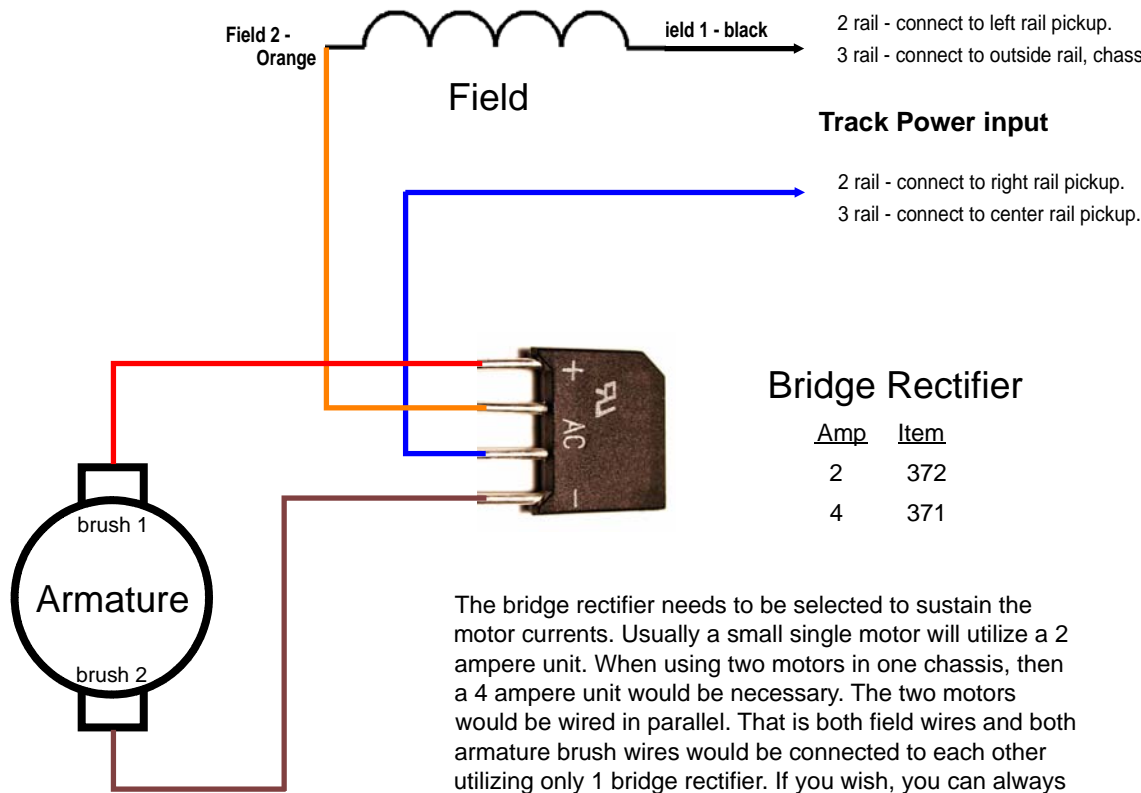


Converting a Series Motor to operate on DC track power.

While a universal / series AC motor will operate on DC power, it will not reverse direction with a change in the motors power. This is why an E-Unit is utilized when operating the motor on AC. When operating on DC it is generally preferable to reverse the motor with the polarity changes on the track instead of utilizing and E-Unit. It is a simple task to change a universal / series AC motor to operate with directional DC power. While some prefer to operate on DC, it is imperative to do so

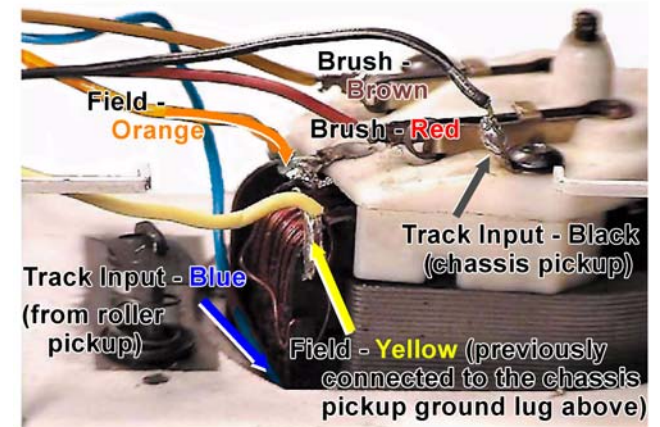
when utilizing some DC type back-n-forth products. This also yields a much better, definitive, directional control of the trolley or locomotive in operation since interruptions of track power from dirt are no longer an issue when setting the direction of the motor. The following instructions were made as a general reference for doing such a change. The wire colors are only used for reference and in general do not reflect the wires found in any particular locomotive. Other pictures were added to help in identifying these items in your locomotive.



