

5081/5082 Directional Contactor Installation Kit

Thank you for purchasing our 5091 or 5092 Directional Contactor. We take great pride in our products and feel certain that this Contactor will offer you many years of trouble-free service. We ask that you take a moment to read these instructions completely before beginning your installation. Familiarity with the parts and an understanding of the products will ensure that your installation goes smoothly and safely. Additionally, it will give you an opportunity to determine if your car might have any damaged, corroded, or missing parts which will need replacing prior to the using your new Contactor.



5092



5091

The Contactor is used for Series Wound Motor systems only. The Contactor is used for directional switching. The use of four gauge welding cable is recommended due to amperage loads. During the installation care must be taken when installing the Contactor Cable Nuts and Motor Nuts. You should always use the double wrench technique for proper tightening. By placing an open end wrench on the bottom nut. Place the appropriate cable on the stud, and nut. Tighten the M8 nut while holding the bottom nut with the open end wrench to 8 to 9.5 Nm (70 ~ 80 Inch Pounds). For activation wiring use 18 gauge automotive wires.

Cable connections are a 5/16" size.



Tools:

Standard combination wrench set. Standard Socket Set. Pliers, crimpers, wire strippers. Drill and Drill Bits. Screwdrivers. Optional Tap and Die set. Battery Strap.



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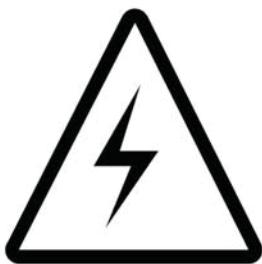
Before starting the project let's briefly talk about safety. During the installation make sure you wear appropriate eye protection!



Keep flames away from battery pack! Batteries can produce hydrogen gas which is flammable.



Caution battery acid can burn skin or eyes. Know where the closest eye wash is and seek medical attention if eye burn or ingestion occurs.



Voltage potential is present and under a shorted condition, burns can occur. Make sure the battery pack is disconnected! Do not lay objects on top of the battery pack.



Sharp edges are present during the installation! Be aware that sharp edges are present and remove them to prevent cuts to your person and or cut insulation on wire and cables.

Contactor Mounting

Disconnect the Battery Pack!

Remove all shifter parts, rods or brackets from the car. Brand of car does not matter the procedure is the same. Once the old parts are removed clean the area.

Next create some sort of an L shaped bracket or use part number 404 for mounting. Pre-drilled holes exist for 5092.



Mark two mounting hole area's and Drill holes with a #21 bit. Then tap holes to 10/32 size. Or drill to a 3/16" size and install screws and nuts. Use 1/4" bolts and nuts to mount to the frame. 9/32" Bit will work for that.



Remove



Remove



Remove

The Contactor can be mounted horizontally or vertically. Do not mount it up-side down. Mount in an area of the car you can have metal to drill into for mounting. Some brands of cars you do not need a L shaped bracket. Always mount in an area you can route the power cables and wiring without interfering with moving parts.



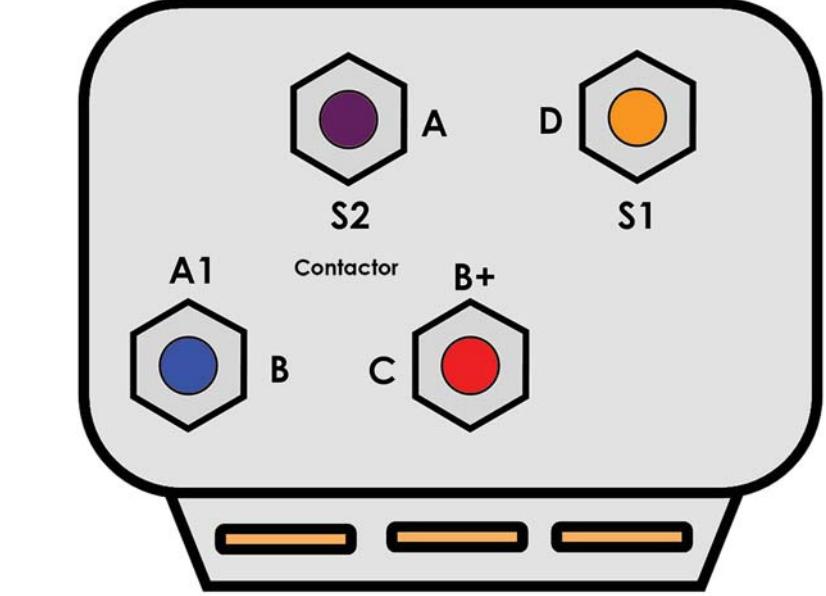
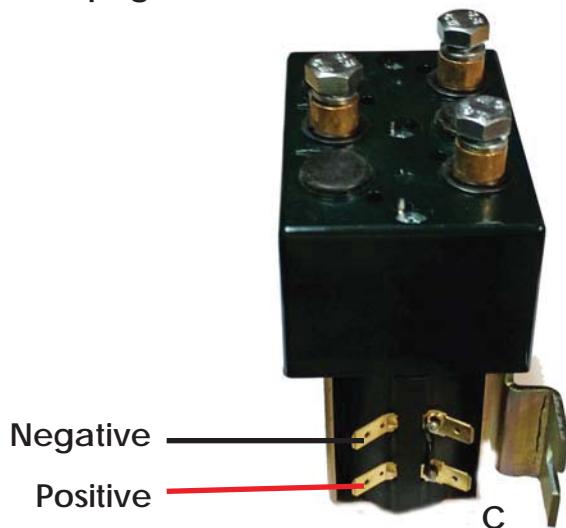
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Wiring and Cables

