Jacobsen Supplemental Declaration Exhibit E

Marklin Z-scale Pre captures Commodore's Spirit

Model Railroad NEWS

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The All-Scale News Monthly

Aristo brings LIVE STEAM to the Garden!

New Series!

Project DCC moves modelers into 21st century

$4.95 US/CANADA

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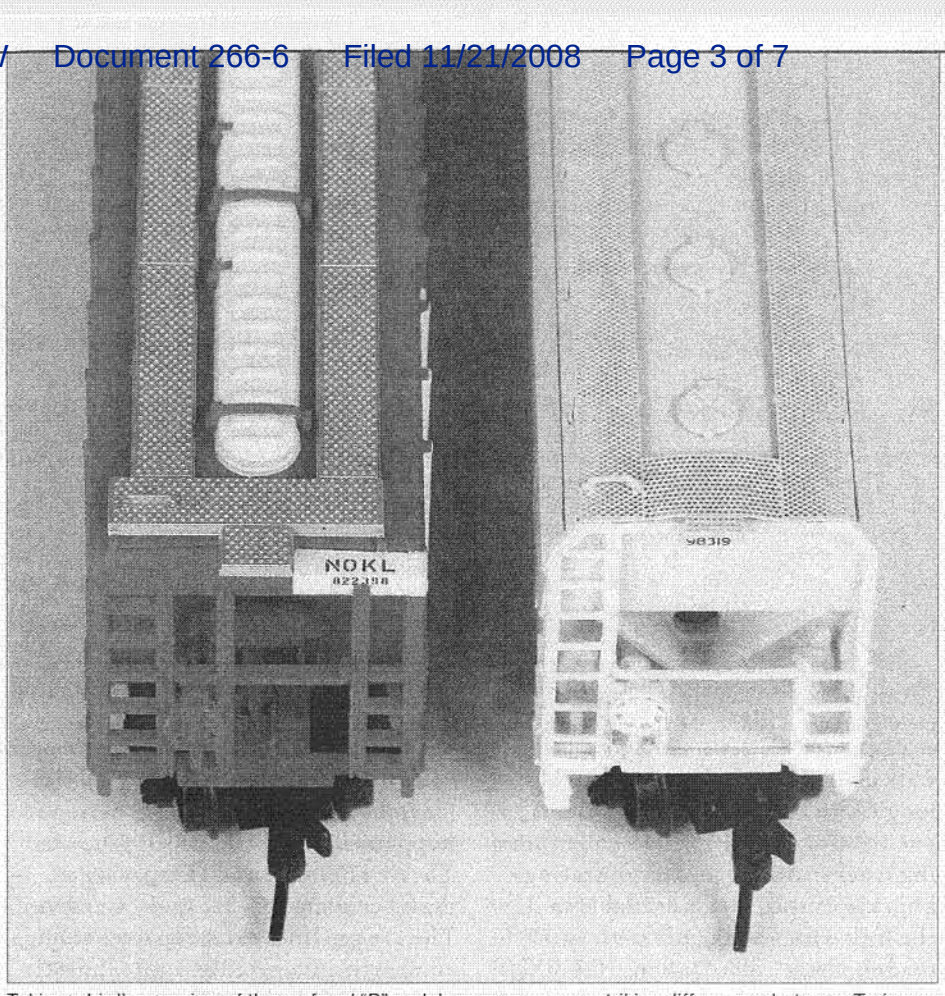
all major dimensions and spotting features.

The wheel sets on both cars were correctly gauged, when measured with the NMRA Mark IV standards gage. These cars use one-piece wheels and axles, molded in brown plastic. They negotiated the popular brands of Code 80 track, but had trouble on Atlas Code 55 track; the flanges tended to chatter when rounding curves. This problem was not observed with Code 55 track from Micro Engineering and Peco.

The AccuMate coupler and trip pin height matched the Micro-Trains coupler height gauge perfectly making mixed operations between Atlas N and Micro-Trains couplers possible.

NMRA Recommended Practice RP-20.1 covering car weight specifies that N-scale cars should weigh ½ oz. + 0.15 oz. per inch of body length. Both Atlas cars were a bit light: the Thrall car, which should weigh 1.1 oz., weighed in at 1.0 oz. The ACF car tipped the scales at 1.0 oz. when the NMRA RP says it should weigh 1.2 oz.

