Division Points

Indian Nations Division of the National Model Railroad Association

www.tulsanmra.org | Issue No. 71 | November 2023

From the Superintendent

Our next meeting is November 18th at the Hardesty Library in Tulsa (at 8316 E 93rd Steet at 9:30 am) This month's Show and Tell will be on Structures & Dioramas. Please consider bringing in a structure or diorama you created, or are working on, to share with all.

We have some presentations lined up for this Saturday – a broad mix! We'll get updates on progress with area model railroads (lots going on these days!) and then have three presentations:

1. Recent model RR visits: Steve Davis & others
2. How to conceal and install a switch motor above the layout: Dave Steensland
3. Howe Truss Bridges for Harbor use built with International Cooperation: Ed Bommer

If you have anything you'd like to share, or even anything you might like the group's help or advice with, I invite you to share that. Please email me with any presentation ideas or questions. YOU are what makes this group great – we all learn a lot from one another.

I look forward to seeing you all at the November 18th meeting. Our room is available at 9 am, meeting starts at 9:30 am. Regardless of the weather, the Hardesty Library is always comfortable!

Sincerely,

Steve

We need you input!

What kind of presentations are you interested in hearing and seeing?

What presentation would you be willing to share with the division?

What improvements/changes are needed to the newsletter?

How can 'WE' grow the division and get more participation?

Are you interested in?

Modeling Challenges? (Are incentives such as gift cards helpful?)

Layout Tours? (After meetings or possible months with no meeting?)

Master Model Railroader achievement program?

Local Division held, sponsored and run Convention?

2023 / 2024 MEETINGS

Meetings are from **9:30** to **12:30**

November 18, 2023 - Structures/Dioramas
January 20, 2024
May 18, 2024

Hardesty Library
8316 E. 93rd St.
(Just East of Memorial on 93rd St.)

John W Barriger III Photo

Cover Photo: The late Rich Montesano built this structure and gifted it to Steve "Doc" Campbell who incorporated it into his layout. Photo by Dave Salamon

INDIAN NATIONS OFFICERS

Superintendent
Steve Davis

Assistant Superintendent
Dave Steensland

Director
Raymond Brunner

Paymaster
Raymond Brunner

Achievement Program
Ed Bommer, MMR

Division Points Editor
Dave Salamon

Local Model Railroad Organizations and Shops

Indian Nations Division of the NMRA
www.tulsanmra.org
Allan Roecker
(918)886-5732

Green Country Model Railroad Association
John Carter
Phone: (316)250-5874
GCMRA.org
https://www.facebook.com/Green-Country-Model-Railroaders-Association-162356590476356/
Saturday's & Tuesday's - 9:00AM to Noon.
5626D West Skelly Drive
Tulsa OK 74102

North Eastern Oklahoma N Scalers (NEONS)
www.tulsa-neons.com
Richard Fisher
918-298-4800

Tulsa Garden Railroad Club
www.tulsagardenrailroadclub.org
Donnie Shirey
918-361-1760

Oklahoma Narrow Gauge
www.okng.org
Randy Smith

North Eastern Oklahoma Live Steamers
https://www.facebook.com/groups/1152224404840942
Dave Salamon
(918)607-2793

Toy Train Operating Society—Sooner Division
http://www.ttos-soonerdiv.org/

Challenger N scale Hobbies
8753 S Lewis Ave, Tulsa, OK 74137
(918) 298-4800

Top Shelf Models
119 S Main St, Owasso, OK 74055
918-274-0433

Reindeer Pass Railroad
http://www.reindeerpass.com/
10919 N 173rd E Ave, Owasso, OK 74055
(918) 361-6084

HobbyTown USA
https://www.hobbytown.com/tulsa-ok/l74
6808 S Memorial Dr #116, Tulsa, OK 74133
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aylward1@cox.net

Mounting a Tortoise switch machine when you have obstacles

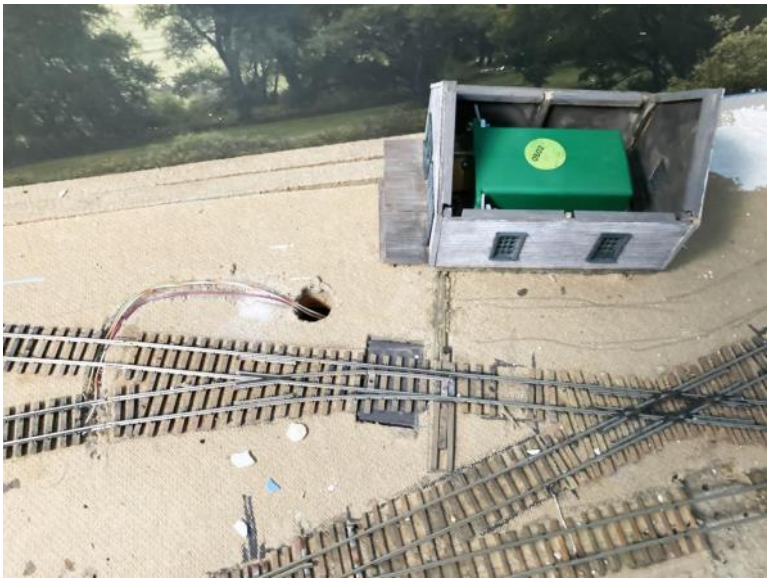
By Dave Steensland

We've all been there, your layout is coming along and you decide to add an additional turn-out, the problem is you have structure in the way or no way to get below to mount a tortoise switch machine. I had to mount it on the upper side of the table, but needed something to conceal the Tortoise.

The Tortoise dictated the smallest structure I could build.

I scratch built a structure where the Tortoise just fit inside.

I cut out the homasote where I mounted the Tortoise and used two home made L brackets to mount it. The swing arm is under the Tortoise.



Test fitting the structure over the Tortoise on the layout. A trench was cut out of the homasote for the power routing wires. Note the uncoupling magnet next to it.

A trench was also cut for brass tube and control road that runs through it. The brass tube will protect the control rod when the scenic ground cover and ballast is installed, and will allow it to slide back and forth.

The Tortoise swing arm was bent 90 degrees as shown and a loop was formed in the control rod to the switch coupling it to the swing arm. I used .047 dia. music wire but smaller wire may work as well.

A close up of the trench for the power routing wires. These will eventually be covered up with scenery and will not be visible.

Turnout throw is now In and operating, now just need to go back and scenic this area.

Sept 2023 Meeting

Passenger Yard Operations at the Micropolis Yard - Steve Gillett

Steve shared with us his presentation on an idea for a layout designed on Passenger operations.

Micropolis Passenger Yard Introduction

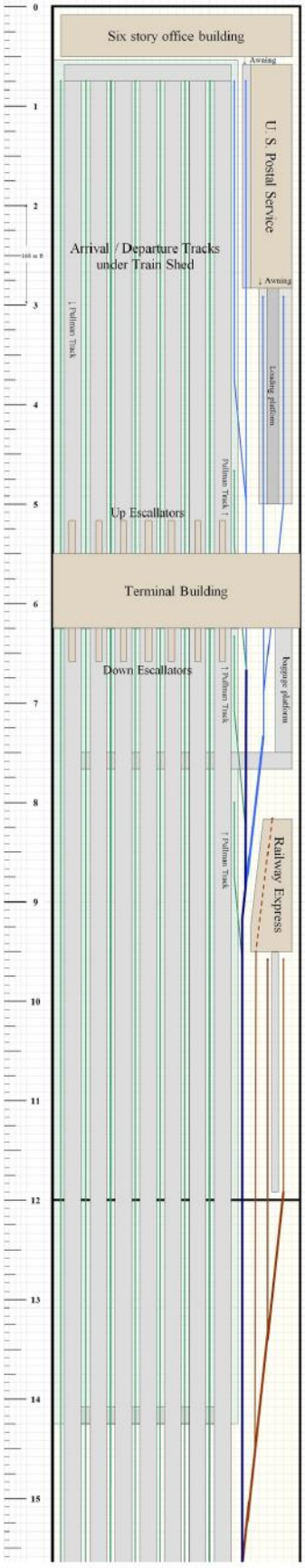
Often overlooked and seldom appreciated are the details of passenger train operations. Operating a passenger train can involve much more that coming out of staging, making a lap of the layout with a few short station stops, then returning to staging. Modeling the support infrastructure of a full service passenger yard can be an interesting and rewarding adventure and the result of that effort can provide an operating experience that is unique, enjoyable and challenging. Just like freight trains, passenger trains have an origination site, make car drops and pick-ups along their route, and have a final destination. At each end of the route the train must be either assembled or broken down and the cars must be serviced, inspected and made ready for their next trip. In the real world each individual car in a passenger train requires attention since it must be kept clean and fully functional at all times. Additionally, one must remember that, besides people, passenger trains also carry freight. Freight not only includes baggage, mail and Railway Express Agency (REA) shipments, but also food and drink. On top of that, passenger trains have a staff of porters, cooks, and other personnel onboard at all times to support diners, sleepers, restrooms, lounges and all the other amenities that are needed to provide a pleasant and enjoyable journey for every passenger.

