

THE ORDER BOARD

VOLUME 50 NO. 6

DECEMBER, 2022



Tracks Ahead for the Cajon Division

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**February 11-12, 2023 Great American Train Show
Costa Mesa, Ca.**

February 18 Cajon Layout Open House
Joel Morse's N scale New York, Ontario, and Western Railway
(See Page 10)

**March 18-19, 2023 Great American Train Show
Victorville, Ca.**

March 25 Cajon Layout Open House
G&S H0 scale layout (See Page 10)

April 15-16 Model Railroad Festival
Hemet, California (See details page 14)

April 22, 2023 Cajon Division Spring Festival
Buena Park, Ca.

PSR Convention—Arizona Division
Grand Canyon Special - Flagstaff, Arizona
June 7—11, 2023

Website: PSR2023Convention

August 4—11, 2024
NMRA National Convention Surfliner
2024
Long Beach, Ca.

Those interested in helping should
contact Convention Chairman



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From The Caboose

Harold Helland
Cajon Division Director



As we approach the end of the year, I want to wish everyone a healthy and happy Holiday Season. Hopefully you will find 2023 to be another great year.

Looking back on 2022, I find that the Cajon division had a pretty good year. We started the year with the inception of Cajon Connection which was a Zoom meeting which broke up into three sections, including electronics, operations, and scenery. The electronics section focused on track wiring, lighting and Arduino driven action. The operations section provided the opportunity to share information about traffic control, and car movements. The scenery group covered different methods of developing and building realistic scenery. Scenery starts with the planning of your model railroad. Scenic decisions about forests, mountains, towns, industries, engine facilities, and passenger facilities all need to be considered during model railroad planning.

Cajon Division held a Spring Meet in April in Buena Park. The meet featured clinics, Swap Meet, Hobo Auction, Celebration of Models, and a live version of the Cajon Connection. The Clinics included, Scenery Made Easy, Creating a Rolling Stock Fleet for Operations, and Using Hunterline Stains for Weathering. The Spring Meet was free to members and included a General Membership Meeting and an Awards Ceremony.

The PSR Convention, "Back on Track 2022", was held in September in San Diego. The prototype tour of the Pasha Automobile Loading Facility along with the San Diego Trolley Yard was a complete success. There were enough items in the Hobo Auction for everyone to go home with something. Another well received addition was the inclusion of several modular railroads. They provided an opportunity to see some scenery and enjoy working model railroads at a model railroad convention. Numerous clinics were presented including several hands-on clinics, which allowed attendees to take home something they made. The Celebration of Models had several entries which were evaluated for Merit Awards. If there were not enough railroad items for the members at the Hobo Auction, the Swap Meet provided another chance to purchase the "can't live without" model railroad item. At the Awards Dinner and Banquet, several awards were given to well deserving Cajon Division members. Annette Palmer received the NMRA Presidents award. Joel Morse received the PSR Presidents' Member of the Year Award and Per Harwe received the Cajon Directors' Member of the Year Award. Overall, the 2022 PSR Convention "Back on Track 2022" was a great success.

The Cajon Division Fall Festival was held in October in Buena Park. The event included Bingo, Swap Meet, Hobo Auction, Celebration of Models, a General Membership Meeting, and a "T" Track Modular Railroad. Six Clinics included: Making Realistic Pine Trees, Making Turnouts Using Fast Tracks Templates, Building a "T" Track Module, Building a Museum Exhibit, Introduction to Arduino Control Boards, and DCC Boot Camp.

One other major event occurred in 2022. The Pacific Southwest Region was awarded the 2024 NMRA National Convention to be held in Long Beach. The planning process for the convention is moving forward, making progress, and will be a joint effort of all four PSR Divisions. SurfLiner 2024 will be held at the Long Beach Convention Center August 4 through August 11, 2024, with the base operation at the Westin Hotel. Please consider joining the SurfLiner 2024 Convention Team and contributing to the success of the 2024 NMRA National Convention.



“ From the Brass Hat “

by Joel Morse Superintendent



Happy Holiday Season!