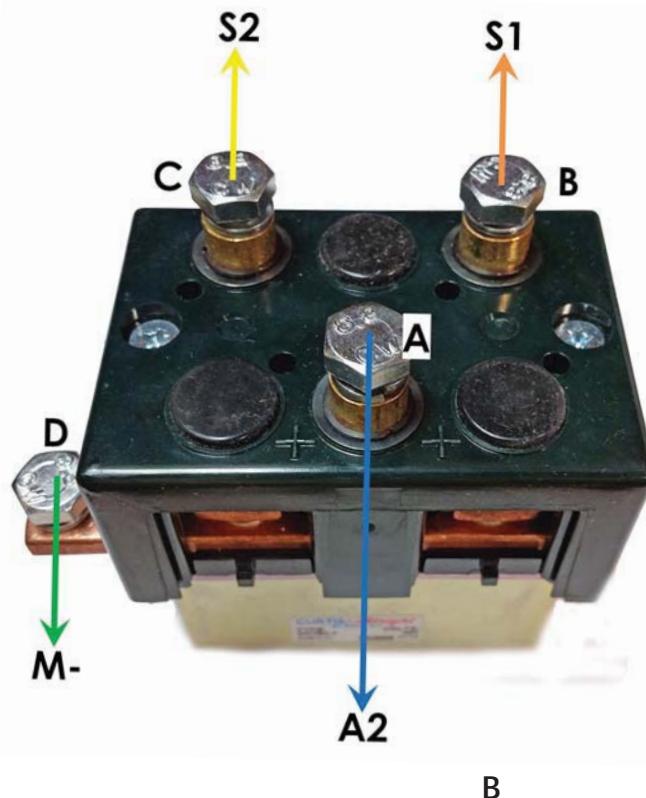
For 5091 (DC88) Contactor connect the cables as shown in picture (A). As reference looking from the side that has the three spade connectors. The upper left have stud is connection point (A). Connect cable S2 to this terminal. Upper right hand terminal (D) connects to S1 on the Motor. Lower left hand (B) terminal connects to A1 on the Motor. Lower Right hand terminal (C) connects to B+ and line contactor.

For 5092 (DC182) Contactor connect the cables as shown in picture (B). As a reference looking from the side that has the single connection. The upper left hand terminal is S1. The upper right hand terminal is S2. The single bottom terminal is A1/B+ connection. On the left hand side buss connection connect M- cable that routes to A2 on the motor.

For complete terminal connections see appropriate Diagram on the next two pages.



A



B

Use the correct torque settings listed on page one. Connect the activation wires on 5091 (DC88) as shown on drawing. The center spade is battery negative. The two outer spades is positive from the forward/reverse switch.

The 5092 (DC182) uses a positive input on the one of the spade terminals (C) and negative on the other one (both sides). Again see diagram for complete wiring connections.



5092 Directional Contactor Power Cabling:

We suggest using four gauge welding cable throughout the system. All lugs are 5/16" hole size. You can purchase a universal cable kit and cut to length (P/N 29058). Some lugs in the kit will not be used.

For Identification purposes we suggest putting color tape on each cable end to reflect what you see in the diagram. Tape does come with the 29058 kit (color). Again, as you make connections to components use the double wrench method. On the diagram we have given connection point lettering, so you can follow the connections made on the diagram.

From battery number one positive terminal connect a red coded cable to one side of the line contactor (leave actual connection to the battery loose for now). On the opposite terminal connect a red coded cable to B+ on the controller. From B+ on the controller connect a cable to A1 on the motor.

From A2 on the motor connect to directional contactor terminal A. From S2 on the motor connect a cable to directional contactor C. From S1 on the motor connect a cable to directional contactor B. From M- on the controller connect a cable to directional contactor D.

From controller terminal B- connect a cable to battery number 6 negative terminal.



Tech Tip: Lay out all the components and create space to allow for cables/wiring to fit. On TXT model cars using a high amperage controller mount as shown. The use of part number 7983 spacer kit will aid in mounting the line contactor on two pre-existing heat sink holes. Use a 1/4" - 20 bottoming tap first.