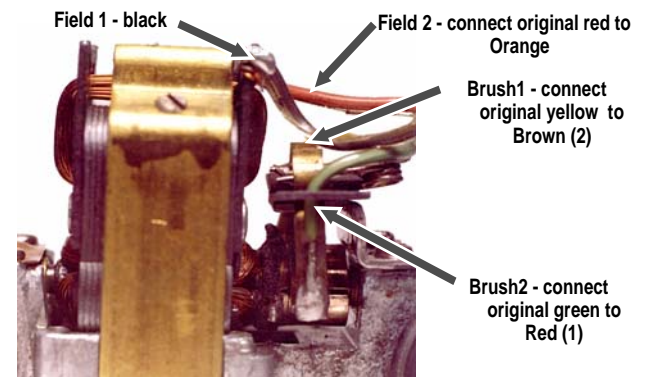
The bridge rectifier needs to be selected to sustain the motor currents. Usually a small single motor will utilize a 2 ampere unit. When using two motors in one chassis, then a 4 ampere unit would be necessary. The two motors would be wired in parallel. That is both field wires and both armature brush wires would be connected to each other utilizing only 1 bridge rectifier. If you wish, you can always use just one bridge rectifier for each motor.

If the engine runs in the opposite direction from desired, simply reverse the brush wire connections.

Help for Lionel series motors. This picture shows where the grounded field wire is located. Colors indicated are those that match the wiring diagram and not the locomotives existing wires.

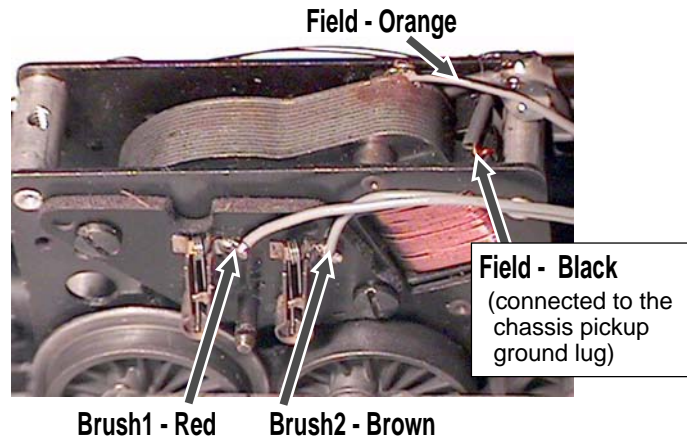


Help for Am Flyer series motors. This picture shows where the wires are normally terminated. Colors indicated are those that match the wiring diagram and not the locomotives existing wires.



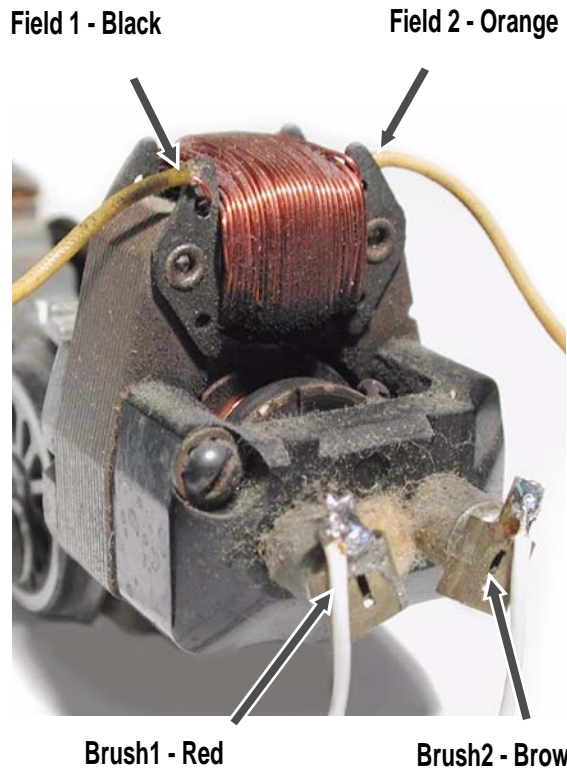
Help for Lionel series motors. These pictures show where the grounded field wire exists. Picture is early Lionel. It is always better to add a ground wire to both outside rail pickups and the chassis. When more than one center roller is available always connect to both.

Colors indicated are those that match the diagram and not the locomotives existing wires.



Help for Am Flyer series motors. This picture shows where the wires are normally terminated. Colors indicated are those that match the diagram and not the locomotives existing wires.

Original type series motors.



Newer type series motors. Make sure the ground / chassis plates **do not** touch the brush motor tabs.