Whew! 2022 just flew by! As I get older the time just seems to zip by! I turned 65 in 2022, so I guess I'm in my prime model railroading days! And it's true because I'll be cutting back at work to 2 days a week, spending the rest of my time working on the railroad, playing banjo, and travelling. So, I'm looking forward to next year – really the first time in about 40 years where I don't know where I will be or what I will be doing much of the time.

But I do know that I have a lot of model railroading places to go and things to do next year! As do you!

On February 11-12, the Great Train Show/World's Greatest Hobby Tour returns to Costa Mesa with layouts to see and stuff to buy! I love train shows and your Cajon Board of Directors will be there to try to find some new members. The show will be in Victorville, March 18-19.

On February 18, the Cajon Division introduces our new “Layouts of the Cajon Division Open House” program where layout owners in the Division will open their home layouts for members of the division to visit and hang out talking about trains. Refreshments will be served. This is intended to be a monthly event. The first open house will be at my 150 square foot N scale New York, Ontario, and Western Railway layout on February 18th, the second will be at Gary Butt's G&S HO scale layout on March 25th. We are looking for more layout owners to host during the year, so let me know if you would like to open your layout to your fellow division members (the division pays for the refreshments). Keep an eye out for the email invitations to the individual layouts!

The Cajon Division Spring Festival of Trains will be held in Buena Park in April, with the date to be announced following our December Board meeting. There will be a swap meet, clinics, celebration of models (both for display and Achievement Program judging), model show and tell and the famous Hobo Auction.

June 7th to the 11th join the membership as we meet in Flagstaff, Arizona for the Grand Canyon Special 2023 PSR Regional Convention, hosted by the Arizona Division. Check out what's planned by going to the Arizona Division web page and clicking on *PSR Convention 2023*. Registration is open, get on board!

And I hope you are making plans to attend the NMRA National Convention August 20-26 in Grapevine, Texas, a suburb of greater Dallas, Texas. Registration is open and they have a great convention planned!

Talking about National Conventions, the Cajon Division and the entire PSR will be hosting the 2024 Surfliner National Convention to be held in Long Beach, California August 4-11, 2024! The Convention Committee is hard at work, and we could use your help! Volunteers are needed now during the planning phase, and will be needed during the convention. Please contact me at Superintendent@cajondivision.org if you want to be involved in this great event. By the way, you will also earn points towards your Volunteer AP Certificate!

It is going to be a busy year for me! How about for you? Hope to see you at these events!

Pictures from the Cajon Division Fall Event Held in October at Buena Park



Greeting & Registration



Swap Meet



T Track Setup



T Track Setup



Clinic on Tree Building



Fellowship



Hobo Auction



Swap Meet

CELEBRATION OF MODELS (CONTEST ROOM)

FALL FESTIVAL REPORT

By Mike Allee

There were ten models submitted for display. Three were for Merit Award evaluation. This total seems small but it represents about twenty percent of the attendees. Of the seven models submitted for just for display, several may have received a merit award. Building the model seems to be the easy part of submitting a model for evaluation. Form 902 seems to be the hurdle modelers can't get past. Yes, it is best to complete the form before hand. It should not be written in the style of "I made ..." be included in any sentence. Bullet points are the best way to tell the evaluators what they need to know. Remember grammar isn't being evaluated. Each bullet needs to be understood by the evaluators.

If you are on the fence about entering a model for evaluation I'd suggest you attend the judging clinic that is held at each of our meeting before the evaluation session takes place. Then volunteer to judge. You'll be amazed at how much you learn about modeling and how easy and rewarding it is to submit a model at a future meeting. At the Cajon meet this spring bring along a model. Past practice at the last few meets is the submitting entry modeler receives a set of "Hobo Auction" tickets.

The division continues to receive donations. Recently a whole layout was donated with very fine quality models. Some of which were part of the Buena Park Hobo Auction. Unfortunately the fine layout, that has been on several layout tours, could not be saved but elements live on in with other modelers.

Here are the items presented at the October event.

