOTOR HAS REACHED ITS FULL UPWARD/DOWNWARD POSITIONS.

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.

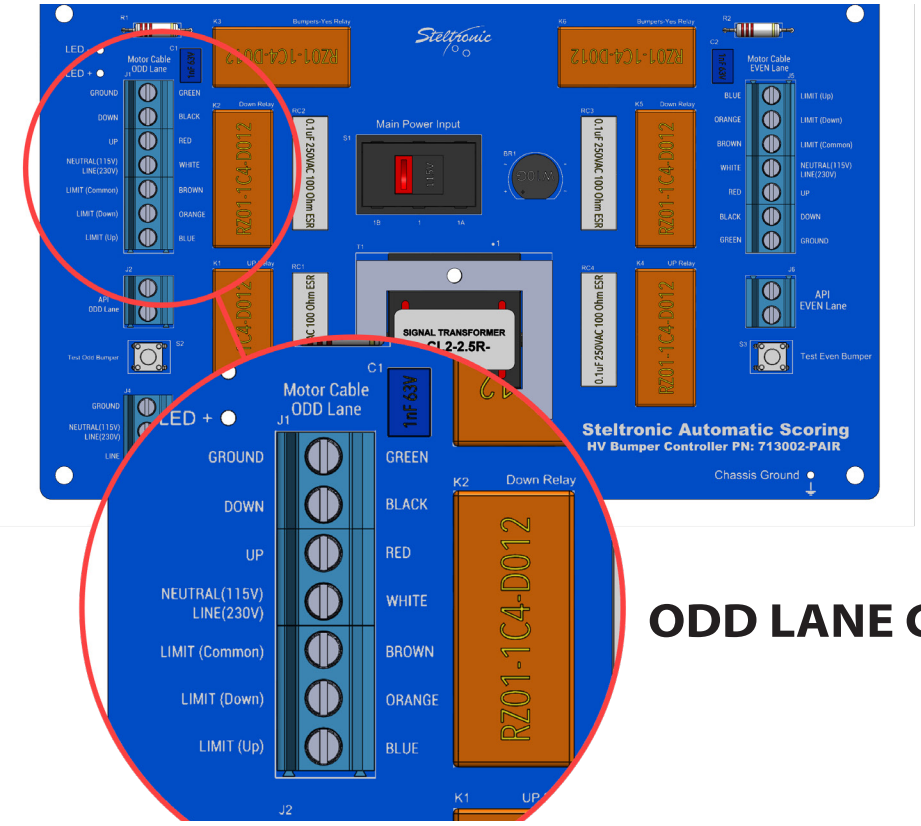
When connecting the Brunswick cable to the PCB connectors, please follow the direction on the next page.

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

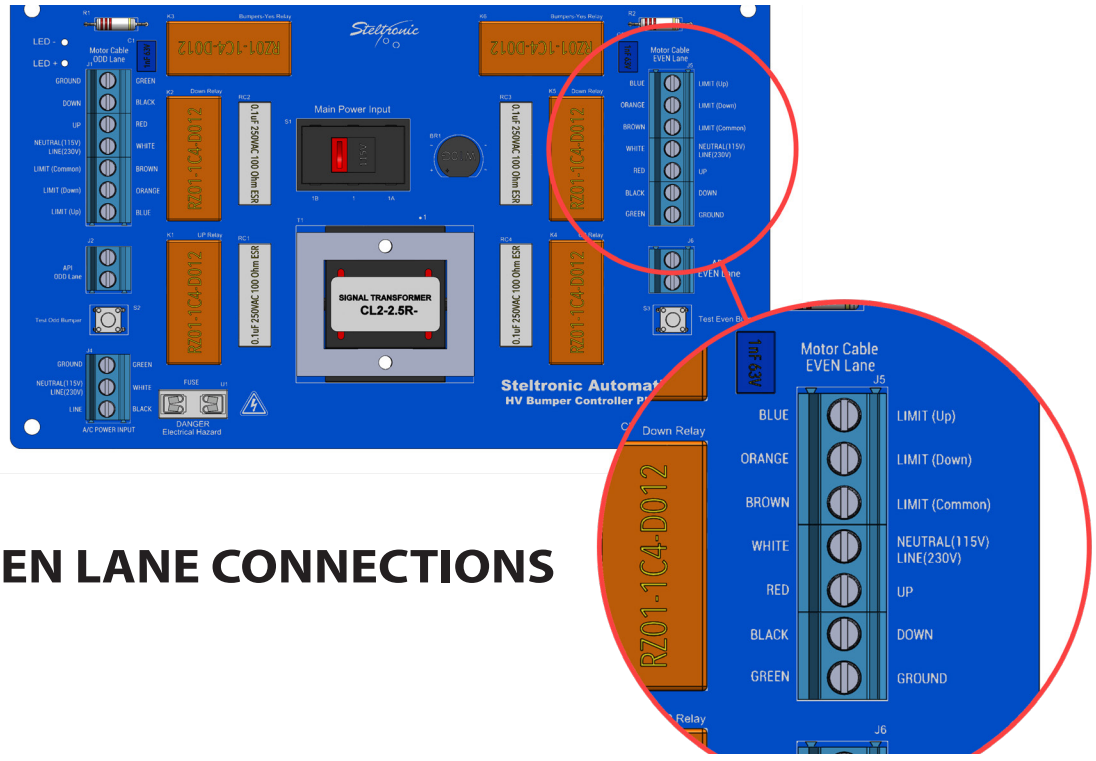


From the RED bulleted numbers above, these connections are detailed below.

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.
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.
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.



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.