Atlas does not include an exploded parts view or parts listing with either series. According to Atlas customer support, rolling stock comes with a 90-day warranty against manufacturing defects.



Taking a bird's-eye view of the roof and "B" end, here you can see striking differences between Trainman Series (left) and Master Line Series (right) series. Trainman roof walks are molded plastic while Master Line roof walks are etched metal. Also note the difference in thickness of the ladder rungs and supports between the two cars. Both the Trainman Series and Master Line Series cars include brake details, access ladders, and fine printing.

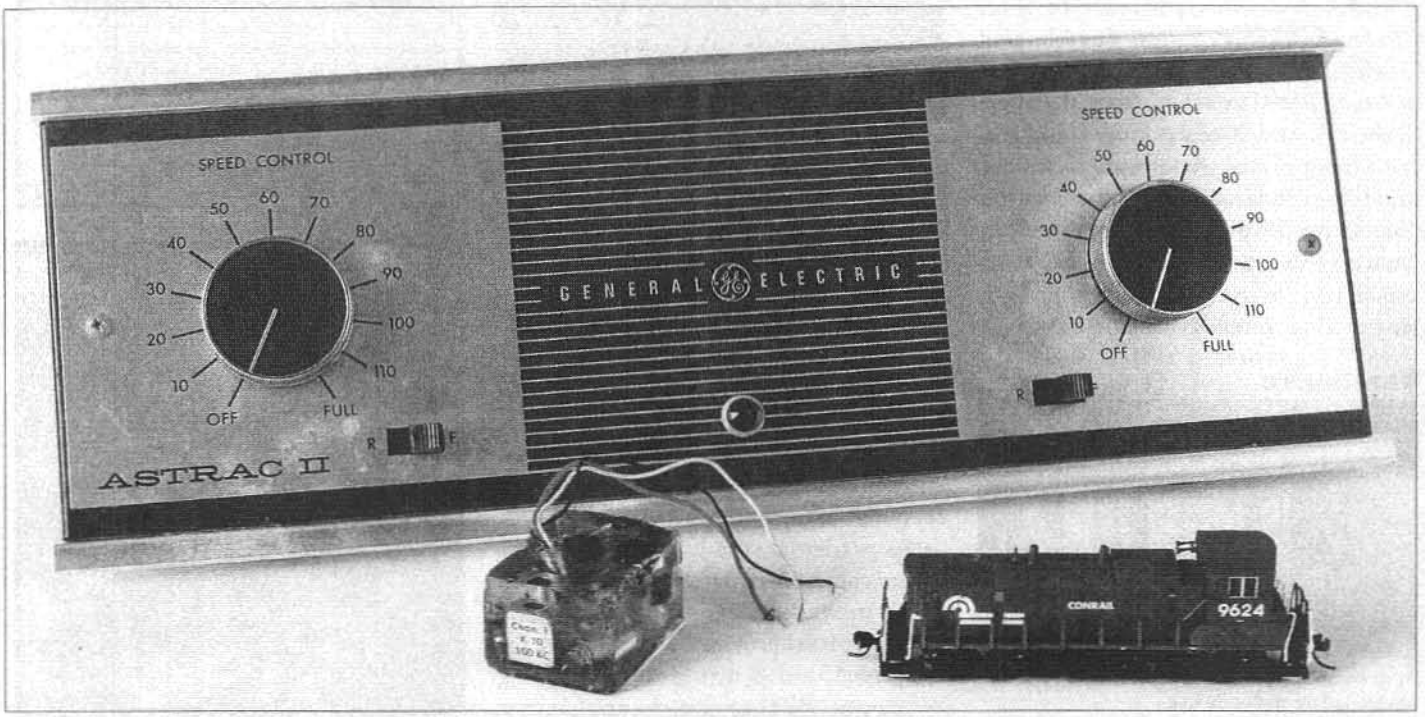
Closing Thoughts

The new additions to Atlas' Trainman Series and Master Line Series are fine-running and good looking. Both authentically reproduce their prototypes, albeit to differing levels of detail. Whether you have a small layout, a basement empire, or belong to a club, the Atlas Trainman Series allows your rolling stock roster to grow quickly without wiping out your hobby budget. For those that like to showcase their favorite train, I suspect you'll opt for the highly detailed Atlas Master Line Series. The wealth of detail on these cars makes up close and personal viewing a rewarding experience. In any case, both series offer numerous cars to choose from, making it easy to fill up your yards with prototypes in miniature.