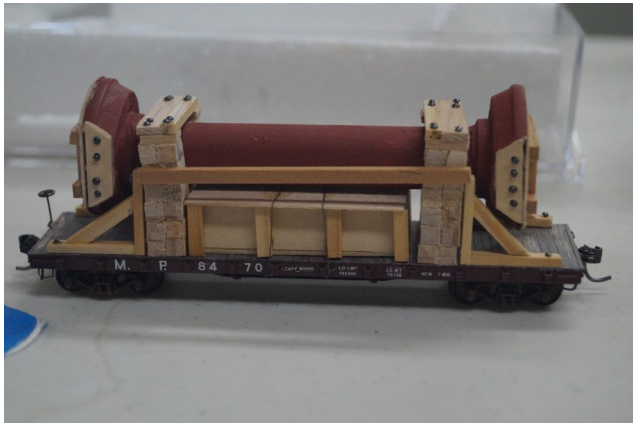


This O gauge display "Turntable and Engine House" was entered by Ken Heckler. Nine volt batteries operated the lights and turntable. The lights and table stayed on all day. First Place Popular Choice Display. Note: Ken was not present to receive his certificate.

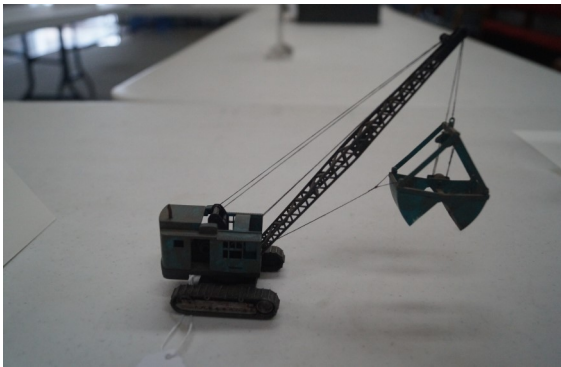
Awards



You may recognize this model it is a accurate scratch built HO version of the "Top Gun' House in Oceanside" used in the movie by the same name. This *Off-Line Structure* earned *Best of Show* and a merit award with 105 points. Built by Harold Helland.



Morrie Fleishman entered the kit-bashed freight car "Flatcar With Load". This was one of many flatcars built by club members in a club (OCMR) competition. The challenge was to build a specific flatcar kit and with load to reach the HO NMRA weight standard. He received a first place and merit award with 89 points. Also earned first place in Popular Choice.



Christopher Jean entered the kit-bashed non-revenue "Tracked Diesel Loader". The shell actually works. He received a first place and merit award with 89 points. Also took first place in Popular Choice.

Awards



This Display Only by Steve Cole (a past merit award winner) built this ice house when he was a teenager. Second Place Popular Choice.



This HO "Desert Bridge" was entered by Tom Stumpf (a new NMRA member). While brush clearing around his house the "rock" in the upper right corner caught his eye and inspired the display. The "rock" ain't a rock it's a piece of wood. Second Place Popular Choice Display



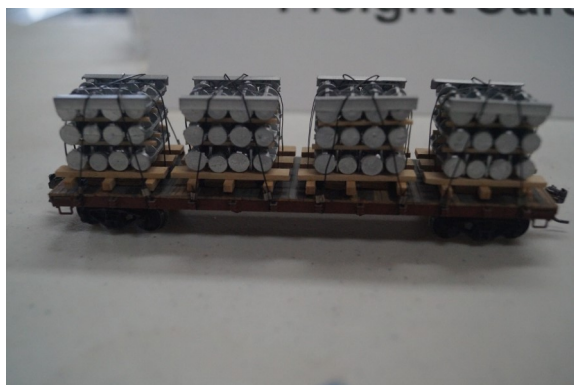
Peter Treuherz displayed this N gauge EMD NW5 Diesel and received First Place Popular Choice in Diesel and Other Locomotives.



Awards



A second version of the OCMR flatcar challenge by Steve Pepin "ATSF 197323 MOW" First Place Popular Choice Non-Revenue



A third version of the OCMR flatcar challenge by Don Erickson "Flatcar With Load". Second Place Popular Choice Freight Car.



Annette Palmer's "Favorite Train". It took first place for Trains and the "Thumbs" award. Its cargo was many dinosaurs.