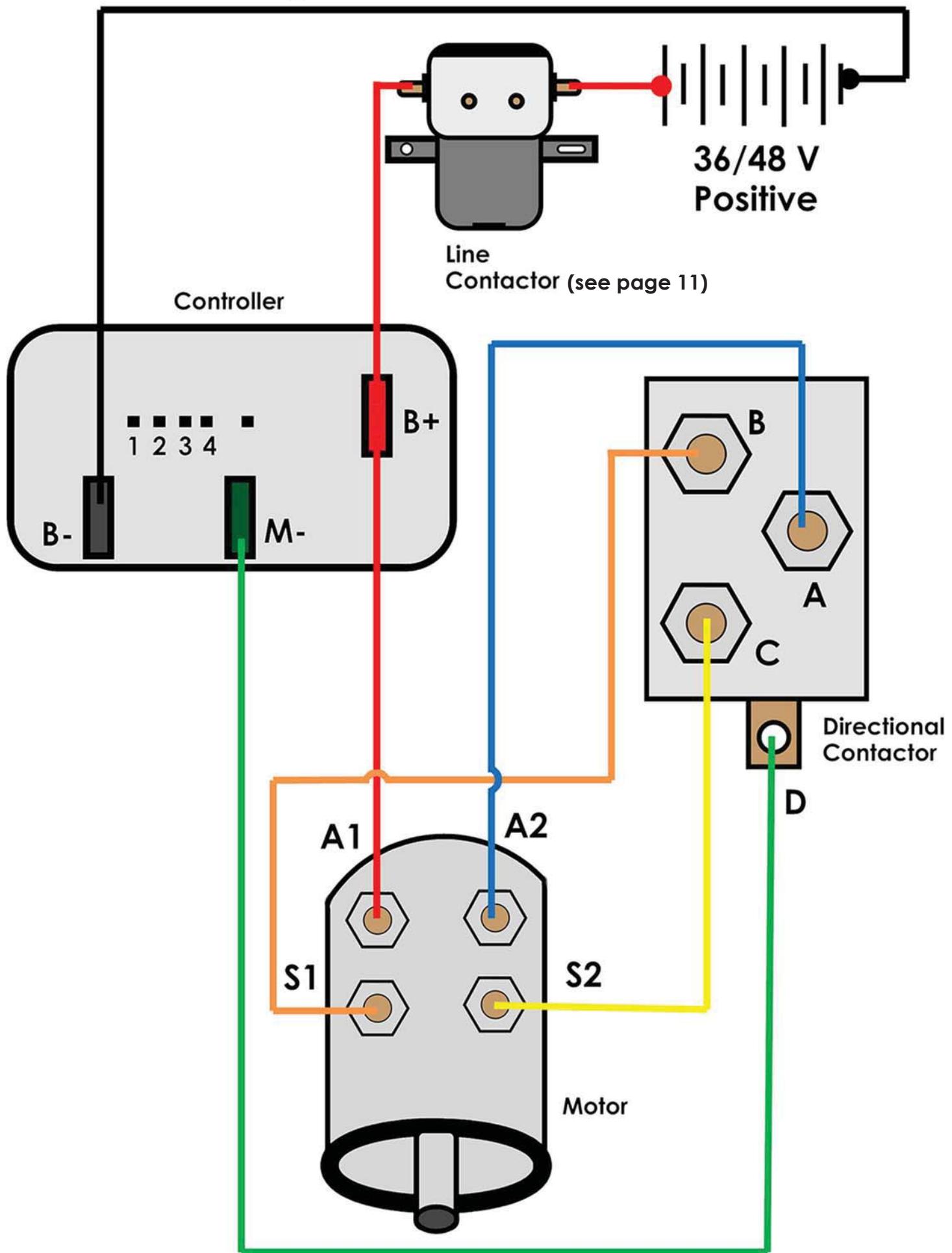
On all other model of cars locate a flat area that will accommodate the line contactor or high amperage controller.

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Golf Cars are recommended for use only by those aged 16 and older. Golf Cars can be especially hazardous to operate. Always remember that riding and alcohol/drugs don't mix. Never ride on public roads. Never carry more than two passengers (except shuttles and trams). Never engage in stunt driving. Avoid excessive speeds and be particularly careful on difficult terrain. Nivel LLC reserves the right, at any time, to discontinue or change specifications, prices, designs, features, models, or equipment without notice and without incurring any obligation.

