Realistic Operations for Model Railroaders

by

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NCR – NMRA
May, 2011
We all love to run our model railroads and enjoy the pleasures of the hobby. But one of the things we can do that adds to the fun is to run our railroads in a more realistic manner!

If you have a large enough layout, you can invite a few chums (or chumps as the case may be) to help “run” the railroad.
The railroad assignments would normally include:

<table>
<thead>
<tr>
<th>Position</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dispatcher</strong></td>
<td>Releases /Routes trains, keeps a Train Sheet, generates Switchlists.</td>
</tr>
<tr>
<td><strong>Engineer(s)</strong></td>
<td>Operates trains, performs brake tests, whistle signals.</td>
</tr>
<tr>
<td><strong>Yardmaster(s)</strong></td>
<td>Performs yard switching operations, classifies trains.</td>
</tr>
<tr>
<td><strong>Trainmaster</strong></td>
<td>Oversees all railroad operations, selects trains to be run and the sequence.</td>
</tr>
</tbody>
</table>

(Conductor)
Realistically, you cannot have 10 crewmen operating on a 4 X 8 layout!

The larger the layout, more assignments can be made. For smaller layouts, two to three crewmen are adequate.
You might want to consider using some or all of the following documents to help “run” the railroad. Documents such as:

1. Time Tables
2. Waybills
3. Switchlists
4. Train Sheet
5. Bad Orders
6. Train Orders
**Time Tables – States when the trains run.**

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**SOUTHERN PACIFIC MODEL RAILROAD SYSTEM**

- **TRAIN TIMETABLE** -

<table>
<thead>
<tr>
<th>SP</th>
<th>SP</th>
<th>RR</th>
<th>SP</th>
<th>SP</th>
<th>SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>100/101</th>
<th>261</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAIN NO.</td>
<td>262</td>
</tr>
</tbody>
</table>

---

**STATION**

- **SACRAMENTO**
  - 0905 0930 0915

- **ROSEVILLE**
  - 0545

- **COLFAX**
  - 0600

- **AUBURN**
  - 0645

- **EMIGRANT GAP**
  - 0745 0800

- **SUMMIT**
  - 0830 0900

- **TRUCKEE**
  - 0700 1115

- **SACRAMENTO SUBDIVISION**

**EMPLOYEE TIMETABLE #2**

Effective: 12 February 2011 @ 0001 hrs

* = Point of Origin
Waybills – Simulates customer requests.
Train Order – Gives special orders to a train.

Train Order No. 912  4 September 2011

To: Sacramento

Train No.: X5510

Train X5510 hold at Sacramento to allow MOW Train X7551 to access AUB spur. After MOW Train passes, contact Dispatch for clearance to proceed.

Dispatcher: RBT  Time: 1325  Opr: JEM
**Switchlists** – Used by the Yardmaster to make up a train’s consist.

<table>
<thead>
<tr>
<th>Seq No.</th>
<th>Road Mark</th>
<th>Number</th>
<th>Type</th>
<th>Commodity</th>
<th>Shipper</th>
<th>Consignee</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SLSF</td>
<td>51523</td>
<td>G</td>
<td>Rail Ties</td>
<td>Karen Dst</td>
<td>TRK Yard</td>
<td>EMG</td>
<td>TRK</td>
</tr>
<tr>
<td>2</td>
<td>SP</td>
<td>4653</td>
<td>N</td>
<td></td>
<td>SP RR</td>
<td>SP RR</td>
<td>SAC</td>
<td>SAC</td>
</tr>
<tr>
<td>3</td>
<td>SP</td>
<td>440523</td>
<td>H</td>
<td>Empty</td>
<td>R&amp;I Proc</td>
<td>RBT Mine</td>
<td>CFX</td>
<td>AUB</td>
</tr>
<tr>
<td>4</td>
<td>SP</td>
<td>440728</td>
<td>H</td>
<td>Empty</td>
<td>R&amp;I Proc</td>
<td>RBT Mine</td>
<td>CFX</td>
<td>AUB</td>
</tr>
<tr>
<td>5</td>
<td>AGAX</td>
<td>242</td>
<td>T</td>
<td>Dsl Fuel</td>
<td>Shell Oil</td>
<td>SAC Yard</td>
<td>RVL</td>
<td>SAC</td>
</tr>
<tr>
<td>6</td>
<td>GATX</td>
<td>8556</td>
<td>T</td>
<td>Dsl Fuel</td>
<td>Shell Oil</td>
<td>SAC Yard</td>
<td>RVL</td>
<td>SAC</td>
</tr>
<tr>
<td>7</td>
<td>CSX</td>
<td>130008</td>
<td>X</td>
<td>Empty</td>
<td>R&amp;I Proc</td>
<td>TRK Yard</td>
<td>CFX</td>
<td>TRK</td>
</tr>
<tr>
<td>8</td>
<td>NYC</td>
<td>174182</td>
<td>X</td>
<td>Empty</td>
<td>R&amp;I Proc</td>
<td>SAC Yard</td>
<td>CFX</td>
<td>SAC</td>
</tr>
<tr>
<td>9</td>
<td>SP</td>
<td>202516</td>
<td>X</td>
<td>Empty</td>
<td>R&amp;I Proc</td>
<td>SAC Yard</td>
<td>CFX</td>
<td>SAC</td>
</tr>
</tbody>
</table>