Just like what was prototypically seen in many larger cities, the Micropolis passenger train complex is in or adjacent to the downtown area of the city it serves and has its coach service yard nearby, but in a more industrial area that has less valuable real estate. Since this design represents service to a large metropolitan hub city used by several railroads, it has a passenger terminal facility rather than a pass through station. It is a complex of four separate but coordinated operational areas: the terminal facility, coach yard, locomotive service and ready yard, and approach / staging area.

Sept 2023 Meeting (cont'd)

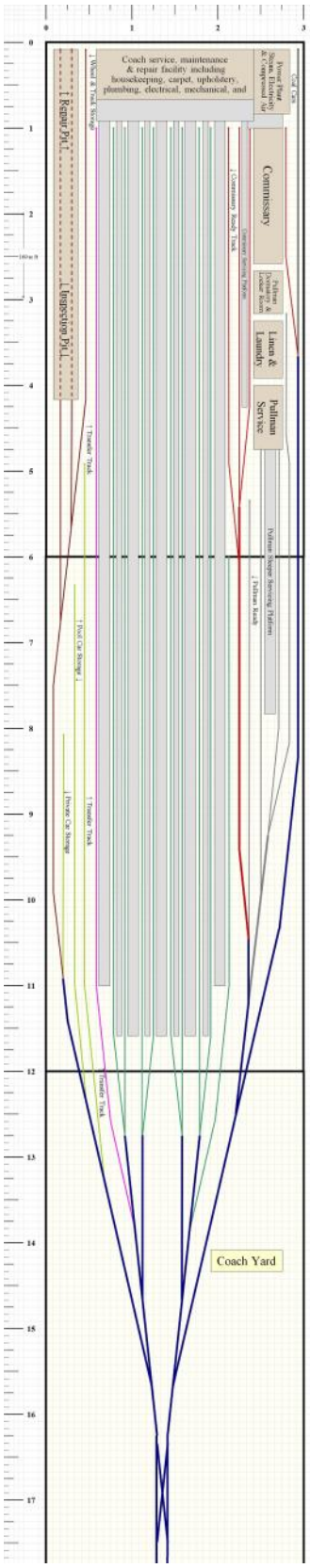
Passenger Terminal Area

The passenger terminal area has six tracks plus a special track for Pullman sleeper cars. The Pullman sleeper car tracks allow passengers with late evening or nighttime departures to board their car earlier in the evening, well ahead of the normal boarding time, and retire for the night. Similarly, Pullman sleepers on very early arrivals are moved to the Pullman track so passengers can sleep in and don't have to rise in the middle of the night to disembark. Each 2400 scale foot track is long enough to hold a 20+ car train along with its head end cars and engines and has a 25 scale foot wide platform on each side along its entire length. The station's tracks are covered by a train shed that extends the entire length of the platforms, protecting the area from inclement weather. Adjacent to the tracks are four USPS mail car tracks and three Railway Metropolis Passenger Terminal Express Agency tracks. The terminal and shed area is 16' long (nearly 1/2 scale mile) and the yard throat and ladders extend another 8'. Add to that the yard approach tracks, the locomotive service area and the cutoff that connects the terminal to the coach yard and the total length is 40' (nearly one and one quarter scale miles.) The terminal, throat and locomotive service areas are 2.5' wide and the approach tracks area is 2' wide, but could be reduced to less than 1' wide. The entire complex connects to the main line at a 90° curve in the main that acts as two legs of a wye. Trains must make the curve, throw the switch, and then back into the passenger complex.



Sept 2023 Meeting (cont'd)

Coach Yard



The coach yard is parallel to the terminal area but separated by a 4' wide aisle so operators can work back to back without bumping into each other. A 2' x 6' and a 2' x 4' "L" shaped section connect the coach yard to the approach area. The 12' long yard has another 6' for its ladder tracks and throat resulting in a total length of 2880 scale ft. It is 36" wide. There are ten 12.5' (2000 scale foot) long yard tracks for railroad owned equipment, each track with a 19 to 20 car capacity. Service platforms bracket each track, a narrow one (10 scale ft wide) on one side for foot traffic and a wider one (20 scale ft wide) on the other side to handle carts and other equipment. Steam, electricity compressed air and waste disposal ports are positioned along the narrow platforms so each car can plug in as required At the stub end of the service tracks is a large building that houses the many and varied trades needed to support a passenger fleet. These departments include housekeeping, laundry, carpet, upholstery, plumbing, electrical, mechanical, and other services.

Pullman owned and operated cars are pulled from the consist and are serviced at their own adjacent two-track area with a 3' long (500 scale ft) platform between the tracks. The Pullman area contains a warehouse, a linen / laundry building and a dormitory / locker room for porters. A siding on the back side of the warehouse and laundry provides space for loading and unloading supplies from box cars. Once Pullman cars are serviced, they are stored on the Pullman ready track until needed. The two service tracks can each hold six cars and the ready track can store ten cars.

Dining cars are relocated to the two commissary tracks for servicing. A 3'+ long platform (520 scale ft) runs between the two tracks. Each track can hold six dining cars. Along the back side of the commissary building there is a supply track for reefers and other cars carrying needed goods.

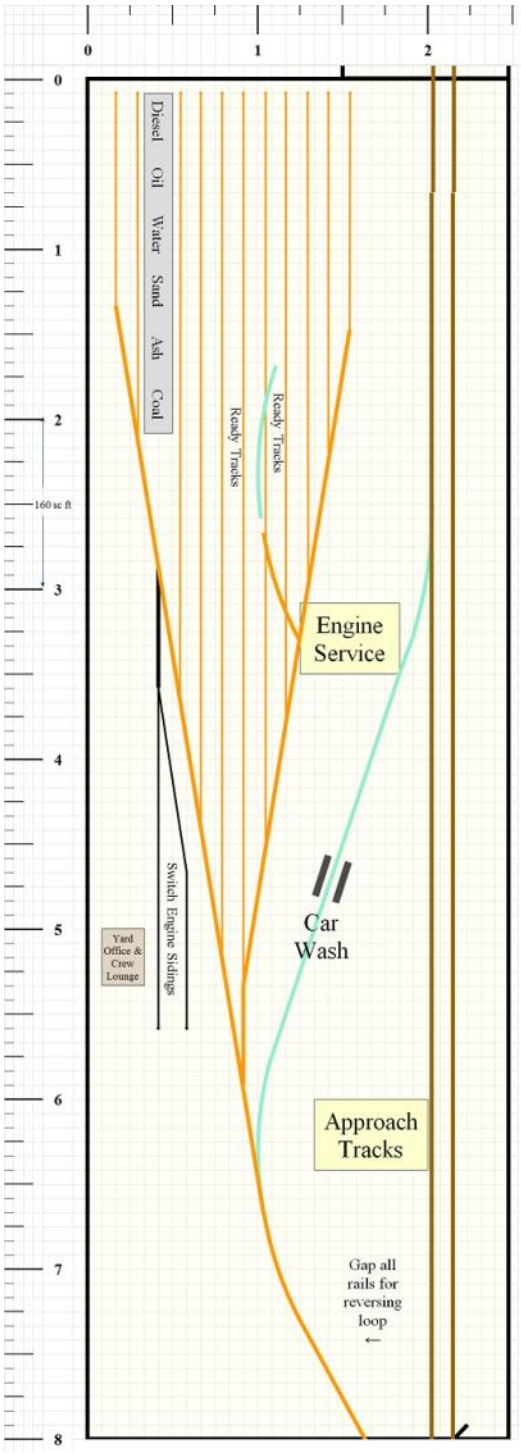
On the other side of the coach yard is the car inspection and repair pit. In passenger service safety is a top priority and therefore the undercarriage of every car is routinely inspected. When the terminal switcher drops off the remaining cars of the train on the coach yard transfer track, the coach yard switcher immediately takes those cars to the coach yard inspection pit so that they can be checked out. This inspection includes trucks, wheel sets, brakes, couplers, linkages, air and steam lines and connections, etc. Cars with defects are moved to the adjacent repair track and the rest are moved to a specified service track. Between the inspection area and the service tracks are three coach storage tracks where up to 27 spare cars and privately owned business cars can be kept until they are needed.