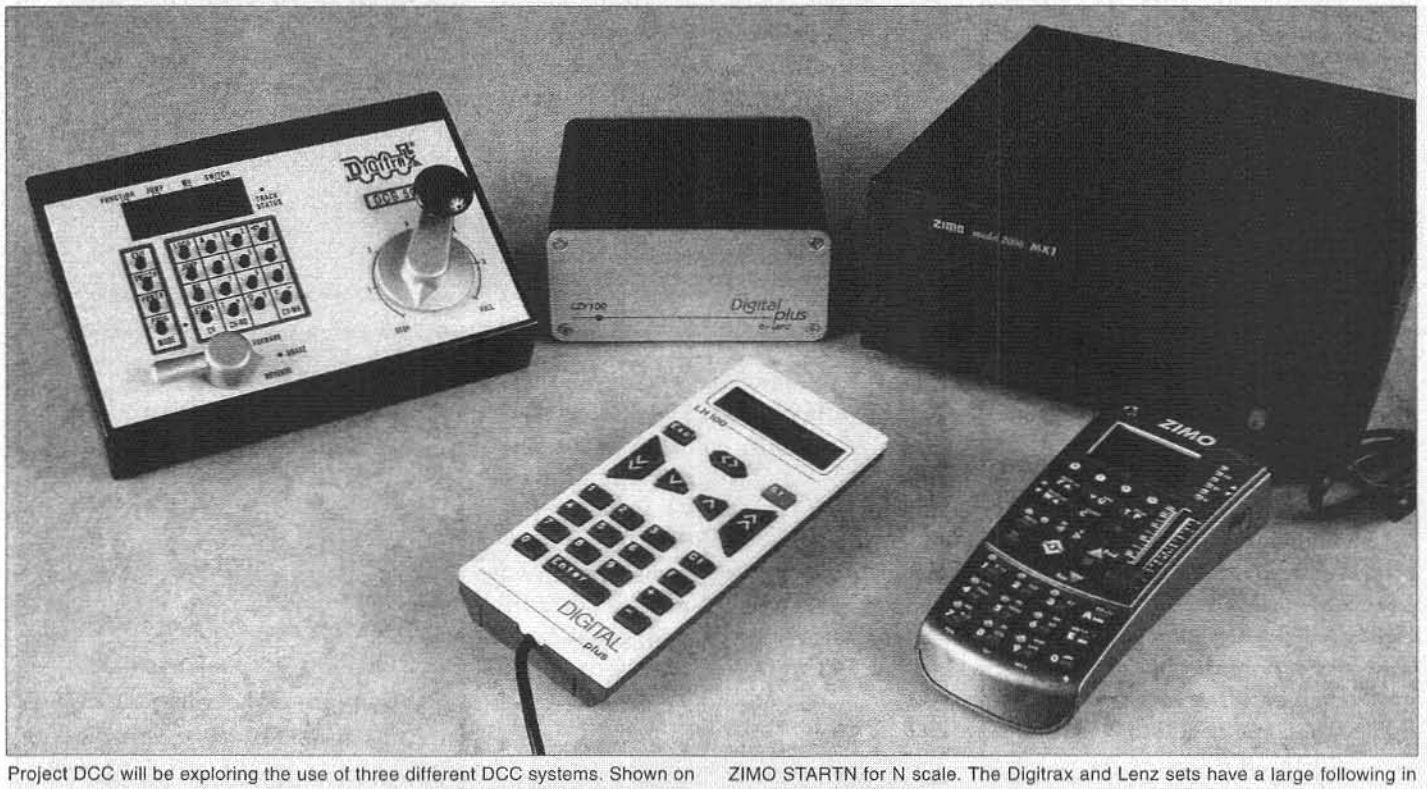
PROJECT DCC PROJE

Integrating Operation and Automation — Part 1, Project Introduction — By Phil Scandura