Cajon Division Nevada Fall Festival - Recap by Joel Morse

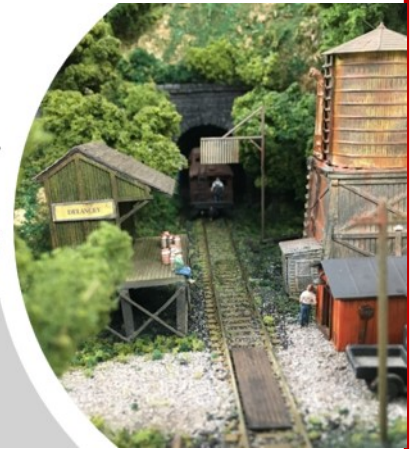
The Nevada members of the Cajon Division held their Fall Festival on November 19, at the home of Paul Mickelson in the Las Vegas suburbs. Paul has a terrific medium sized HO railroad in a large upstairs room, and was giving layout tours all day, in addition to being a terrific event host. Thanks, Paul!

Cajon Division Superintendent Joel Morse and Cajon Paymaster Dan Moran joined 20 local Division members for a fun day focused on model railroading. The day started out as they usually do, with coffee, donuts and a small swap meet in Paul's backyard. I know that both Dan and I spent tidy sums on some great offerings – I purchased a 4-volume series of books on Milk Cars, along with several old HO car kits I'm planning on building for my Car Builder AP. The Milk Car books are also going to be useful resources for the N scale scratch-built milk cars I also plan to build.

In addition to the Swap Meet, three clinics, lunch and a "White Elephant" auction were planned for the day. At 10, I presented the first clinic: "Layout Planning for Operations" which focused on the key decisions that will allow for the creation of a well thought out, coherent, and internally consistent operations scheme, which is inherently easier and more enjoyable for the crew to operate, and generally results in longer lasting satisfaction for the layout owner. The clinic starts off with why you might want to operate your layout and a definition of operations and continues with discussion planning a layout for operations.

Layout Planning for Operations Where, when, why, what, and how

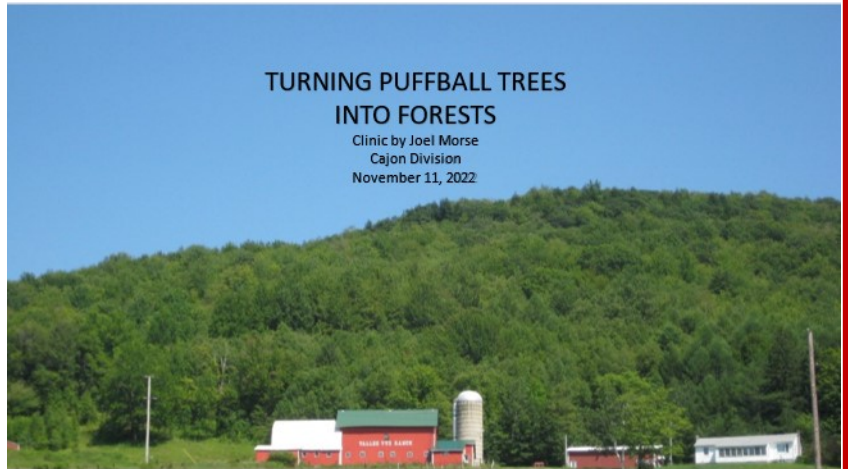
Joel Morse
Cajon Division, PSR, NMRA
November 19, 2022



After a short break, I presented the second clinic of the day, "Turning Puffball Trees into Forests", which demonstrates how to create puffballs and then demonstrates the unique approach I use for building puffball forests which substantially enhances the look of the forest. The method I described includes using plastic window screen to raise the height of the puffball forest canopy, incorporating other scenic materials into puffball canopy to break up the roundness of the puffballs and enhancing the edge of the forest to ensure an undetectable transition from detailed tree armatures to the puffball forest, to complete the illusion.