Sept 2023 Meeting (cont'd)

Train Operations

As soon as a train arrives at the terminal, the locomotives uncouple and move to the locomotive yard for servicing. These services include fuel, sand and water. If an engine requires repairs or other services it must travel to the nearby freight yard where those services are available. Once serviced, the locomotives are placed on one of the eight ready tracks until needed. This complex is a division point, so crews are changed out. The passenger complex requires two switch engine pairs to move and spot cars. These engines are stored on two sidings at the locomotive service yard.

The entire complex is designed at maximum size to accommodate any and all features that would have been found in passenger service yards during the hey-day of passenger service during the 1950s. They are designed in N-Scale and are modular with an interface that can connect to an N-Trak junction module and become part of a large N-Trak layout. An examination of track plans for real yards of this era will show an intricately woven nest of tracks, with double slip switches, crossovers and three-way switches that worked well in full scale, but can cause problems when model cars have to back over them. For that reason, the yard ladders are simplified, sacrificing complexity and compaction for ease of operation. Obviously, the design is flexible. The coach yard can be turned 90° or to any angle desired, and the service yard and approach area can also head off at any angle. It is easy to shorten the terminal and coach yard areas and the approach tracks don't have to be straight. Nor does the complex have to be modular or even N-Scale. This is a blueprint that one can customize to fit the concept and space requirements of the modeler.



Operationally, the Micropolis Passenger Yard is designed for a four man crew plus the operators of arriving and departing trains. These four operators work as two 2-man teams, one team at the terminal facility and the other team at the coach yard. Heavy lines in the diagram indicate main traffic flow routes that should not be blocked, thereby allowing for free, unobstructed movement to all areas of the facility. Design geometry is based on Peco long turnouts throughout. The digital image of this design has a background grid that clearly defines all measurements.

Sept 2023 Meeting (cont'd)

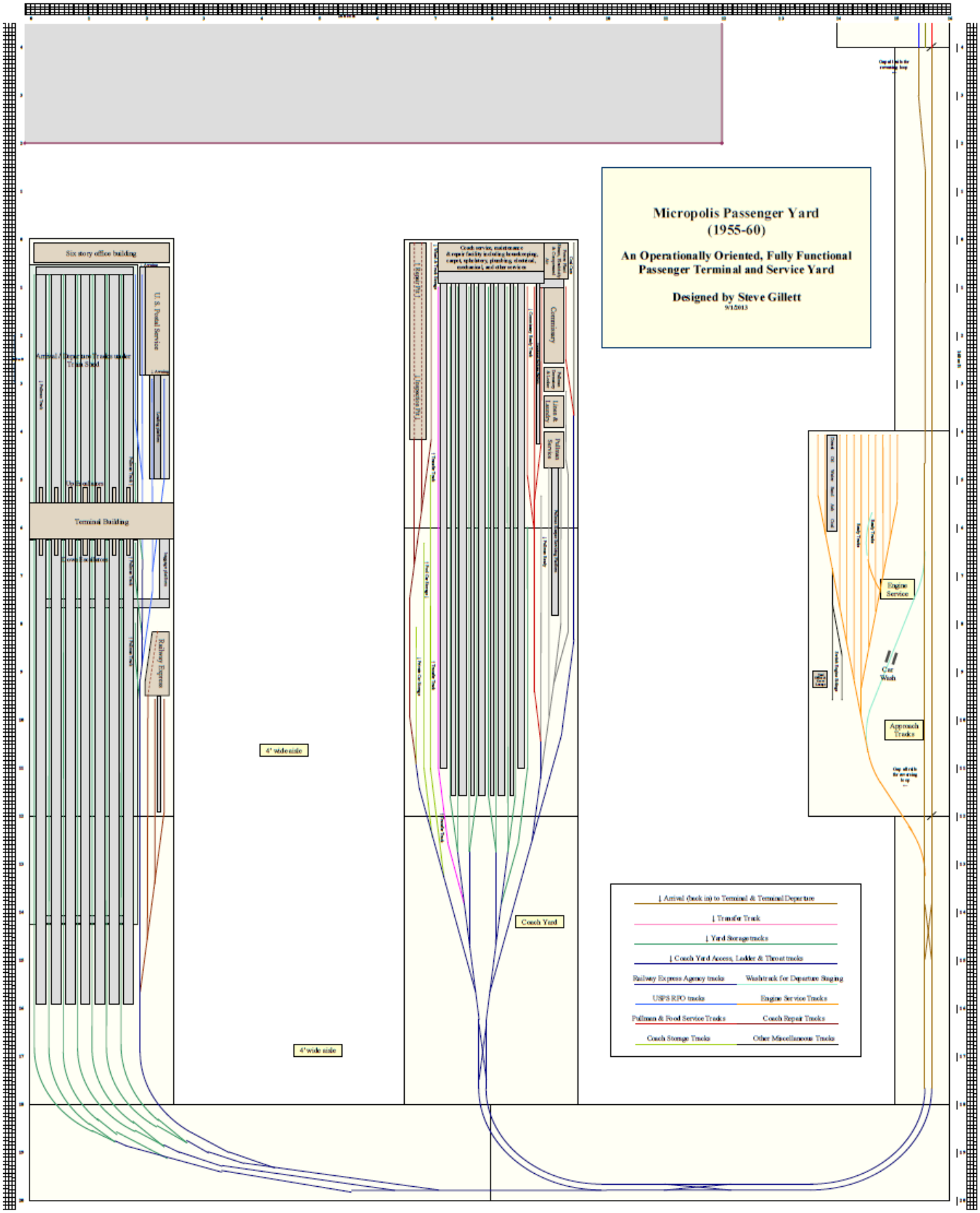
The Coach crew, again with one person on each side, finishes the breakdown of a train once it has been delivered from the Terminal. First, all cars are run over the inspection pit and any cars with problems are left there. Then all Pullman cars are sent to the Pullman tracks, dining and lounge cars are sent to the commissary tracks and the rest are returned to a yard track for servicing. Once serviced, they are either moved to the coach storage tracks until needed or left on the yard track for use later in building an outgoing train. Two hours prior to a train's departure, that train's consist is assembled in the order required, drawing the observation, dining and/or lounge cars from the commissary tracks, coaches and sleepers from the idle coach tracks, and Pullman cars from the Pullman ready track. Early boarding Pullmans should have already been sent over to the terminal Pullman standing tracks. One hour prior to departure, the Terminal crew will pick up the assembled consist from the coach yard. Additional crew duties include shuffling cars in the commissary and Pullman areas between the platform tracks and the ready tracks and returning repaired cars from the inspection area to the service area.

Occasionally a transfer freight will enter the complex to pick up and/or deliver coal hoppers to the power plant or locomotive service tracks, reefers to the commissary, box cars with supplies for the Pullman, commissary or general service areas, tank cars with diesel or oil and hoppers with sand for the locomotive service tracks, and flat cars and box cars with trucks, wheels and parts for the car repair area. The Coach Yard crew will spot the arriving cars and deliver any empties to the transfer freight engine crew.

Optionally, a fifth operator can be used as the yard master, coordinating and scheduling all activities within the complex.

Remembering that this design is made to be N-Trak compatible, that the approach tracks connect to the N-Trak red line as part of either a left-hand or a right-hand junction module and that the red line is usually operated in a counter-clockwise direction, then the approach legs which a ccw running train would not normally use would be the legs that much switch polarity. This section of track only needs to be as long as the longest engine consist unless you run a train with track powered lighting in the cars. In that case, the reversing section must exceed the total length of such a train. All tracks in the complex other than the reversing section should be wired with the left rail receiving the positive feed and the right rail the negative.