My fascination with command control began in 1971, after reading about General Electric's ASTRAC system in the *Complete Book of Model Railroading* by David Sutton (published by Castle Books in 1964). ASTRAC stood for Automatic Simultaneous Train Control, and could control up to five trains at one time by sending simple radio signals over the rails to receivers installed in the locomotives. Although the ASTRAC sys-



The first commercially available command control system, General Electric's ASTRAC system was introduced in 1963. ASTRAC stood for Automatic Simultaneous Train Control, and could control up to five trains on the layout at one time. Shown here are the K-2 control unit and a "micro" receiver intended for HO scale and larger. Although N scale was not around yet, the locomotive is included here as a size reference. Considered to be a system ahead of its time, ASTRAC would never see true commercial success and was taken off the market only a few years later. Believe it or not, there are still users of this system today!



Project DCC will be exploring the use of three different DCC systems. Shown on the left is the Digitrax Zephyr, in the middle the Lenz Set-100, and on the right the ZIMO STARTN for N scale. The Digitrax and Lenz sets have a large following in the US; the ZIMO set is more commonly found in Europe, especially in Germany.

Figure 1 — Project DCC will be using a deceptively simple 10-foot by 10-foot layout, one that includes track features commonly found on most layouts such as crossovers, passing tracks, and stub sidings. As we'll discover later in the series, the crossovers will prove to be its most challenging feature. — Drawing by Christy Halastik, 2008

tem was before my time (it had already been discontinued by the time I read Sutton's book), many years later I would become hooked on Digital Command Control (DCC) after trying it out on Bob Russell's N-scale layout, the Orange Belt Lines. Having built many cab control layouts over the years, what attracted me to DCC was the ability to control individual locomotives without the need for complicated block wiring and control panels. I finally made the switch from traditional DC to DCC in 1999, and while I'll admit to having a few ups and downs along the way, I can honestly say that I'm glad I switched to DCC!

That having been said, I realize that DCC isn't for everyone and explored the question "Are you ready for DCC?" in *Model Railroad News'* Thinking of DCC column (see February and March 2006). In it I addressed various technical considerations and the topic of personal readiness. I closed with the suggestion that while DCC isn't for everyone, it's worth giving it a try. I encouraged readers to visit a hobby shop, club, or friend's layout that uses DCC, get a quick lesson on how to use it and experience the pleasure of running a train without worrying about flipping block switches or overrunning blocks.

Project DCC Goals

In my opinion, individual locomotive control is one of the great joys of DCC. Using the handheld controller, you can command locomotive speed, direction, lights, and sounds as your train progresses around the layout. But DCC offers more than just locomotive control, it offers numerous operational capabilities. With that in mind, Project DCC was created with the purpose of accomplishing the following goals:

- To introduce modelers to the operational capabilities of DCC, beyond the individual control of locomotives
- To provide modelers with the knowledge and confidence to implement as many operational features as they desire
- To demonstrate the ability to create a full-featured DCC layout without the need for advanced technical skills
- To demonstrate systems and products from various manufacturers, exploring the ability to mix and match them on a real layout.

Multi-Part Series

In the next twelve months of *Model Railroad News*, Project DCC will lead you through a phased approach to creating a DCC layout. Beginning with basic DCC features and building upon them through a series of logical additions, you'll learn about wireless control, train detection, signaling, turnout control, automated routing, and computer control. Commercially available "off-the-shelf" DCC products have been used, maximizing the use of plug-and-play products and attempting to lower the "rocket science" factor. While the actual layout will be built in N scale, the techniques introduced in Project DCC are completely applicable to the larger scales (as well as Z scale, once small enough decoders are introduced). So while you're reading Project DCC, be sure to substitute your favorite modeling scale whenever you see 'N'!

Project DCC will be using signal heads from three manufacturers, including Atlas, Digitrax, and NJ International. Other brands could be used instead, depending upon your chosen prototype.

Here's a brief look at the topics coming in the Project DCC series:

• Part 2, Introduction to DCC.

Before we dive into the details of Project DCC, it is important to understand the basics of DCC. Without getting too technical, we'll present a brief overview of how DCC works, as well as the history of DCC.

• Part 3, DCC System Familiarization.

Equipped with the basics of DCC, we'll explore the features and capabilities of the three DCC systems used in Project DCC, including the use of wireless throttles and a quick look at decoder installation. The intent is to provide you with a basic understanding and moderate comfort level with DCC systems.