TURNING PUFFBALL TREES INTO FORESTS

Clinic by Joel Morse
Cajon Division
November 11, 2022



Following a lunch of 6' sandwich, chips and soft drinks, our new Assistant Superintendent for Nevada, RJ Jenkins presented the third clinic of the day, entitled "Speed Matching DCC Locomotives Using Speed Matching Table" originally created by Eric Bradford. When I initially heard the name of the clinic, I thought RL was going to show us how to use DCC Speed Tables to Speed Match locomotives. Instead this clinic walked us through the components and work needed to build a folding test track table, the electronic components, software and the steps to automate the speed matching process using Decoder Pro for N and/or HO locomotives. Essentially, the software allows you to set the speed in scale miles per hour(smph) for any one locomotive, and then when you are satisfied with that locomotive's settings, put other locomotives on the track (one at a time), turn on the program and walk away. The program will automatically run the locomotive around the track while it adjusts the speed table/speed steps in Decoder Pro to match the scale miles per hour set for that class of locomotive. In this way, you set up one standard locomotive, and then you can automatically have every locomotive in your fleet (or every class of locomotive) running at the same scale speed at

each speed step. A very useful tool, especially if you want to have the ability to run any combination of locomotive in MU service.

Following the afternoon clinic, the group gathered in Paul's kitchen for the White Elephant Auction, wherein wrapped items are auctioned off. The bidders do not know what they are buying! Dan and I brought three items for the auction: two Tidewater and Western Railroad freight cars donated by Bob Olds, and a box of trees from the layout. In all three instances, the high bidders were happy with their items and the Division made \$61.00.

Dan and I met a great group of fellow members, and everyone had a fun day!

I want to thank RL Jenkins, Ed Hall and Paul Nicholson for making it happen. Dan and I were happy we came!

Speed-Matching DCC **Locomotives** **Using Speed Matching Table** **(SMT)**

By Eric W. Bradford
ericwbradford@hotmail.com
2010 Pacific Southwest Region Convention, San Diego

The Editor's Column

by Morrie Fleishman Editor: Cajon Division

Welcome to the December issue of the Order Board, the newsletter for the Cajon Division which is issued every other month. This month we have highlighted some basic information about the 2024 NMRA Convention in Long Beach. As plans are developed we will be providing more information as we will need a lot of volunteers to make it happen. Please send me your articles and suggestions to incorporate in the Order Board. They may be sent to me at;

editor@cajondivision.org

We would like to see what you have been working on. Here is your chance to talk about what you are doing and to show us your accomplishments. While not everyone can write an article for Model Railroader, this publication is available for everyone to report on what they have been doing. If you need help in putting an article together please contact me and we will get it done together.

Thanks. Morrie Fleishman editor@cajondivision.org

Layouts of the Cajon Division Open House Program

On February 18, the Cajon Division introduces our new "Layouts of the Cajon Division Open House" program where layout owners in the Division open their home layouts for members of the division to visit, hang out and talk about trains. This is intended to be a monthly event. And refreshments will be served. Keep an eye out for the email invitations to the individual layouts!

February 18th: The first open house will be at Joel Morse's 150 square foot N scale New York, Ontario, and Western Railway layout in Garden Grove.

March 25th: The second open house will be at Gary and Sandy Butt's G&S Railroad HO scale layout in Huntington Beach.

We are looking for more layout owners to host during the year, so let me know if you would like to open your layout to your fellow division members (the division pays for the refreshments). Just email me at superintendent@cajondivision.org

Notes from the Chief Clerk—Gary Stenberg



Greetings All... from Pagosa Springs, Colorado! I woke up this morning and looked at the thermometer... 17°. Brrrr. What better opportunity to stay inside and write about all of the great things this past year; Meets, Conventions, Comradery, and, of course, TRAINS.

Because of COVID-19 restrictions, the year got off to a slow start, but I got active with a group of folks who did “at home” operating sessions at Gary Butts’ (MMR) place. We operated at least once a month, usually more often, and I finally have all my hours needed for the Achievement Program Certificate “Chief Dispatcher.” Now, just the paper-work part left.

Things began to really roll in April. My club (San Diego Model Railroad Association) had re-opened to the public and I could drive the 90 miles (each way) to enjoy an entire day of Model Railroad Operations on a big scale, albeit HO. I got to run trains and then docent for the museum’s visitors and explain about our hobby. Great Times. AND...The Cajon Division’s Buena Park Meet was held the following Saturday, on the 30TH. I entered an itzy-bitsy bridge model into the Celebration of Models and did well enough that I got to talk about it briefly to the meet’s attendees.

In July, Joyce (wife), Erin (daughter), and I flew to Europe (No trains available for the trip over.) In addition to the usual tourist type things, we rode on street cars, express interurbans, and subway trains. Saw lots of trains and took lots of pictures.