Sept 2023 Meeting (cont'd)



Sept 2023 Meeting

Storage room make over - Rob McKnight

Rob shared with us how he has been volunteering at the Heart of the Heartlands museum up in Corona, Kansas and decided to take s storage closet he has and better display his railroad collection that he has acquired over the years. Rob, working for a lumber company delivering lumber has been fortunate enough to get some nice damaged lumber which he could use portions on this project. He built his first display case then went down to get some tempered glass shelves for it. After picking himself up off the floor due to the price, he was going to have to bite the bullet for this case, but would need to rethink future display cabinets. At our warehouse I saw a stack of old plexiglass that was used during the height of COVID behind a cabinet and asked this secretary if they'd be interested in selling it. She inquired, and my manager said not only can you have that, would you be interested in a box of unopened plexiglass...didn't take long to answer that question. Rob's Dog Hobo goes with him everywhere and loves the trains. On the next few pages you will see that Rob converted a storage closet into a true museum piece. Thanks for sharing Rob!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ROUTE OF THE Southern Belle
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ROUTE OF THE Southern Belle
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KANSAS CITY SOUTHERN Lines
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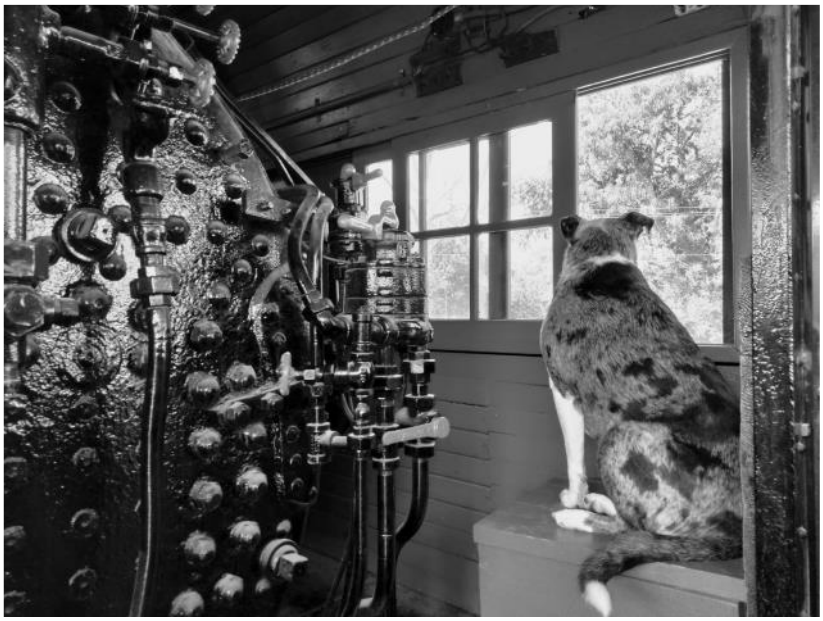
Santa Fe the Chief Way
Santa Fe Dining Club
TIME TABLE
Bargain Fares are back!
TIME TABLE
Santa Fe
MAP
Santa Fe

Rob's dog Hobo.

Rob sent me this photo also while at the museum, Hobo doing like most of us...dreaming of driving a steam locomotive!



Heart of the Heartlands

https://www.heartlandstrainclub.org/

The Heart of the Heartlands Railroad Club was formed in 1991 and is governed by a nine member board of directors. Heartlands members are dedicated to preserving railroad history with educational programs and providing short passenger train rides. We have established a museum complex in Carona, Kansas to preserve and display railroad memorabilia, our restored depots, full size railroad rolling stock, and other miscellaneous railroad equipment.

Our group has restored three depots: the former Santa Fe Depot in Cherryvale, KS in 1991, the Missouri Pacific Depot in Carona, KS in 1996 and a second Missouri Pacific Depot originally from Boston, MO which was moved to the Carona museum complex in 2006. The Cherryvale depot, built in 1910, is now the operating headquarters of the SK&O Railroad. The Carona Depot, built in the 1940's, was used as a passenger depot until the early 1960's. The depot was then sold and moved 1/4 mile to be used as a hay barn. The John Thompson family graciously donated the depot to the Heartlands organization for restoration. It was then moved close to the SK&O track near its original location and was restored with the help of many area volunteers and Heartlands members. The Boston Depot was built in 1882 in the then thriving community of Boston, Missouri. It was removed from active service in 1932. Our group obtained the depot and moved it to the Carona museum complex on October 7, 2005. Over the next couple of years our members restored the building to its former glory.

With the generous assistance of WATCO and the Webb family of Pittsburg, KS, our group conducts passenger train rides on the WATCO railroads in Kansas and Oklahoma and has established and greatly expanded our museum complex. Our members are able to help with the passenger train rides by selling tickets, assisting passengers, acting as car hosts on the train, and other functions. See the Train Rides pages of this website for the location of scheduled train rides and the Upcoming Events page for train shows and other events in this part of the country.

Some of the museum grounds and displays

The only remaining KCS Steam Locomotive, #1023, has been cosmetically restored by Heart of the Heartlands, Inc. and is currently on display at our Museum Complex in Carona, KS.

The Dave Calwell Collection:

The Heart of the Heartlands Museum was recently the recipient of an exceptional collection of railroad related items that had been collected over many years by Dave Calwell of Topeka, KS. Dave was a career employee of the Santa Fe Railroad. The members of the Heart of the Heartlands are very grateful that Dave chose our museum complex as the permanent home for his collection. After about two and a half years of discussions, during which Dave documented and photographed each item as he packed them for the move to the Heartlands Museum, the collection was transported by truck to our Carona, KS Museum Complex.

The Hear of the Heartlands monthly meetings are held at 7:00 PM on the second Wednesday of each month in the Webb Family Railroad Heritage and Education Center at our Carona, KS Museum Complex.

Carona is located approximately two miles west of Scammon, KS.

Anyone interested in railroad history or joining us in Heartlands activities is welcome to attend and we would love for you to become a member of our organization.

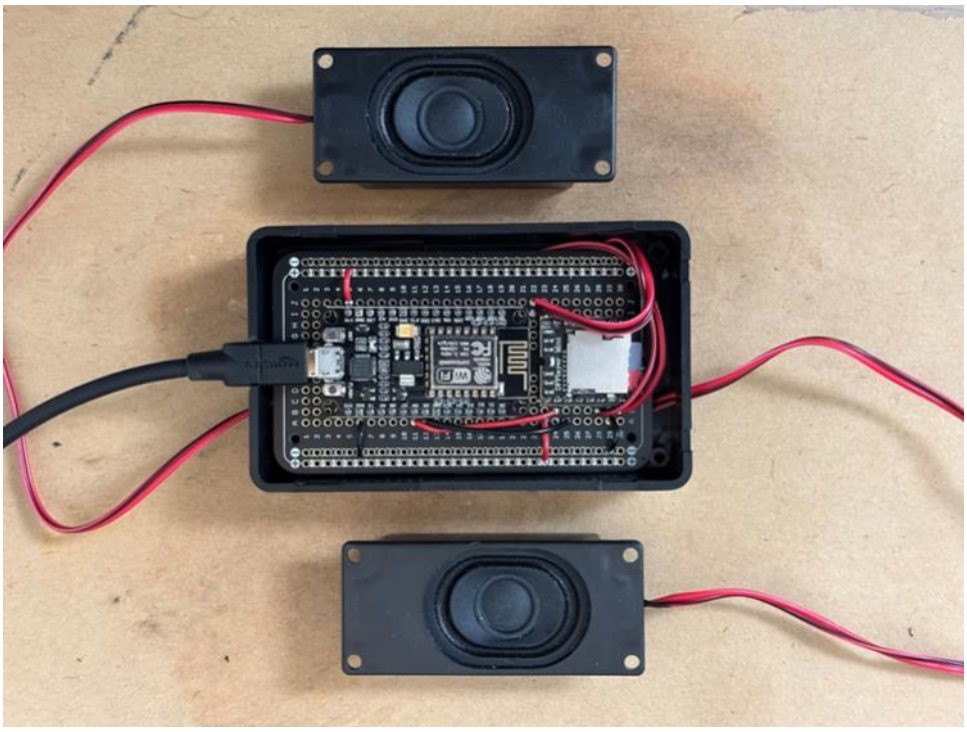
Visit our web site at http://www.heartlandstrainclub.org or on Facebook at Heart of the Heartlands Train Club.

Heart of the Heartlands Corporation
6769 NW 20th, PO Box 211
Scammon, KS 66773

Sept 2023 Meeting

Background Sounds—Thunderstorms - Randy Smith

Randy shared how he put together a Background sound generator, and be able to have thunderstorms triggered when he wanted to by using his throttles.



Randy put this information together and resources and has also provided the information on the divisions resources page (click the image to the right and it will take you there.)

If you need or want detailed information please contact Randy Smith he can provide that to you, and I'm sure he'd help you if you wanted make one for yourself.