Remarks:
Switchlists – An example of a partial switchlist made on Excel.

SOUTHERN PACIFIC MODEL RAILROAD - Sacramento Subdivision

TRAIN SWITCHLIST

Date: 16-Apr-11

Train No: 201 LOCAL  Locomotive(s): SP 6640  Caboose: SP 4653

Stops SAC RVL CFX AUB TRK EMG SAC

Session #: 34 Sequence #: 3

SAC

Pick-Ups

<table>
<thead>
<tr>
<th>Rd Mark</th>
<th>Rd #</th>
<th>Type</th>
<th>Commodity</th>
<th>Shipper</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYC</td>
<td>174182</td>
<td>X</td>
<td>Chemicals</td>
<td>Denali Chem</td>
</tr>
</tbody>
</table>

Set-Outs

<table>
<thead>
<tr>
<th>Rd Mark</th>
<th>Rd #</th>
<th>Type</th>
<th>Commodity</th>
<th>Consignee</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RVL

Pick-Ups

<table>
<thead>
<tr>
<th>Rd Mark</th>
<th>Rd #</th>
<th>Type</th>
<th>Commodity</th>
<th>Shipper</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGAX</td>
<td>242</td>
<td>T</td>
<td>Dsl Fuel</td>
<td>Shell Oil</td>
</tr>
<tr>
<td>GATX</td>
<td>8556</td>
<td>T</td>
<td>Dsl Fuel</td>
<td>Shell Oil</td>
</tr>
</tbody>
</table>

Set-Outs

<table>
<thead>
<tr>
<th>Rd Mark</th>
<th>Rd #</th>
<th>Type</th>
<th>Commodity</th>
<th>Consignee</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYC</td>
<td>174182</td>
<td>X</td>
<td>Chemicals</td>
<td>Shell Oil</td>
</tr>
</tbody>
</table>

CFX

Pick-Ups

None

Set-Outs

None
Train Sheet – Used by the Dispatcher to track the movement of trains over the system.

```
<table>
<thead>
<tr>
<th>Dispatcher: RBT</th>
<th>SOUTHERN PACIFIC MODEL RAILROAD SYSTEM – Sacramento Division Date: 12 Feb 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record No. 25</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

**EASTWARD – Read Up**

<table>
<thead>
<tr>
<th>Train No.</th>
<th>TRAIN NUMBER or ID</th>
<th>WESTWARD – Read Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
<td>261</td>
</tr>
<tr>
<td>262</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>6046</td>
<td>None</td>
<td>5510</td>
</tr>
<tr>
<td>5510</td>
<td>1163</td>
<td>6046</td>
</tr>
<tr>
<td>1163</td>
<td>6046</td>
<td>1064</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Cars*</th>
<th>Number of Cars*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Station</th>
<th>Train Type</th>
<th>M.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SACRAMENTO YARD</td>
<td>T FRT</td>
<td>0.0</td>
</tr>
<tr>
<td>Roseville</td>
<td>1314</td>
<td>1100</td>
</tr>
<tr>
<td>Colfax</td>
<td>46.1</td>
<td>5</td>
</tr>
<tr>
<td>Auburn</td>
<td>1359</td>
<td>1140</td>
</tr>
<tr>
<td>Emigrant Gap</td>
<td>50.6</td>
<td>1416</td>
</tr>
<tr>
<td>Summit</td>
<td>1238</td>
<td>1409</td>
</tr>
<tr>
<td>Truckee YARD</td>
<td>1333</td>
<td>1246</td>
</tr>
<tr>
<td>GALT</td>
<td>1146</td>
<td>112.3</td>
</tr>
<tr>
<td>85.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**

- LOC = Local Freight
- T FRT = Thru Freight
- X(Loco #) = Extra
- MAN = Manifest
- PASS = Pass/Comm

- * = Includes Caboose

**NOTES:**

1. 
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**Bad Order** – Denotes a loco, rolling stock or other railroad item in need of repair.

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SOUTHERN PACIFIC MODEL RAILROAD

BAD ORDER

Car/Loco No.: 202516
Road Mark: SP
Date Out of Service: 18 Sep 2011
Defect: Derails - check wheel guage

Returned to Service Date: 21 Sep 2011
```
A note about class & classification yards.