September 7th through the 11TH was the time for the Pacific Southwest Regional Convention held in San Diego. Joyce and I saw prototype railroad facilities, clinics, and model railroads. Radio Personality “Shotgun Tom Kelly” even opened his home layout for visitors. WOW!

I missed the last Cajon Division Meet in Buena Park but I had a pretty good reason. My eldest Son got married and attendance was mandatory. I still missed going to the meet. Me bad.

During our stay, here in Pagosa Springs, Joyce and I visited a fellow model railroader and his wife. He has one of the finest On3 model railroads I have ever seen, and it’s under construction. I can only imagine what it’ll look like when fully decorated with scenery. I always come away inspired.

Now as I write this in November, I look back. I got to serve as the Chief Clerk for the whole year. Becoming active again in the Cajon Division has reignited my passion for our hobby.

So. This year I became more involved with meets, conventions, the Cajon Division, the NMRA Achievement Program, a model railroad club, and comradery.

You too can become more involved. I am certain that the experience will be worth it. It has been for me.

HIGH GREEN and PAX Gary Stenberg, Chief Clerk

New Addition to the Cajon Board



R.L. Jenkins

During the November 19th Cajon Division Meet in Nevada, RL Jenkins was appointed Assistant Superintendent for Nevada. We appreciate RL's willingness to step up and take a leadership role with the Division. He is stepping into the big shoes of Ed Hall, who has been serving in that position for more than 25 years! Thanks for your great service to the Division, Ed!

RL Jenkins:

RL has been in the hobby since he was 10 years old, although he was out of the hobby for several years, but he really got back into it in 2004. RL models the modern UP in N scale. RL is an Audio Engineer doing concerts and conventions. And his interests are focused on Operation and Electronics part of model railroading.

Cajon Membership Report

by Per Harwe, Membership Chairman



We had a modest increase in our membership numbers this month but unfortunately a net loss of one for the quarter (so far).

Please welcome the following two new members to the Cajon Division:

Ronin Wear, Buena Park, CA

Suzan Svatek, Desert Hot Springs, CA.

Social Media Chair Position is Open

The Cajon Division is looking for a person to fill the Social Media Chair position for the Division. This position involves managing and posting to the Cajon Facebook page and group, managing our email communications with our members via MailChimp, managing our future YouTube presence, and running other web-based activities such as event registration and Zoom meetings. If interested please contact Joel Morse at:

Superintendent@Cajondivision.org.



**The 2024 NMRA National Convention
“SurfLiner 2024”
will be in Long Beach from August 4 to 11, 2024**

Did you know that the Pacific Southwest Region will be hosting the National NMRA Convention in Long Beach in 2024? Do you have a layout that you would like to share during the convention layout tours?

WE NEED LAYOUTS FOR THE LAYOUT TOURS!!!!!!!

If you would like your layout to be on the tour or, if you are building a layout and think it will be tour ready by August of 2024, please contact Kevin Spady at Layout_Chair@surfliner.org (818-644-7170), or Morrie Fleishman at mefleishman@cox.net (949-351-7715) to get your layout added to our layout list. We will be reviewing all potential layouts over the next year to develop our layout tours and are looking for those awesome layouts that are hiding away in your basement or spare room! Detailed requirements for inclusion in the layout tours will be coming out in the next couple months. This is a first call for layouts and there will be plenty of time to finalize your participation over the next year.

This convention is attended by a huge audience from around the globe and this is a chance to show off your modelling skills and railroad creations! In addition to the recognition of your peers, your layout may qualify for an NMRA Golden Spike award and can earn credit for other NMRA MMR Achievement Awards.

If you, or anyone you know, may be interested, please have them contact Kevin or Morrie.



MODEL RAILROAD FESTIVAL APRIL 15- 16

HEMET, CALIFORNIA

FOUR SEASONS HEMET COMMUNITY LODGE

The FESTIVAL will be held in the 5400 square foot lodge ballroom and outside patio in a beautiful private gated community. We are located 8 miles east of Highway 215 on highway 74 east.