OVERVIEW:

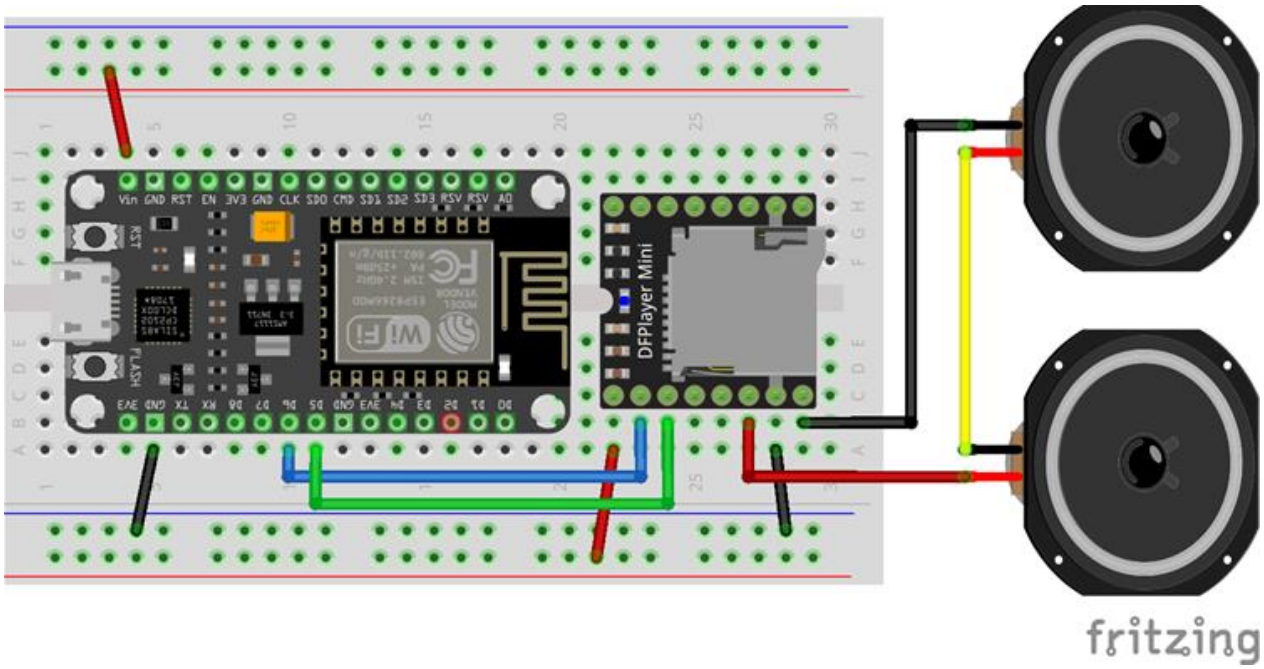
My background sound unit is a fairly standard Arduino-like controller driving a DFPlayer Mini to play background sound files. However, I chose to use an ESP 8266 chip with built-in Wi-Fi so that I could trigger override sounds remotely. Since I am already using JMRI with my railroad, I wanted to use Wi-Fi throttles via JMRI as the triggering mechanism.

The basic background sound playback simply loops through all mp3 files in folder 01. The code also subscribes to a pair of MQTT topics, one for volume and one for triggering "ads", which are actually thunderstorm mp3 files. The topics are specified in the config file that is included at the top of main.cpp. These topics are defined in the JMRI MQTT preferences, and the messages that are sent are coded into JMRI.

Sept 2023 Meeting (Cont'd)

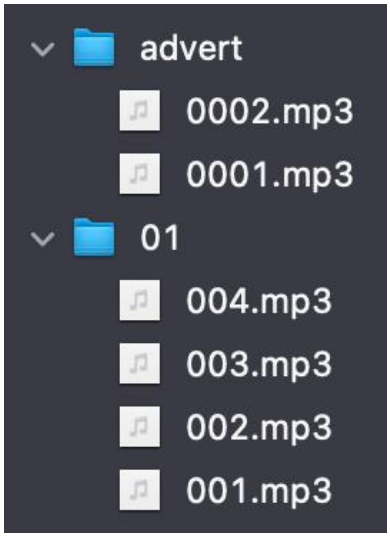
Background Sounds—Thunderstorms - Randy Smith

DIAGRAM:



SOUND FILES:

The biggest trick to the DFPlayer Mini is naming sound files correctly and putting them into properly named directories. There is a lot of information that can be found by searching, but I found the following structure to work well:



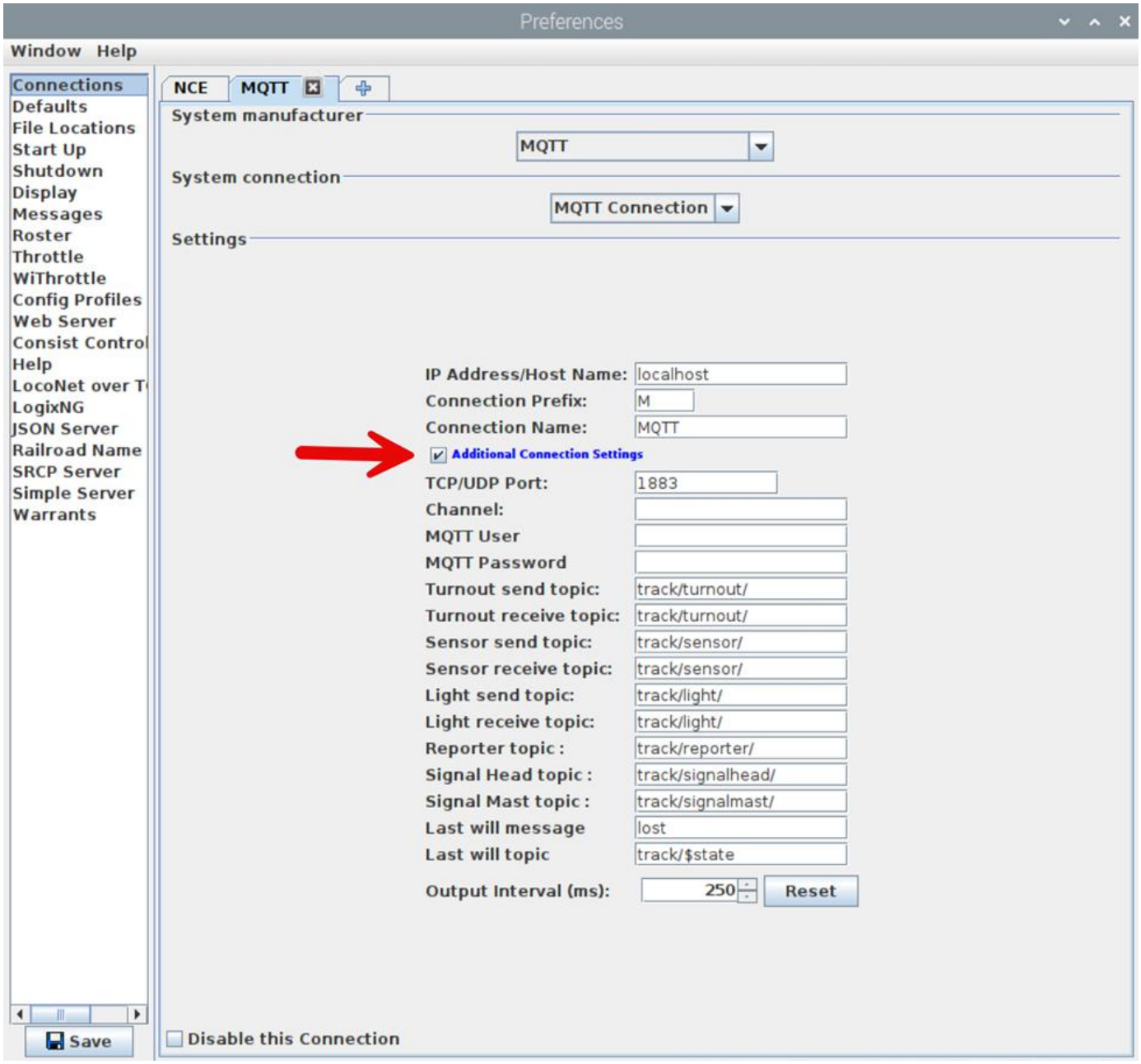
The code tells the DFPlayer to play all files in the folder 01 in a continuous loop. The override commands tell the DFPlayer to play advertisements named 1 or 2 in the advert folder.

Sept 2023 Meeting (Cont'd)

Background Sounds—Thunderstorms - Randy Smith

JMRI MQTT Setup

It was not initially clear to me exactly how to setup MQTT in JMRI. It turns out that MQTT is added as another connection, alongside your normal layout connection(s) as shown in this Preferences view. Since I am running the MQTT server on the same Raspberry Pi where JMRI is running, the IP Address is set to "localhost". Checking the option to show Additional Connection Settings will reveal all of the topics used by JMRI. The topics shown in this screenshot are the current defaults for JMRI; earlier versions of JMRI had different defaults. The only ones I am currently using are the ones for Turnouts. You can change these values, but the topics will also need to be changed in the code running on the ESP chip.



Sept 2023 Meeting (Cont'd)

Background Sounds—Thunderstorms - Randy Smith

MQTT Setup on Raspberry Pi

The MQTT broker can be run on any convenient computer, but given the extremely small volume of MQTT messages and the relatively small size of my layout and JMRI setup, the Raspberry Pi has plenty of resource to also run an MQTT broker. The following commands are used to install the Mosquitto MQTT broker and clients (for testing) on a Raspberry Pi:

```
sudo apt update && sudo apt upgrade
sudo apt install -y mosquitto mosquitto-clients
sudo systemctl enable mosquitto.service
```

Code

The ESP8266 can be programmed with the Arduino IDE just like any Arduino chip. I chose to use PlatformIO as a VS Code Extension instead because I develop software professionally. Either option will work. The complete source code can be downloaded from the Tulsa NMRA website:

https://www.tulsanmra.org/resources/mp3-mqtt-PIO.zip

A few key areas are discussed below.