• Part 4, Layout Configuration.

Here we'll review the track plan used for Project DCC, including a brief primer on signaling that explains the rationale used to choose detection blocks. While a somewhat simple layout, it includes track features commonly found on most layouts such as crossovers, passing tracks, and stub sidings.

• Part 5, Track Assembly, Wiring & Block Detection.

Now we get down to business, assembling the track and performing basic wiring in support of power distribution and block detection. When completed you'll be able to run trains and trigger block detectors in preparation for signaling that comes later in the series.

• Part 6, Turnout Control Wiring.

We'll install the wiring needed to support remote control of turnouts using accessory decoders. Doing so provides the ability to interlock turnouts for route control, as well as automated turnout control via the computer (more on that later in the series). When completed you'll be able to run trains, trigger block detectors, and control turnouts.

• Part 7, Signal System Wiring.

Using the detector blocks already installed, we'll wire up trackside signals, using different methods supported by our DCC systems. When completed you'll be able to run trains, trigger the signal system, and control turnouts.

• Part 8, Integrating a Grade Crossing.

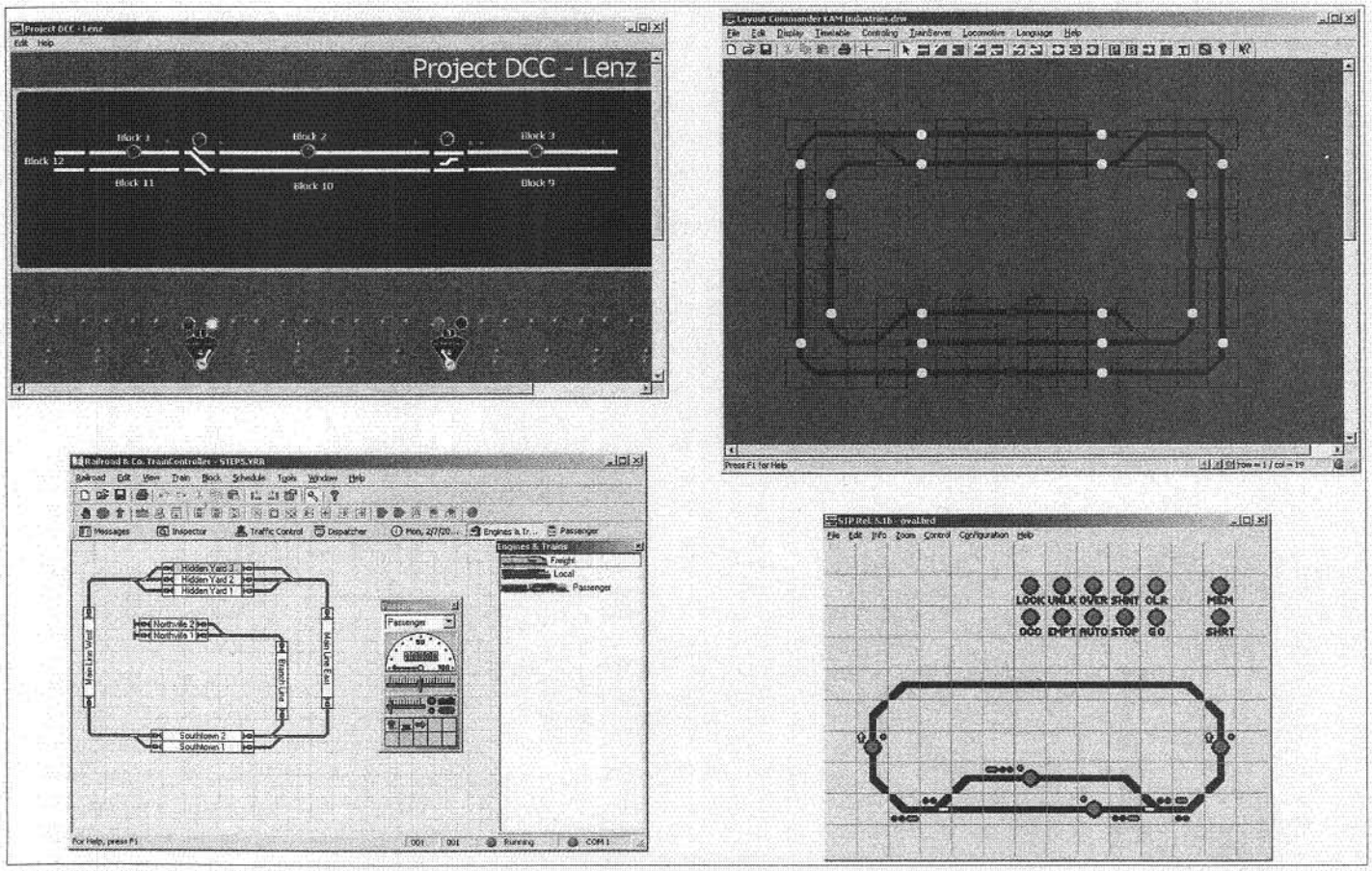
Adding grade crossing signals require the addition of detection blocks within the existing signal blocks. To do so requires special wiring considerations, as well as DCC system configuration changes that we'll explore in detail.