Friday the 14th is set up day and the event will be the 15th and 16th from 10AM to 4PM. General admission including complimentary parking is \$5.00 for adults and kids under 12 are free.

The following groups will be exhibiting:

*California South Coast On30 Modular, Orange County HO Module Railroaders

*ZoCAL Z Scale Modular, Ntrak Express Modular including SODOR Thomas the Train

MINI LAYOUTS

*Gary Beatty – Puerta Margarita On30, *Scott Carter – Cinnamon Mining Company On30

*Robert Kurner – Typhoon Lagoon On30, *Justin Rasas & Duncan McCree – Arizona Dreaming On30 DeadRail

ON THE PATIO

*Riverside Live Steamers and Chula Live Steamers – Locomotives, *Self Propelled Handcar train for the Kids

*Mini Car Show featuring neighborhood street rods, *Live entertainment Solo artist with Guitar

ACTIVITIES

*FRANCISCOS BISTRO” Serving delicious food and Bar, *Saturday and Sunday Clinics

*Railroad movies on a big screen, *Background Railroad Music, *Door prizes, *Select Vendors

MODEL CONTESTS

“All Scale Contest” Locomotives, Rolling Stock, Buildings, Bridges, Critters and Complete Trains. 1st - \$50. 2nd - \$30. 3rd - \$20.* “3 BY 5 Contest” The base of the model can be no larger than 3” by 5” Model must be railroad related. Creativity encouraged. 1st - \$50. 2nd - \$30. 3rd - \$20. Judging and awards will be on Sunday at 2PM.

LOCAL INFO

The nearby Hampton Inn will provide a group rate with two very good restaurants across the street, Los Vacaros Mexican or Rockin K Steak and BBQ. Temecula wine country with over 40 wineries is only 30 minutes down the road. Southern California Railroad Museum in Perris is 20 minutes away. Hemet Golf course surrounds our Community. The weather forecast is going to be pleasant.

BULLETINS

Complete list of Clinics,Vendors and Activities will be published when confirmed.

For more information or to become an exhibitor, clinician, or vendor, contact David Balser at On30man@gmail.com

A “Short” Story by Joel Morse

I’m the first to admit that my knowledge and understanding of things electrical and electronic is limited, although I know a lot more now than I did when I started out in model railroading. I received my first real lesson when I got my first (and last) 110-volt shock as a teenager, when Dad and I forgot to turn off the power to the socket while installing a spotlight for our first layout. Since then, I have learned how to wire and troubleshoot a DC layout, and I thought I understood DCC, too. Contrary to the old saying, I found out recently that *“What you don’t know, **can** hurt you”*.

Over the past year or two, I noticed that during operating sessions (7 operators), several locomotives would stop working during the session; one might run away, a few would stop responding to the throttle, one loco of a pair would stop responding to the throttle, or just stop, and so on. I was moving 4-8 locomotives off the layout each session. After the session I could generally put them on the programming track, run Decoder Pro and reprogram most of them in a few minutes (although some decoders were fried).

This situation was unacceptable, so I went on a months-long journey to try to understand why this was happening. After researching decoder problems and speaking to a few knowledgeable modelers, I initially focused on the possibility that inadequacies in the layout wiring or power supply was causing the decoders to lose programming (I didn’t understand quite how that was possible, but ok). A quarter shorted the circuit breaker everywhere on the layout, so I assumed I had adequate power to the rails. But the truth is that the layout is not wired exactly as suggested for DCC: the buss gauge is a bit lighter than recommended, the buss isn’t twisted, my feeders are thinner than recommended and are not placed every 3 feet, and I had a lot of locomotives on the layout (around 40, including a few sound-equipped locos) although only 12 (6 sets) are operating at any one time. Perhaps it was the “signal spiking” due to interference because my buss wasn’t twisted, or too many locomotives on the layout, or too many sound locomotives on the layout, or an old power supply that was creating interference or an old Command Station.

When I learned that I might have too many locomotives on the layout, my first step was to add on-off toggles to each track in my 11-track staging yard, so fewer locos were drawing power during the session. That did not improve the situation. My next planned steps were to put “snubbers” on the end of the busses to smooth out the DCC signal and reduce/eliminate signal spiking, and to replace the 25-year-old home-made power supply built by my old mentor Randy Jones, an electronics technician.