MP3 Playback

The code that runs the MP3 player is very standard. Note that a software serial device is used since the ESP8266 does not have a hardware serial device. The key playback element is the call loopFolder(1) to continually loop through all sound files in folder "01".

```
SoftwareSerial mySoftwareSerial(14, 12); // RX, TX
DFRobotDFPlayerMini myDFPlayer;

mySoftwareSerial.begin(9600);
myDFPlayer.begin(mySoftwareSerial)) //Use softwareSerial to communicate with mp3.
myDFPlayer.setTimeOut(500); //Set serial communictaion time out 500ms
myDFPlayer.volume(soundVolume);  //Set volume value (0~30).
myDFPlayer.EQ(DFPLAYER_EQ_NORMAL);
myDFPlayer.outputDevice(DFPLAYER_DEVICE_SD);
myDFPlayer.loopFolder(1);
```

Sept 2023 Meeting (Cont'd)

Background Sounds—Thunderstorms - Randy Smith

MQTT Subscription

There are several layers to using MQTT, but the basic steps are to connect to the MQTT broker and register a callback for any messages that are sent. It is up to our code to parse the incoming messages to determine if they are for us, and to process them if so. The code shown in receivedCallback() below plays ads (which I use for thunderstorms) or sets volume if the appropriate messages are received.

```
static const char* host = CONFIG_HOST_IP;
static const int port = 1883;
static WiFiClient wifi_client;
static PubSubClient mqtt_client(wifi_client);
mqtt_client.setServer(host, port);
mqtt_client.setCallback(receivedCallback);
void receivedCallback(char* topic, byte* payload, unsigned int length)
{
 //if we got a message on the ad topic, process it
 if (strcmp(topic, ad_topic) == 0)
 {
  //unless it is the first one, which was retained in the MQTT server
  if (isFirstAdMsg)
  {
   isFirstAdMsg = false;
  }
  else
  {
   int adNum = 0;
   if (strncmp((char*)payload, ad1_msg, strlen(ad1_msg)) == 0)
   {
    adNum = 1;
   }
   else if (strncmp((char*)payload, ad2_msg, strlen(ad2_msg)) == 0)
   {
    adNum = 2;
   }

   if (adNum > 0)
   {
    myDFPlayer.advertise(adNum);
   }
  }
 }
```

Sept 2023 Meeting (Cont'd)

Background Sounds—Thunderstorms - Randy Smith

```
//if we got a message on the volume topic, process it
else if (strcmp(topic, vol_topic) == 0)
{
  //unless it is the first one, which was retained in the MQTT server
  if (isFirstVolMsg)
  {
    isFirstVolMsg = false;
  }
  else
  {
    int newSoundVolume = soundVolume;
    if (strncmp((char*)payload, volup_msg, strlen(volup_msg)) == 0)
    {
      newSoundVolume += 1;
    }
    else if (strncmp((char*)payload, voldn_msg, strlen(voldn_msg)) == 0)
    {
      newSoundVolume -= 1;
    }
    if (newSoundVolume < 0)
    {
      newSoundVolume = 0;
    }
    else if (newSoundVolume > 30)
    {
      newSoundVolume = 30;
    }

    //if we have a new volume, use it
    if (newSoundVolume != soundVolume)
    {
      soundVolume = newSoundVolume;
      myDFPlayer.volume(soundVolume);

      //store the volume for the next restart
      EEPROM.put(VOL_EEPROM_ADDR, soundVolume);
      EEPROM.commit();
    }
  }
```

Sept 2023 Meeting (Cont'd)

Background Sounds—Thunderstorms - Randy Smith

Persisting Volume Between Reboots

In order to preserve the last set volume when the device is powered off and restarted, I store the last volume value in simulated EEPROM, using a library that uses the memory efficiently.

```
//get the initial volume
#define VOL_EEPROM_ADDR 0

EEPROM.begin(16);

//only read if something has been written
if (EEPROM.percentUsed() >= 0)
{
  EEPROM.get(VOL_EEPROM_ADDR, soundVolume);
}

//store the volume for the next restart
EEPROM.put(VOL_EEPROM_ADDR, soundVolume);
EEPROM.commit();
```

Libraries

I used the following libraries in my code:

ESP8266WiFi - used to connect to Wi-Fi network

PubSubClient - used to subscribe to MQTT topics

DFRobotDFPlayerMini - used to control DFPlayer Mini

ESP_EEPROM - used to store the latest volume setting in simulated EEPROM efficiently

Other Options

The circuit above, or the equivalent with any Arduino, can be used to play background sounds with no overrides.

There is no requirement to use JMRI or a throttle to trigger the override sounds. Any MQTT publisher can send the MQTT messages that trigger sounds and change volume levels.

There is no requirement to use MQTT to trigger the override sounds. While experimenting with the ESP 8266 I was able to setup a web server on it that I could hit with my cellphone. In my test I was controlling LEDs using a simple web page, but it could just as easily trigger sounds and adjust the volume.

Sept 2023 Meeting (Cont'd)

Background Sounds—Thunderstorms - Randy Smith

RESOURCES:

DFPlayer Mini documentation:

https://wiki.dfrobot.com/DFPlayer_Mini_SKU_DFR0299

ESP8266 Pin Info:

https://randomnerdtutorials.com/esp8266-pinout-reference-gpios/

PARTS:

ESP8266 NodeMCU, less than $6 each in qty 3:

https://www.amazon.com/gp/product/B081CSJV2V

DFPlayer Mini:

https://www.dfrobot.com/product-1121.html

Also check Amazon:

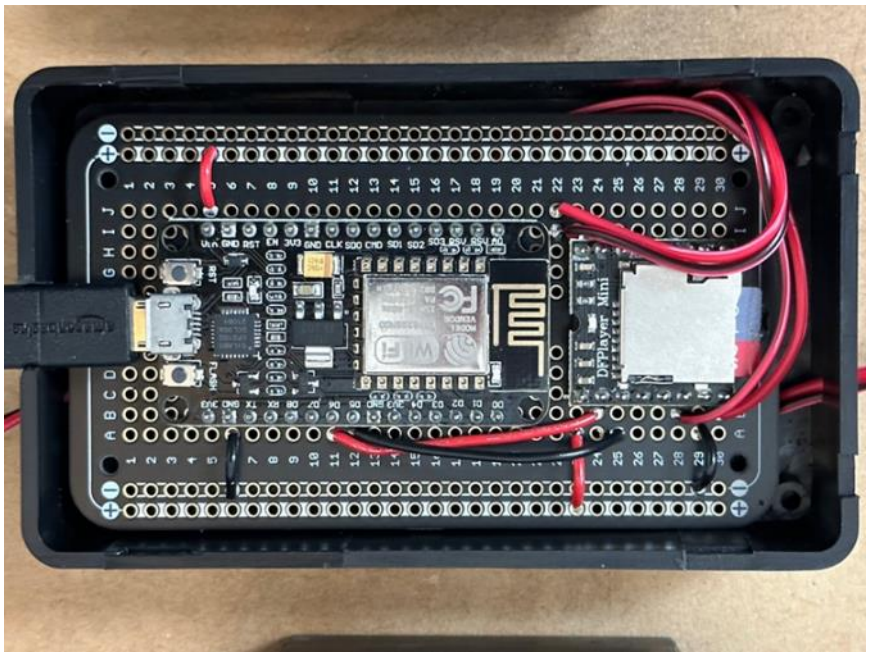
https://www.amazon.com/DFPlayer-A-Mini-MP3-Player/dp/B089D5NLW1