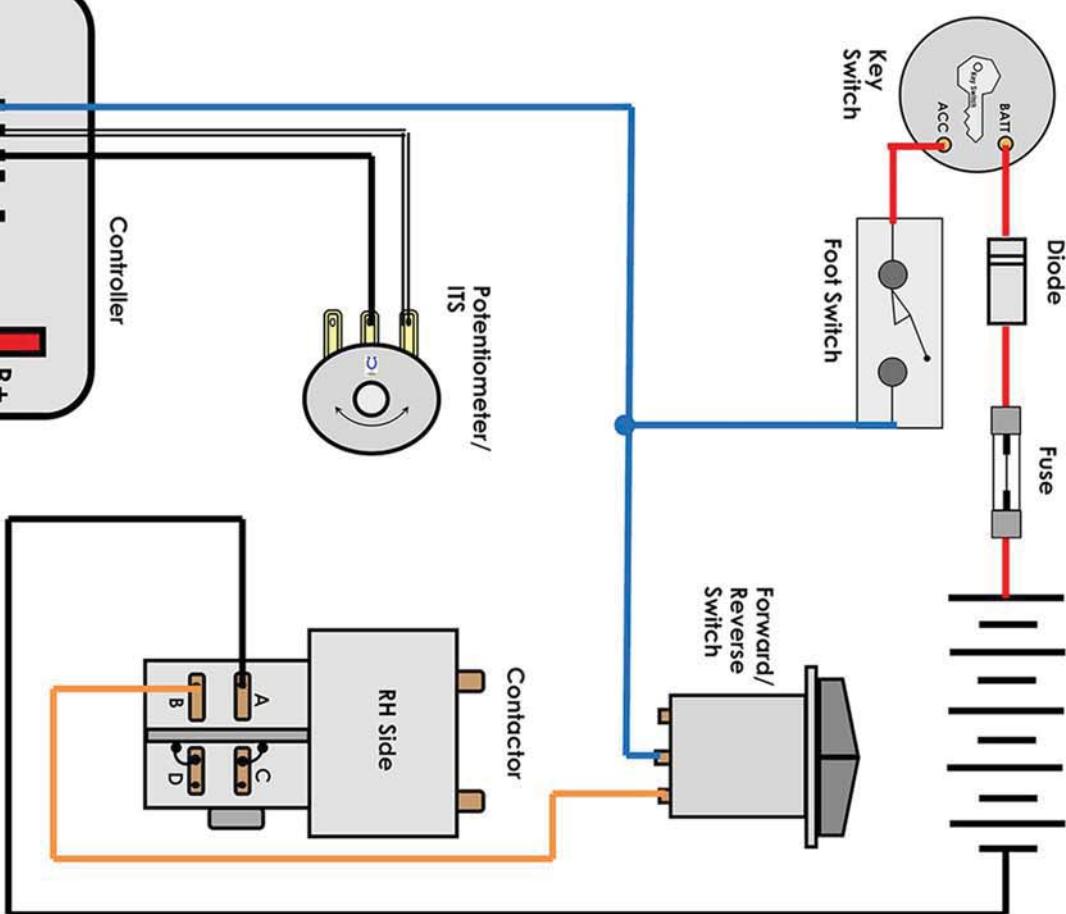




5092 Activation Wiring

View One

36/48 Battery Pack

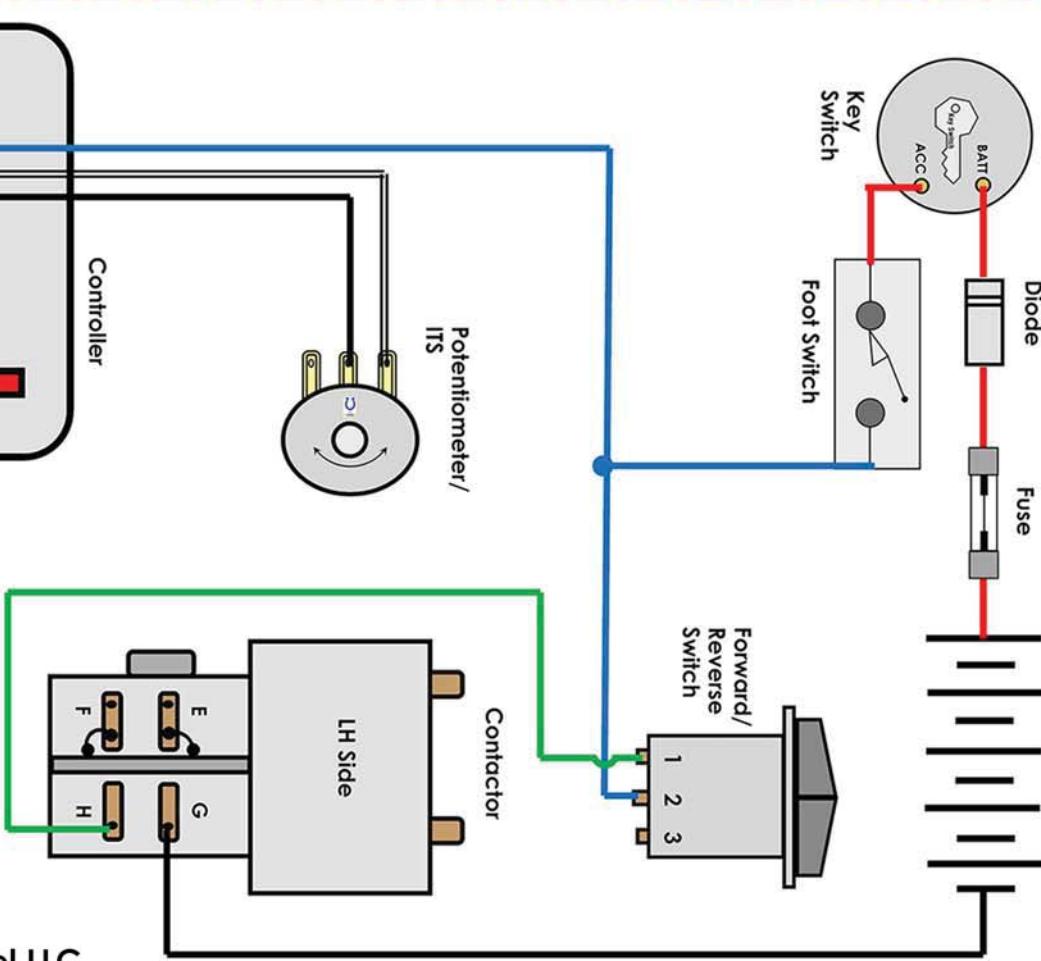


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5092 Activation Wiring

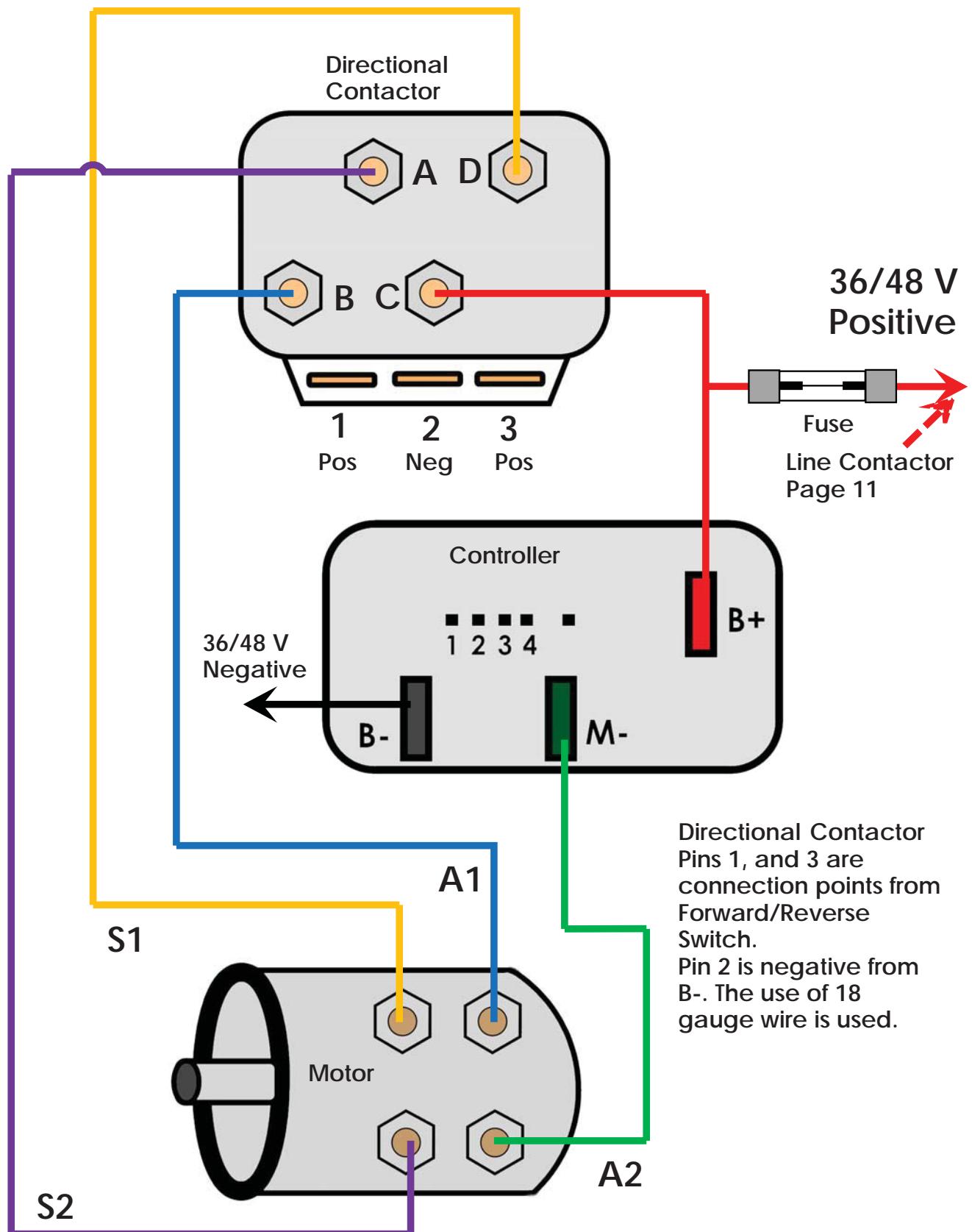
View Two

36/48 Battery Pack



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Directional Contactor Wiring 5091



Activation Wiring For 5091 Contactor:

The system consists of a Key Switch, Fuse, Diodes, Accelerator Switch, Forward/Reverse Switch, Contactor, Controller, Batteries, and Potentiometer/ITS. Some items are not included in this kit. The listed parts are for identity purposes.

You must have a power source of nominal 36/48 volts. From the positive side of that source connect a positive 18 gauge wire (red) to the key switch. On the other key switch terminal connect a 18 gauge (red) wire to a 10 amp fuse. From the other side of the fuse connect a 18 gauge wire (red) to the anode side of one of the diodes included in this kit. Anode side is the solid black end. On the other end of the diode (white band cathode) connect a 18 gauge (red) wire to the COM side of the accelerator switch (foot switch). On the NO side of the accelerator switch connect a 18 gauge (blue) wire to pin one on the controller and the center terminal on the F/R switch. From either F/R terminal NO side connect a 18 gauge (orange) wire. Route the orange wire to one of the outer terminals on the contactor (does not matter at this point which one). On the other F/R NO terminal connect a 18 gauge (green) wire. Route the green wire to the other outside terminal on the contactor. On the center terminal on the contactor connect a 18 gauge (black) wire and route it to battery negative or B- on the controller. You can call the orange wire pin one on the contactor. Pin 2 can be called negative black wire. Pin 3 can be called the green wire. Caution: pin 1 and 3 are positive connections, and pin 2 is a negative connection! The pins are .250" male spade connectors.

Locate the car's potentiometer or ITS. If the car is a 2 wire potentiometer connect a black 18 gauge wire to the center terminal. Route this black wire to pin 3 on the controller. From the controller pin 2 route a white wire to the potentiometer low side. Make sure you have the correct wipe before soldering. Test from the potentiometer center terminal to one of the outside pins that give you a 0 to 5K resistive wipe. Use 18 gauge wire. For 3 wire 5K to 0 wipe use the center pin and outer pin that creates a 5K to 0 resistive wipe.

For cars using an ITS (Inductive Throttle Sensor) connect a 18 gauge black wire to pin 3 and a 18 gauge white wire to pin 2. On the ITS just pick a terminal it does not matter.