• Part 9, Computer Control Introduction & Familiarization.

Here we take a break from layout construction to explain the use of computer control and how it relates to Project DCC. We'll perform some simple demonstrations to help provide you with a basic understanding and moderate comfort level with computer control.

• Part 10, Manual Computer Control.

Returning to the layout, we'll perform manual operation of our layout aided by various computer features.



Project DCC will be using layout automation software from four manufacturers. Screen shots of each are shown in the collage starting with "Panel Pro" from JMRI Freeware in the upper left, "Layout Commander" from KAM Industries in the upper right, "Train Controller" from Railroad & Co. in the lower left, and "STP" from ZIMO in the lower right. While all provide layout automation capabilities, ease of use and features vary widely. We'll learn more about this as the series progresses.

• **Part 11, Automated Computer Control.**

Based on the manual control concepts already explored, we take the layout to the next logical step by implementing fully automated (hands-off) operation of our layout using the computer.

• **Part 12, Project DCC Review. In our final installment we'll review the highs, lows, and lessons learned during the Project DCC series.**

Remember, you decide how much of Project DCC you're willing to tackle; no one says you have to go all the way. Do only as much as you're comfortable with right now, but keep in mind that you may decide to add more features later, so plan for them now!

Life Before DCC

I would be remiss if I neglected to mention that layout automation has been around long before the advent of DCC. There are various layouts, both private and public (such as in museums), that have been automated using traditional DC control systems, relay logic, and in some instances, computers. These layouts are major achievements in their own right, and *Model Railroad News* recognizes and applauds the efforts of their builders and maintainers. For those die-hard DC fans, it is not my intention to convert you from DC to DCC; rather it is my hope that Project DCC will expose you to alternative ways of layout automation, using the latest in DCC technology.

Numerous Vendors and Products

The success of Project DCC is due to the wonderful support provided by the DCC and N-scale vendor community, providing products and services for use in the project. *Model Railroad News* used a Request for Proposal (RFP) process in which the detailed project description and specific requirements for each feature were provided to those vendors interested in participating. In turn they responded by describing how their specific products and services fulfilled the desired functionality and requirements listed in the RFP. *Model Railroad News* then scored each vendor's response to determine which products best fit Project DCC's requirements and selected those to be included in the project. Vendor participation was invited in the areas of track, DCC systems, decoders & accessories, signal electronics, signal heads, locomotives, and layout automation software. In all, more than 30 vendors were invited to participate, that number was then winnowed down to the companies listed below.

Track
Atlas Model Railroad Co.
Kato USA

DCC Systems, Decoders & Accessories
Digitrax
Lenz
RR-CirKits
Train Control Systems
ZIMO

Signal Electronics
Atlas Model Railroad Co.
Dallee Electronics
Digitrax
Lenz
Logic Rail Technologies
ZIMO

Signal Heads
Atlas Model Railroad Co.
Digitrax
NJ International

Locomotives
Atlas Model Railroad Co.
Kato USA

Layout Automation Software
JMRI Freeware
KAM Industries
Railroad & Co.
ZIMO STP

Coming Next Month

This month I've given you an overview of Project DCC and a taste of what to expect in the months ahead. I hope you'll join me next month as we dive into "Introduction to DCC" where you'll learn the basics of how DCC works and how DCC came about. See you then!