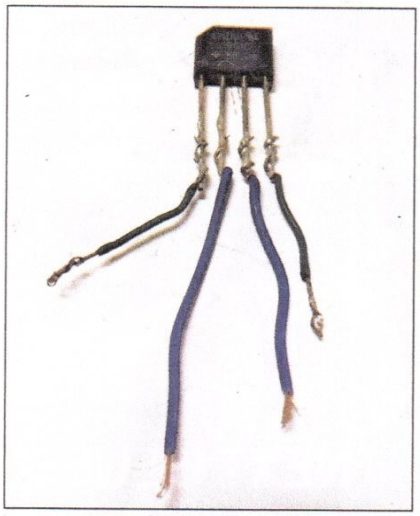
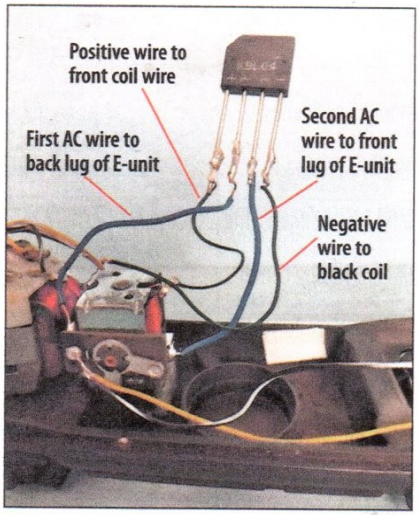
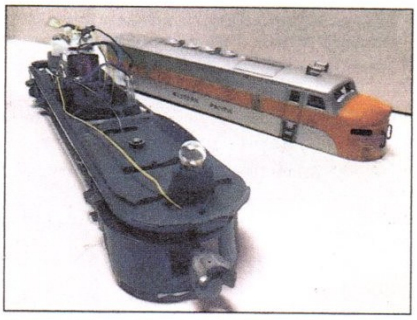
Classic Toy Train Article for Bridge Rectifier



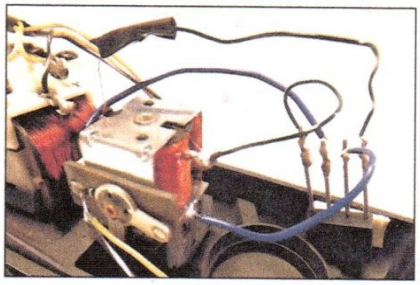
Paul used a 400V single-phase bridge rectifier for this project.



Colored wire will help make sense of the connections to the reverse unit.



Lionel's O gauge diesel models from the early modern era tend to have more space for the installation of a rectifier than did its steam locomotives.



Take time to perform a functional check of the reverse unit and the rectifier before you attach it to the frame.

Installing a rectifier – close up

REDUCE REVERSE UNIT NOISE

Back in the September 2009 Tips column, we ran a piece from Bob Del Castillo on installing a rectifier in an electronic reverse unit to reduce noise. This has proved to be the most frequently referenced reader tip we've run. We asked Tips contributor Paul Ullrich, who used Bob's suggestions to equip several of his O gauge locomotives with rectifiers, to take another look at the process. Thanks to both Bob and Paul. – Editor

To accomplish this project, I used a 400V single-phase bridge rectifier, which I ordered from an electronics parts store. They cost $2.49 each, but I ordered so many that I got a bulk discount!

I wrapped wires about 4 inches in length onto each end of the rectifier's metal rods and soldered them. You can use either solid-core wire or braided wire, depending on your preference. I find solid-core wire easier to solder, but braided wire is more flexible and easier to maneuver in tight places.

I chose a Lionel modern-era F-unit diesel equipped with one motor for installing my first rectifier, because it had the noisiest reverse mechanism (E-unit) I've ever heard, and there was a lot of empty space inside the shell.

First, I disconnected the coil wires attached to the lug on each side of the E-unit. I soldered the positive (+) wire to the back lug and the negative wire (-) to the front lug, but it really doesn't matter which one goes where.

Next came the second and more challenging part. I had to disconnect the coil wires attached to the lugs on each side of E-unit. Those wires were extremely short, and if I broke one off, well, good luck trying to find it!

Once I got them out I made life easier by attaching some 22-gauge wires to them to extend their length. I soldered those extensions to each one of the two AC leads on the inside of the rectifier (the ones marked with the two squiggly lines).

I carefully turned the rectifier upside down and attached it to the frame using the model railroader's secret weapon – Scotch brand double-sided foam-backed picture-mounting tape. I insulated the bare wires with either short pieces of electrician's tape or heat-shrink tubing.

I recommend applying this project to models of diesel locomotives only. All Lionel postwar and early modern diesels have enough space to hold the rectifier and the mess of wires used to connect it to the E-unit. The steam locomotives have notoriously tight spaces, and you'll risk breaking off one of the delicate wires if you try to stuff the rectifier into a place where it doesn't want to go. – *Paul Ullrich*

HAVE A TIP OR TECHNIQUE TO SHARE? Write "Tips" on your letter and mail it to Classic Toy Trains, P.O. Box 1612, Waukesha, WI 53187-1612, or email us at tips@classictoytrains.com and put the word "tips" in the subject line. We'll pay you $25 for any tip we publish unless it was contained in a previously purchased article.