Speakers, CQRobot 4 Ohm speakers:

https://www.amazon.com/gp/product/B0822Z4LPH

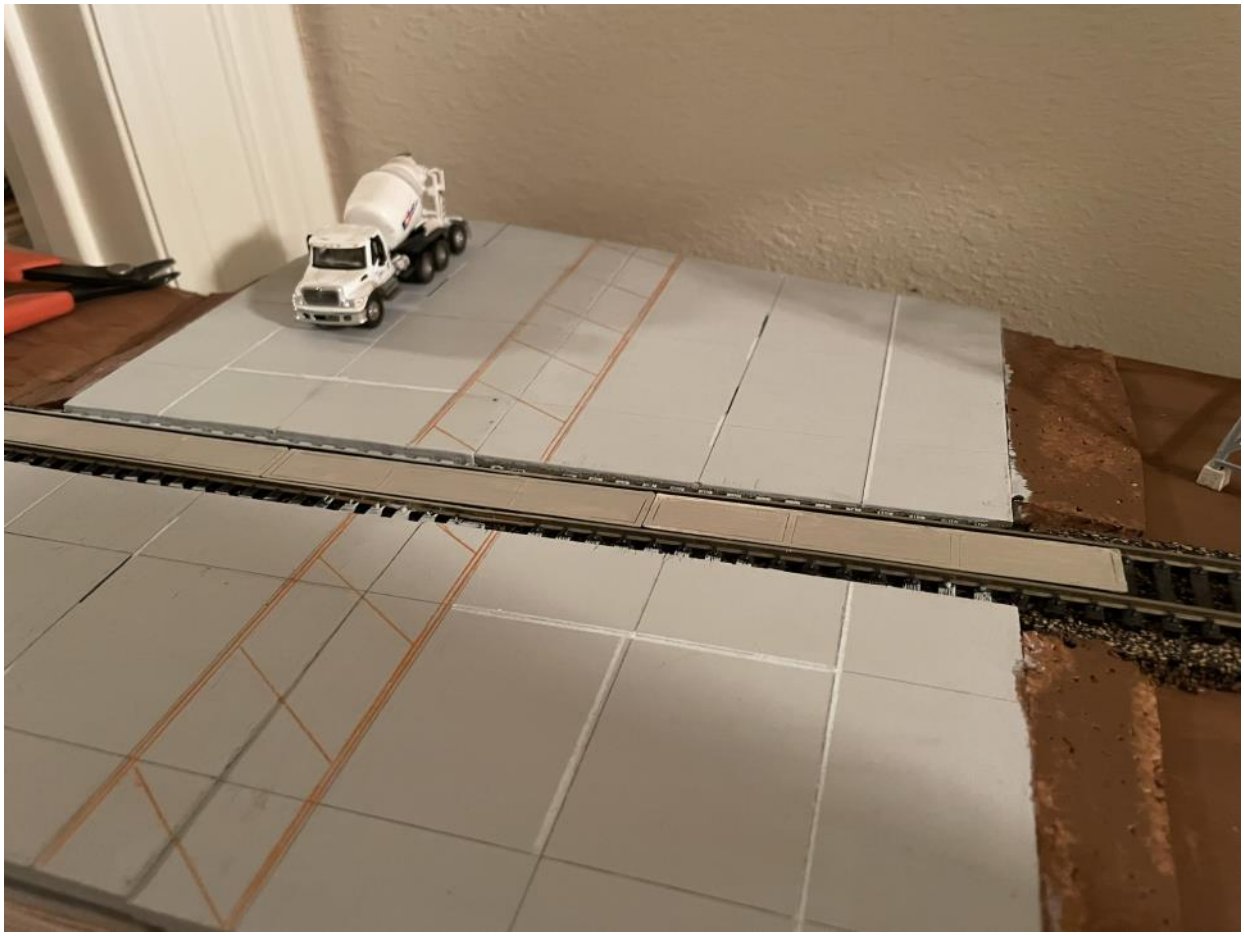
Solderable breadboard:

https://www.amazon.com/gp/product/B07ZYNWJ1S



What's New on Your Layout????

(Please email Dave Salamon—drs_rr@yahoo.com with any layout updates or projects you'd like to share with the members)



A few years ago the highway going past Green Hill Materials was Widened and a center turn bay was added. This was 5 lane PCC pavement and one of my favorite pavers put it in. Here is the upgraded crossing and I will add the appropriate lights, signs as I can. - Dale Baker

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SHOW AND TELL

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Rob McKnight—HO Scale

SHOW AND TELL

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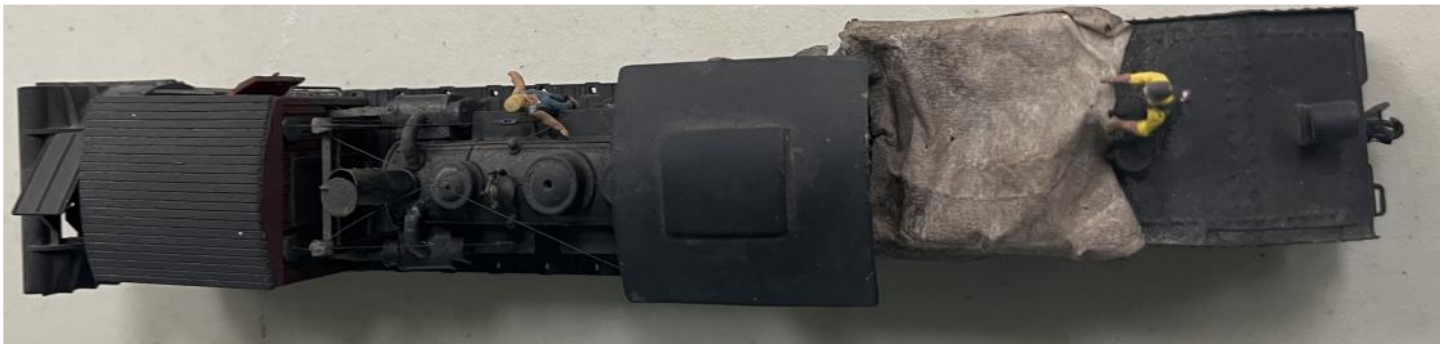
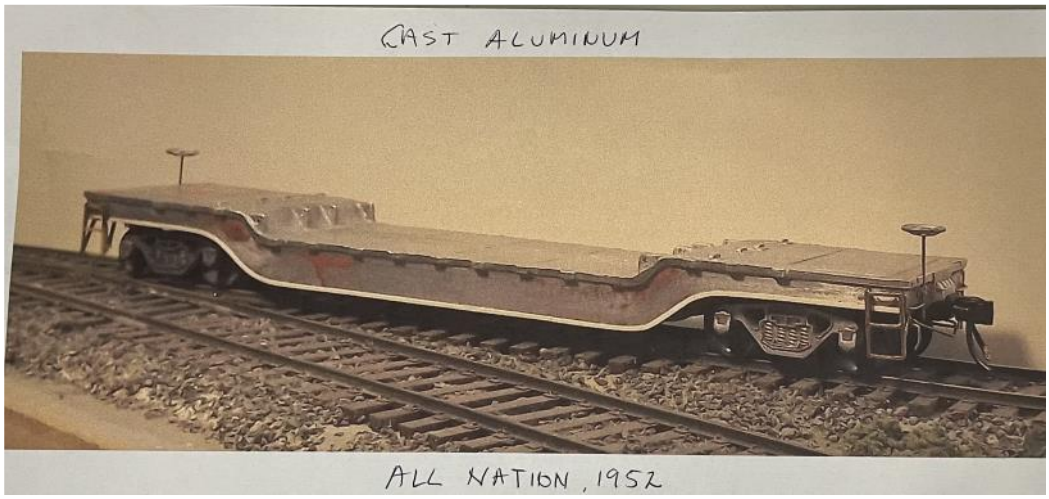
Henry Townsend—HO Scale



Steve Campbell—HO Scale (for the KCS 2nd Sub)