However, before I could start work on those two potential remedies, I became aware of another, more likely and more problematic potential cause: short circuits. But wait, how could that be? Short circuits are an integral part of DCC and none of the books or articles I have read over the past 20 years talked about this problem. Truthfully, up until recently, all I really knew about short circuits was that having one accidentally was a bad thing and generally meant that that something was wired incorrectly (the positive and negative were connected somewhere) or there was metal on the track causing a short, or a locomotive ran through a turnout thrown against it. However, based on the information I had read on installing DCC on a layout, a “controlled, purposeful short” could also be a “tool” you could use to check the adequacy of the wiring on your layout (by putting a quarter on the track). If there was a short, you had adequate power to the rails at that location. Additionally, the Frog Juicer, which is an automatic polarity switcher which automatically and instantly switches the polarity of the frog as the engine passes over a DCC turnout; uses the short circuit created by the wrong polarity at the frog, to activate and immediately change the polarity of the frog. So, every time an engine passes through a Frog Juicer protected turnout which has the wrong polarity, there’s a micro-second long short, but a short, nonetheless. Another “controlled, purposeful short”. You all probably know all of this. In my mind, a short was something you wanted to avoid, but it was a relatively benign background

issue and part of using DCC. But apparently, I missed one of the key aspects of DCC and have recently learned that not understanding the attributes of short circuits can create havoc on a DCC layout.

What I did not know and learned very recently from a fellow Cajon Division member (thanks, Mark) and watching YouTube Videos by Larry Puckett (The DCC Guy), is exactly what happens when there is a short circuit on a DCC system, ***no matter how quickly the short may be resolved***. The PM 42 and other DCC circuit breakers do not prevent this power surge; they sense the short and turn off the power in micro-seconds to protect the Command Station, but not before there is a surge. And each time a PM 42 resets (beeps and blinks), it allows another micro-second-long power surge, as it checks the circuit. Each time it cycles is a “new” short circuit, one after the other, until the cause is identified and resolved. Which can take a few moments as operators look around to see who has run the switch (of course the perpetrator is last to realize it, otherwise he wouldn’t have run the switch in the first place). All of this is SOP for a DCC layout, and I’ve been operating this way for more than 10 years without any concern for shorts, other than to avoid them to the extent possible.

But here’s what I did not know: When a short circuit occurs, the full power output of the Command Station surges into the circuit; in the case of my N scale DCS 100, that’s a 5-amp power surge, and it hits all the decoders in the affected power district, each time the PM 42 beep and blinks as it checks and rechecks the circuit. Additionally, each time a locomotive encounters a frog with the wrong polarity, there is a micro-second short circuit, until the Frog Juicer resolves it. I have 65 frog juiced turnouts on the layout. During a regular operating session with 10 locomotives, there must be a hundred shorts from various sources during an operating session!

At this point, the most likely cause of the multiple decoder failures was revealed: **Short Circuits**. N scale decoders are not rated to tolerate 5 amps of current, in fact they are rated for less than 1 amp, so the surge was scrambling the decoders, or frying them. I was shocked, pardon the pun, that this was the problem, after all, I’d never heard this from anyone before!

Now the question becomes, what is the solution? My plan is to add the snubbers and change the power supply to address those real, but perhaps not critical issues. But the most appropriate action to try to address the shorts on the layout, is to replace the two PM 42’s that have been protecting my layout for the past 25 years, with eight DCC Concepts PSXX Circuit Breakers. Unlike a PM 42, the PSXX has a current limiting feature which allows the user to set the current coming from the Command Station, and therefore to limit the intensity of the power surges resulting from inevitable short circuits. The PSXX current limiting setting that can be set from as low as 1.0 amp an up to 10 amps. A 1.0-amp setting is probably adequate to run the needed number of N scale locomotives in each of my districts, and the power surges due to a short circuit will be limited to 1 amp, which is not enough to overload the decoders. The PSXX has many other capabilities, that I am still exploring. But I believe this will resolve my decoder problems, if not, you’ll hear about it. If you are having similar problems on your layout, keep this **short** story in mind! If you have questions about short circuits or other model railroading questions, please feel free to email me at superintendent@cajondivision.org

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