

## Aggiornamento Tecnico Repowering the Lima N Scale E424

by Blaine Bachman

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Studying the Lima E424 I quickly discovered that the distance between the axles and the distance between bogie centres were nearly identical to that of the Kato/Hobbytrain Re 4/4<sup>1</sup>, an excellent runner which can be found second-hand for as little as \$50 US. I quickly formulated the idea of combining the most desirable elements of these two models - the Kato mechanism and the Lima body shell - to realise yet another locomotive able to pull trains with the operating realism to which I had become accustomed.



I accept that to many, the latest-production Lima are considered good runners, and they certainly are much better than the earlier examples, but they still aren't up to the stature of Kato or the German manufacturers. Before sacrificing one of these late model mechanisms, you may want to strike up a trade with a fellow modeler who, though 'cursed' with a stable of the earlier E424s, is unwilling to implement the drastic measures I am about to describe.

As with all how-to articles, I urge you to read this one from beginning to end a couple of times and to gather the needed tools and materials before you start.

### Prepare the Kato Mechanism:

To begin, remove the body shell from the Re 4/4<sup>1</sup>; this is easier done than said. If you have had the occasion to disassemble a Kato EMD F-7, the procedure will be familiar. Obtain four toothpicks. Carefully insert a toothpick between the plastic shell and the metal mechanism at each of four locations corresponding roughly to the inboard wheel of each bogie. With the invisible locking tabs thus separated from their respective slots, you can gently remove the mechanism.

Once the body shell is safely set aside, pry off the plastic mechanical box that hangs between the bogies. Then, loosen the two screws just enough to allow the bogies to drop free; set the mechanism aside, well away from the working area so that little bits of flotsam and jetsam don't end up inside. Using a hobby saw, remove the side frames, pilot ploughs, and coupler pockets from the bogies by cutting through the plastic along the outermost edge of the metal inner frame. (If you are convinced that bogie-mounted couplers are the best choice, you may want to avoid removing the coupler boxes, however a change to a longer-shank coupler will likely be necessary.)

### Salvage the Needed Parts from the E424:

Turning to the E424, disassemble the locomotive and set the body aside. Remove the bogies from the underframe and cut the side frames off. Reduce the thickness of the side frames as described in my previous article on repowering the Lima E444.

Depending on the vintage of your E424 shell, you may find a plastic tube designed to house a mounting screw protruding from the centre of the roof inside the shell. This intrusion is easily removed with end-cutting pliers. I found that it is also necessary to remove the clear plastic glazing piece. I used Microscale's Micro Krystal Kleer (or high-vinyl-content artist's gloss medium) to add flush-fitting "glass" to the shell. You could also replace the windows with suitably-sized pieces of clear plastic carefully glued in place.

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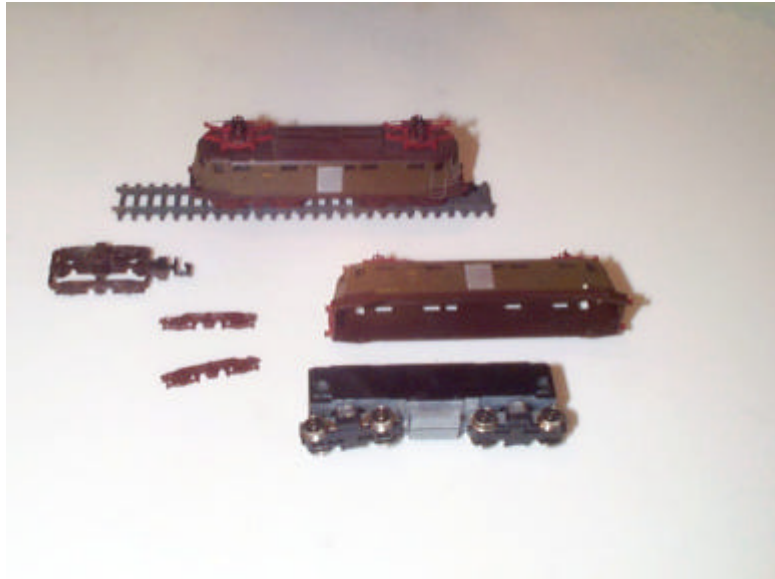
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### Assembling the "Puzzle":

You now have four side frames to glue onto the Re 4/4<sup>1</sup> bogie mechanisms. It's best to do this with a quick-setting two-part epoxy as it will give you time to get everything perfectly aligned and fill any voids, and it provides a fairly strong bond that will resist all but the most persistent abuse.

Once the epoxy has set, test everything. Roll the bogies by hand on a piece of track and verify that nothing rubs. Remount the bogies to the mechanism and test under power for proper operation through curves and points. When you are satisfied with the results, move on to the next step.



As the body shell is longer and slightly wider than the Re 4/4<sup>1</sup> mechanism, a mounting system will have to be devised. I found that a couple of strips of 0.010" plasticard glued along the inner surface of the side walls and flush with the bottom edge took up the gap nicely and provided a ledge to engage the two small protrusions on the side of the mechanism. Experiment with the plasticard thickness as it appears that the inside dimension of the shell may vary from one example to another. Glue these shims in place with liquid cement for plastics and let them dry.

Trial fitting the shell, note where to add additional pieces of plastic to prevent the mechanism from sliding end to end within the shell. Glue those in place allowing a tiny bit of play so that the mechanism can be removed for servicing. I also cut and mounted trapezoidal pieces of 0.080" plasticard under the cabs to contain the light and to provide a location for mounting my preferred body-mounted coupling system.

Put a coat of flat black on any of the bare metal or plastic surfaces that are visible from a normal viewing angle. Do not paint the surfaces where the metal bogie inner frames touch the metal mechanism - this is where the electricity is conducted from the wheels to the frame and thence to the motor.

### In Conclusion:

Affix your preferred coupling solution to the body shell using whatever odd bits of plastic may be necessary. As the Re 4/4<sup>1</sup> mechanism has directional lighting, you may want to provide a sort of light baffle around the cab windows and direct the light to the headlights using fibre optic strands or some other solution. (There's also plenty of room inside for a Digital/DCC decoder!)

Now place your E424 on the track, back onto a string of pitched-roof Gs vans, test the air pressure, and gently pull out onto the main. You and your 1:160 freight customers will be pleased with the gentle handling.