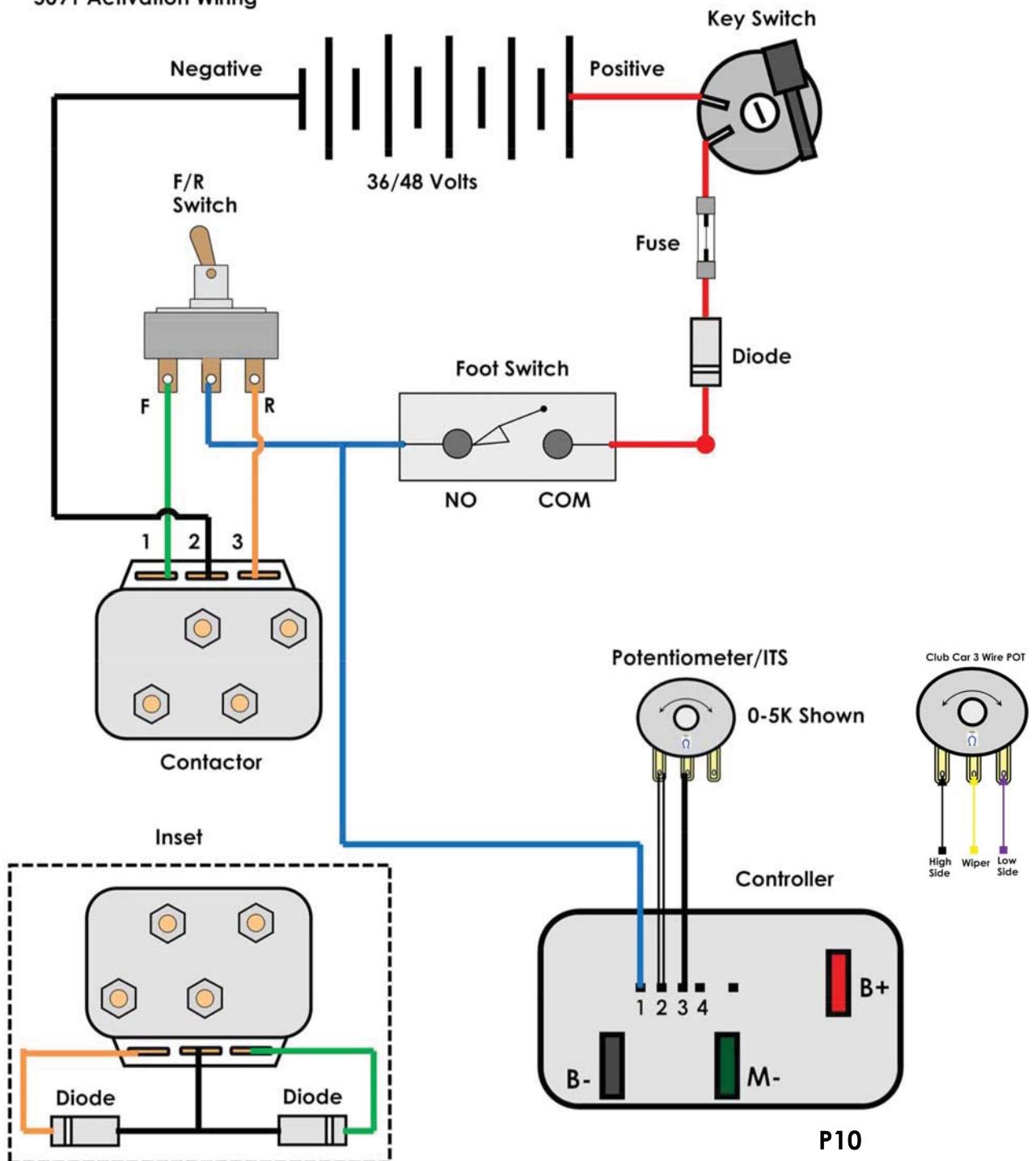
In the event the car runs in reverse instead of what you consider forward just reverse the green wire with the orange wire.

Diode connections on the contactor. Connect black 18 gauge wires to the anode (black end) of two diodes. Route those two wires to the same 18 black wire that connects to the center terminal on the contactor. Put all three wires in to one terminal and crimp. On one of the diodes (cathode end/white band) connect a green 18 gauge wire and connect to the green contactor wire. From the other diode (cathode/white band) connect a orange wire to the contactor orange wire. Use a connector large enough to accommodate both orange wire or both green wires. See inset on diagram.

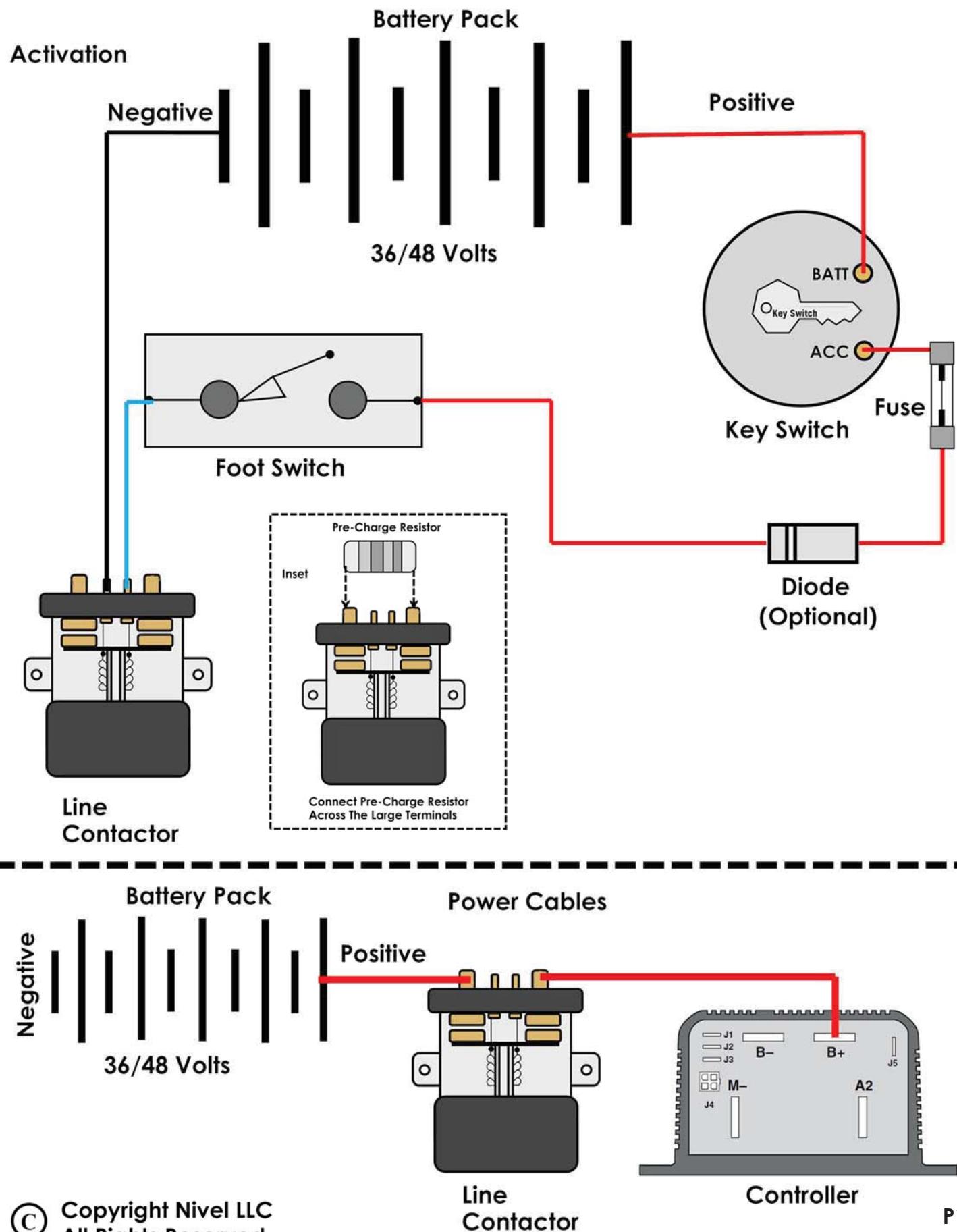
Note: if connecting any accessories on the key switch you must use a relay.