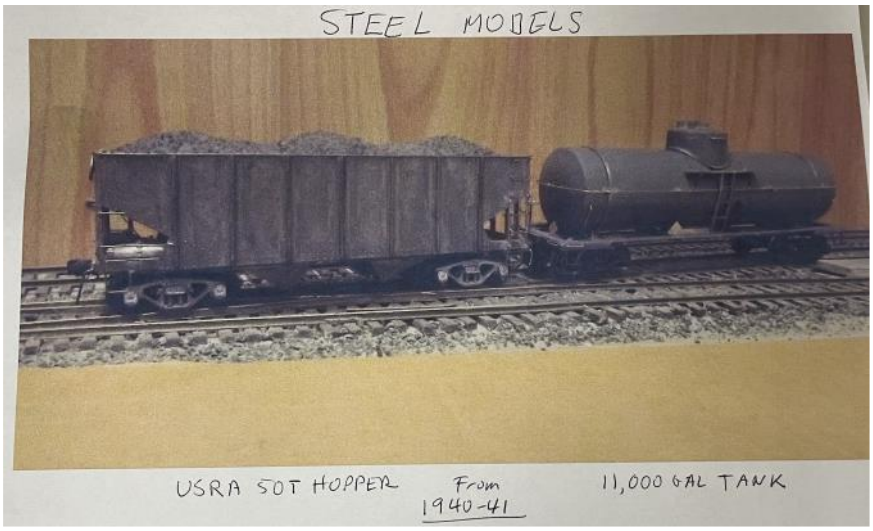
SHOW & TELL

Ed Bommer, MMR - O Scale



SHOW AND TELL

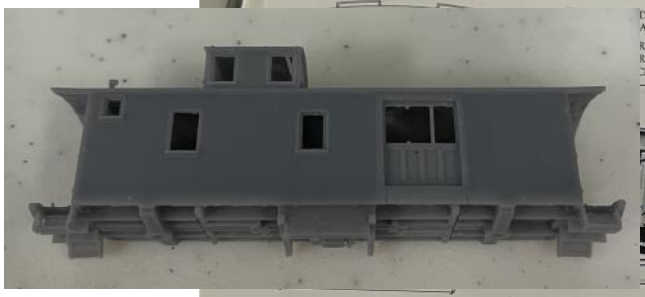
SHOW AND TELL

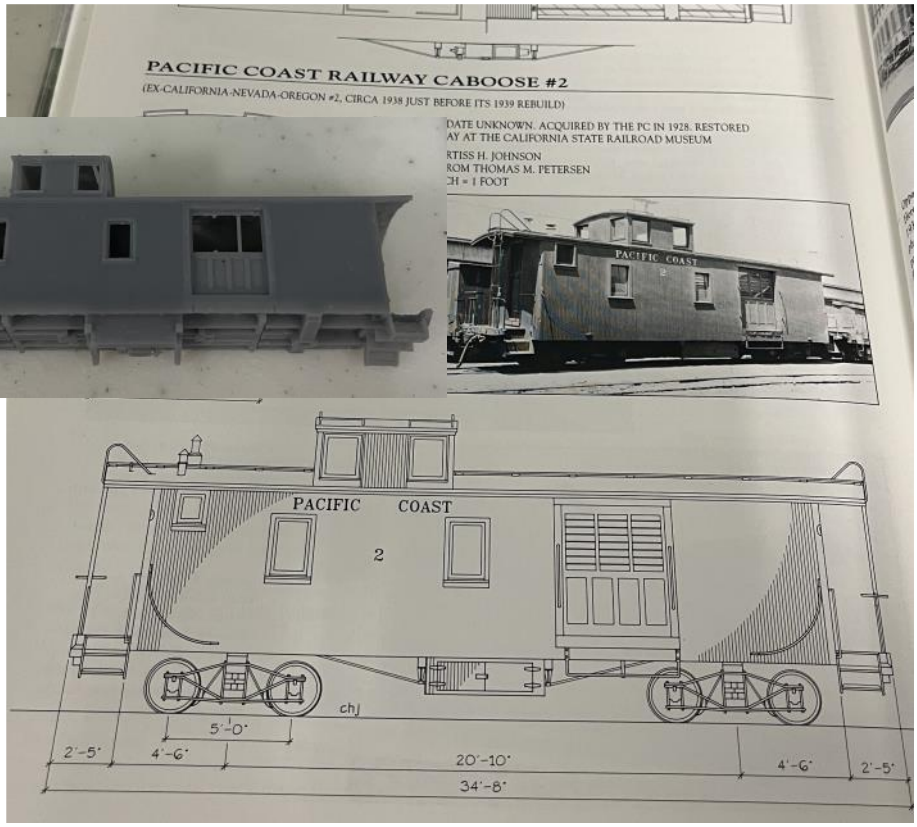


Ed Bommer, MMR - O Scale

SHOW AND TELL

Dave Salamon - TTn3.5 Caboose printed by Tom Knapp





Live steam sized lantern

Latest Article in Live Steam and Outdoor Railroading

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It's all About the Journey

The Story of the Virginia Central and Wabash Railroad

by Dave Salamon

Hugh Keen has been aware of the live steam hobby for many years, as he had seen several articles and photos, including those in *Live Steam and Outdoor Railroading* magazine. He purposely stayed away, wanting to concentrate on his high-rail Lionel layout. Also, he continued to pursue his interests in prehistoric Indian artifact hunting and collecting, and research-ing and writing Civil War history articles and books.

In September 2012, Hugh and his wife Virginia were on a re-turn trip from Denver when Hugh mentioned to his lovely bride that he was going to make a quick stop in Byers, Colorado, to check things out at the annual Colorado Live Steamers meet. Well, that may have been a "mistake," as they spent the whole day there. He was hooked.

Returning home to Tulsa, all he thought about was what he could do with two acres that sloped 6 - 7% north to south and 10% west to east. He had surveyed the property 35 years earlier when he built the house, so he had a pretty good idea of the true nature of the land. There was also a seasonal creek across the back side of the two acres which didn't make things any easier, but might provide opportunities for some non-typical track features.

First things first: Hugh had to secure the approval of the owner of the property (Virginia) to "build a little track around the house for the grandkids." If only she knew what he was re-ally thinking! She approved, contingent on first completing some major remodel work on their house. While working on the inte-rior of the house, Hugh was always thinking about the future railroad around the exterior of the house.

At this point, Hugh made his first planned visit to another track, the Illinois Live Steamers in the Chicago area. There he met Carl Baskin, who has become a very close friend and hobby mentor. Carl provided great advice along the way, built a couple of very nice cars, and helped out with many other projects.

DESIGN CONSIDERATIONS

Just like building a small-scale model train layout, a lot of planning went into the future outdoor layout. Walking the prop-erty, making sketches and scale drawings, and careful surveying were used to make the grade calculations. It was important to verify that he could build the proposed mainline while keeping an eye on future additions. It was decided early that the maxi-mum grade would be 2.5%. The result was a railroad with very few level places.

Hugh designed an extension to the north side of his garage, as this was an ideal place to house his trains. The elevation of the garage floor ultimately dictated where he would need to have cuts, embankments, trestles and other engineering obsta-cles on the rest of the railroad. A lot of dirt work was required, so he needed to purchase the appropriate equipment. A used Bobcat Witch SK350 mini skid steer loader turned out to be a great investment. He could not have even started this journey without it.

A key requirement was that he be able to drive the trains into the storage area (or engine room as he originally called it). When he built the engine room, he imbedded 1" × 1" steel angle rails in the floor during the concrete pour. If he had to do it over again, he would have done like Bill Hays at the Michigan Central and just anchor 1/4" × 3/4" metal straps to the floor. It would have been a little bit of a trip hazard, but much easier to install.

He also integrated two Harbor Freight motorcycle lifts by de-signing two pits in the floor. There is one lift up front for mainte-nance and one at the rear for off-loading onto another portable lift used for loading and unloading equipment. Since the lifts are recessed, their tops are only about 24" above the garage floor when lacked up. But this is still a big help to gain access to the bottom of the cars and engines.

The railroad mainline is about 1/4 mile long. It was built using West Coast rail set to a 7-5/8" track gauge for 7-1/2" gauge trains. Ties were made from ground-contact pressure-treated 2" × 4" × 8' lumber ripped into 2" × 2" boards, then cut to 13-5/8" long (14 ties can be cut from each one). Each ten-foot track panel uses 25 ties; the panels are assembled in a track fix-ture. A long-term goal is to install three additional passing tracks and a signal system that will allow for bi-directional running with the capability of changing directions.

All of the roadbed has a 3" layer of compacted 1-1/2" class-A limestone gravel. The ballast is 3/4" crusher-run limestone gravel. The curved rails of the switches have about a 60' radius, while the minimum track radius overall is 40'. (All locos and

Wabash GP-9 No 490 idling in the sunlight.

VC&W Cabow caboose No 2220, built by Carl Baskin

Wabash streamlined caboose No 2847, built by David Gehrke.

Wabash Caboose No 2847, end view

LIVE STEAM & OUTDOOR RAILROADING

SEPTEMBER / OCTOBER 2023

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From the Archives...

Tulsa Union Depot, 3 South Boston, passenger platform at night, circa late 1950s.

(Photo by Walden Curran courtesy of Jim Curran).

From the Archives...

Tulsa Union Depot, Santa Fe's "Oil Flyer," October 1957. ATSF's (Atchison, Topeka and Santa Fe Railway) Oil Flyer provided passenger service between Kansas City and Tulsa. At about 4:00 p.m. each day, the train departed Tulsa for Kansas City and provided express service. It could make the trip in near 4 hours. About 10:00 p.m. it once again departed for Tulsa, at a slower pace and was an overnight sleeper train. Passengers could fall asleep in Kansas City and wake up the next morning in Tulsa.

(Photo and information courtesy Mike Lins)

Overall view of Montesano Transfer on Steve "Doc'" Campbell's layout - Dave Salamon

(Structure was kitbashed by the late Rich Montesano by using numerous walls from old Revell Engine House/Superior Bakery kits)

Indian Nations Division
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Owasso, OK 74055