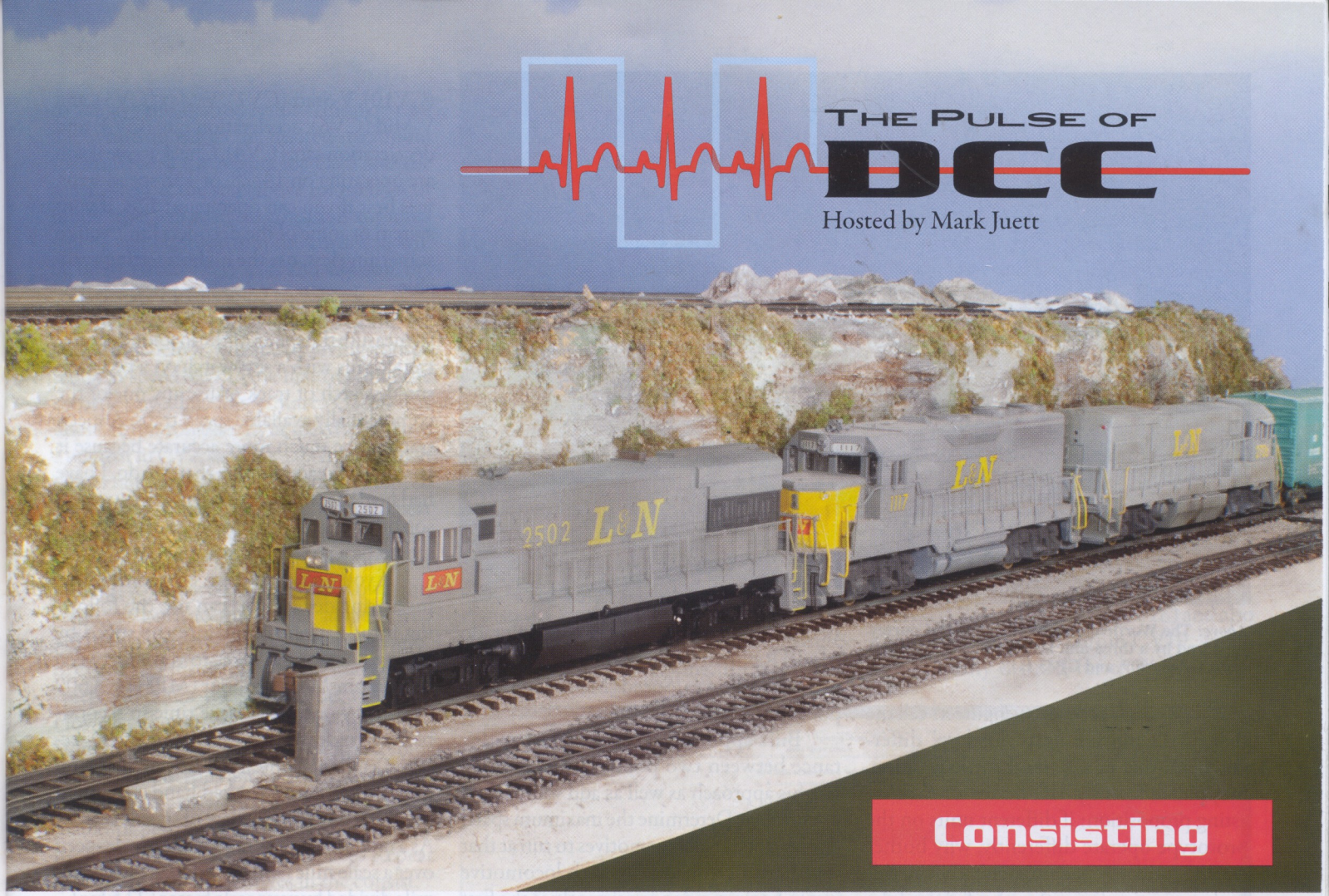
THE PULSE OF DCC

Hosted by Mark Juett



Consisting

This month's column is in answer to an e-mail by Ronald Kayan, who had some questions about setting up consists.

Consisting, multiple-unit lash-up, MUed, double-headers — regardless of what you call it, is the practice of using more than one locomotive on longer and heavier trains and has existed for a long time. On the prototype, this began during the steam era. The railroad would have two locomotives ready to haul tonnage, and each required their own crew of a fireman and engineer, although you also needed one conductor, a head and rear switchman, a couple of brakemen, and so forth. Sometimes two units were on the head end (a double header); other times a train required a pusher just to get over a long, steep hill.

When wood-frame cabooses were in use, the pusher had to be cut in ahead of the caboose because the stress on the caboose frame resulted in damage or even catastrophe if the forces were too great. When modeling this scenario, we usually have two engineers — each with a throttle and each in control of one locomotive. It makes for interesting operations and creates another job for a pusher crew. From my experience, I can tell you it is great fun!

As manufacturers developed diesel-electric units, MUing became possible — connecting two or more locomotive together whereby the traction motors on all units are controlled from a single controller. This reduced labor costs for the railroads and used fewer crews to move more tonnage. We MU on our model railroads by consisting single units together under the control of one engineer using one throttle. Another type of MUing was Locotrol and Locotrol II mid-train helpers — several railroads used this technology refining it by the later 1980s. When modeling, mid-train helpers can be used; however, if the locomotives do not operate smoothly or are not working together, you can cause a derailment.

We have an understanding of why the prototype MUed units. Our reasons to do so may be the same as the prototype. More power is needed to move a loaded ore or coal train over a hill. I have seen several modelers go to great lengths to recreate these situations by adding cars to trains, adding weight to cars, and even disconnecting the drive line to one set of trucks so that a locomotive had half the pulling power. If there is not an actual need for more motive power, we may just want to model our prototype that ran several units together. In either case, we need to know how to consist units using DCC.

Before we try to join our locomotives in a consist and operate our new MUed set, we need to speed match them so that they perform well together. That is, we want them to move together as one unit, not pulling and bucking against one another too much. If you have a matched set of locomotives such as an A-B-A set of F units, E units, FA units, PA units, or any matched locomotives by the same manufacturer, this is much easier than getting dissimilar units to work together. Then again, even units of the same model from the same manufacturer may not work well together. Some units run faster in one direction than the other, and some speed matching may be necessary.

The prototype that I model had no favorites; Louisville & Nashville often mixed units from Electro-Motive Division, General Electric, and Alco and ran them MUed together. It was not uncommon to see F7s with RS-3s or U25–Bs with GP30s, C-420s, or even an SD35 in the consist. Some of my