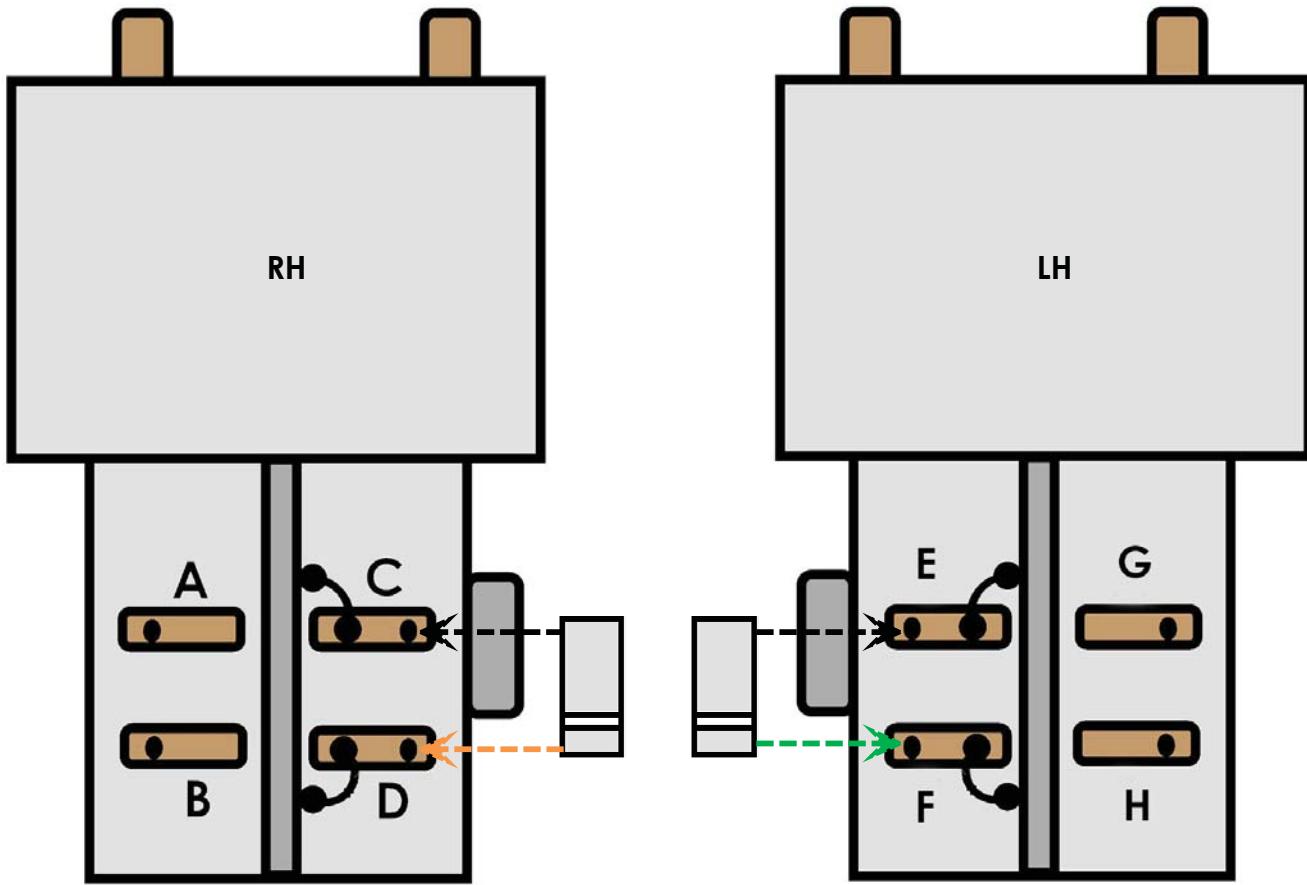
5091 Activation Wiring



Line Contactor Wiring



5092 Diode Placement



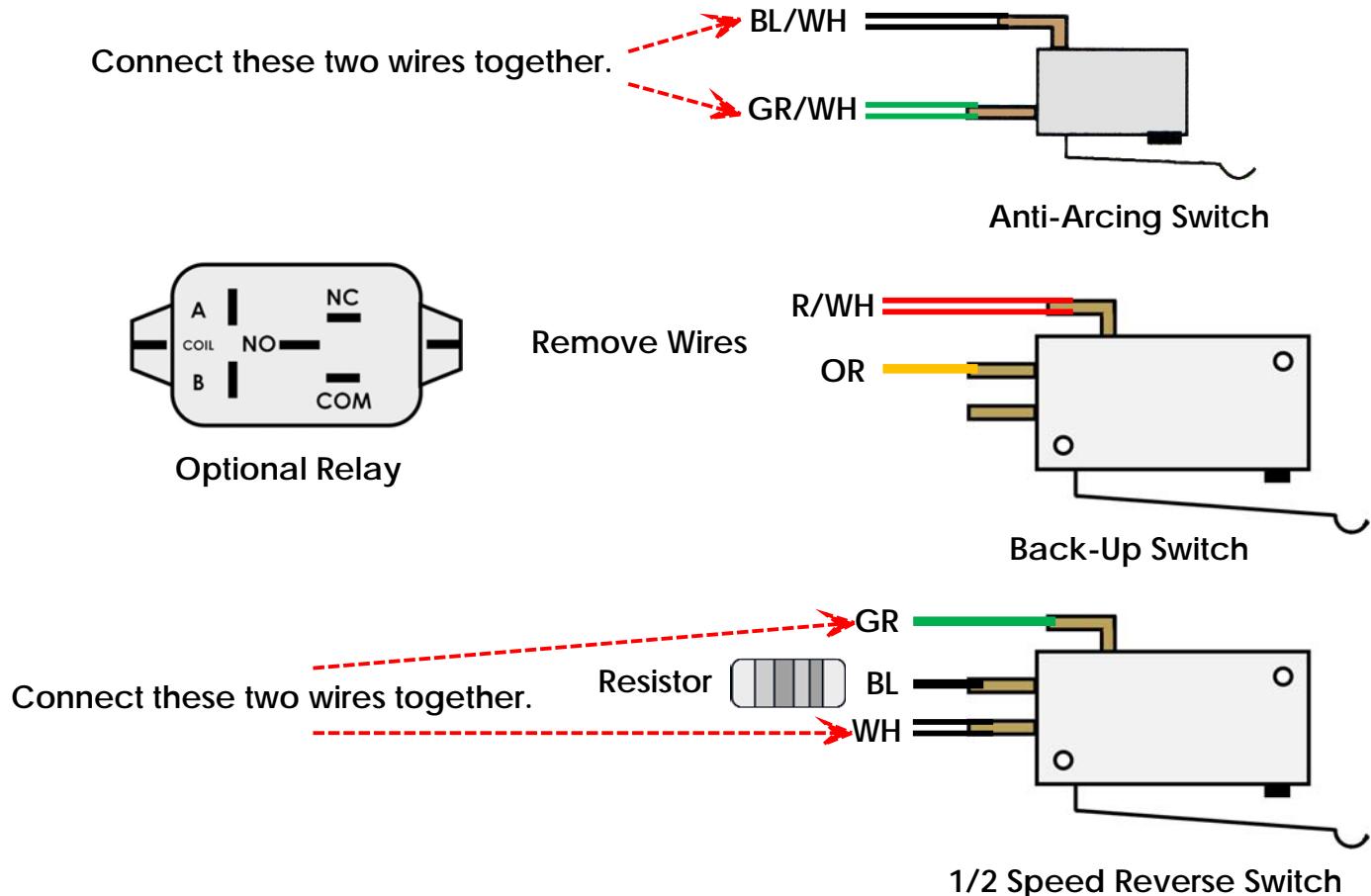
Diode placement is a critical connection point. Attention to wire connection must be performed. Notice the diode has a white band on one end. This is called the Cathode end. This is the connection point for battery positive. On the RH side of the contactor connect the orange wire to the Cathode end. On the LH side of the contactor connect the green wire to the Cathode end.

As you can see RH side is marked D and LH is marked F.

Negative input is connected to the Diode end that is solid black. This is called the Anode end. Connect black negative wires to E terminal LH side and connect to C on the RH side.

Caution: failure to make correct connections will cause damage to the circuit!

Club Car Switches



Remove wires from all the switch's. Store switches for later use or throw them away. Connect the Black Wire With White stripe to the Green Wire With White stripe that was on the Anti-Arcing Switch. Connect the solid Green Wire to the solid White Wire that was on the 1/2 speed reverse switch. The black wire just tape it up.

For a Back Up Alarm connect the Orange and Red Wire with White stripe and the solid Orange wire to a normally open set of contacts on a relay.

For relay activation connect a negative to one of the small terminals. On the other small coil terminal connect a wire from the reverse wire either on the Switch or Contactor.

If you would like the 1/2 speed reverse option use a relay that has a single pole double throw design. Connect the Green wire to terminal NC and the White wire to terminal COM. Connect the Black wire to terminal NO. Connect one of the small coil terminals to negative and the other small coil terminal to the reverse wire on the Switch or Contactor.

Single Pole Double Throw Relay = T9AP5D52-48 Potter&Brumfield (48 volt).
Single Pole Double Throw Relay = T9AP5D52-36 Potter&Brumfield (36 volt).



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