Trains are generally divided into “classes,” with 1st Class trains having priority over 2nd Class trains and so on.

• If you are running a 2nd Class train and meet a 1st Class train, you will take the siding and give the 1st Class train the mainline.
• Extras are usually the lowest class train on the railroad; however, the Dispatcher may make exceptions due to special conditions (e.g., perishables, livestock, etc.).
• Eastbound trains have priority over Westbound trains.
More about class & classification yards.

If you have a yard with classification track(s), the Yardmaster can sort rolling stock, for example, according to destination.

You can also classify by train type; e.g., Manifest, Local, Thru Freight, etc.
A few more ideas for realistic operations on your model railroad.

1. Some modelers like to use “fast time” clocks. Ratios of 4:1 or 6:1 or 8:1 or 11:1 are commonplace.
2. Run different types of trains; e.g., Thru Freights, Passenger, Locals, etc.
A few more ideas for realistic operations on your model railroad. (Cont’d)

3. For the Engineers –

On a prototype train, a brake test was necessary to make sure the gladhands were all connected and the air in the brake line was up throughout the train.

Model railroaders, obviously, do not connect air hoses.

However, the standard practice has been for the engineer to pull the slack out of the couplers to make sure all the cars in the consist are properly coupled. This practice serves as a surrogate “brake test.”
A few more ideas for realistic operations on your model railroad. (Cont’d)

4. Also –

Engineers use whistle signals to indicate various train movements, etc. Some of the basic ones are:

-- --  (= train commencing a forward movement)

o o o o  (= train commencing a backward movement)

o  (= train stopping)

---  (= train approaching a station, junction or RR crossing)

--- --- o ------  (= train approaching a grade crossing)
A few more ideas for realistic operations on your model railroad. (Cont’d)

5. And Finally –

Trains are heavy; therefore, they cannot start or stop quickly!

The most common mistakes of the inexperienced (and small children) are jack rabbit starts and screeching halts. Slow, smooth movements are the order of the day. This can be enhanced by using a momentum throttle.
Radio Communications

If your model railroad is large enough and/or there is “separation” between the Dispatcher and the Engineers, then using a radio communication system is a good idea and adds to the realism of operations.

Before a train leaves a yard, it must be “cleared” to do so.

Typically, some information is relayed to the Dispatcher before clearance, such as:

- Locomotive Number(s)
- Caboose Number
- Number of cars in the consist
Typical Conversation

Engineer

“Dispatch, SP Train 201 ready to depart Sacramento. Locomotive is SP 6640, 8 cars in the consist, caboose is SP4653.”

Dispatcher

“Train 201, you are cleared to leave Sacramento at 1427.”

Engineer

“Train 201, copy”
More on Radio Communications –

**Engineers/Conductors** should report train’s location to the **Dispatcher** while on the line and is entered on the Dispatcher’s Train Sheet.

Upon arrival, **Engineers/Conductors** should give their locations to the **Dispatcher** at all towns on the schedule. This enables the **Dispatcher** to know where all trains are at any given time.
Typical Conversation

**Engineer**

“Dispatch, this is SP Train 201. Arrived at Emigrant Gap.”

**Dispatcher**

“Train 201, copy, we have you in Emigrant Gap at 1603.”

**Engineer**

“Train 201, copy”
Lastly ---

OK, we have reviewed some of the things that you might do to make your railroad run in a more realistic manner. The question that you may be thinking is;

Where does all this stuff come from and how do I get/do it ?

Here’s how ---
For the Documents:

Timetables, Waybills, Train Sheet, Bad Orders, Train Orders
Try Microsoft Word or Excel

Switchlists
Microsoft Excel
There are several software programmes that generate a Switchlist. Check the Internet.

[ R. B. will offer to use his software (modified to your railroad) and load it onto your computer for a small fee. Just call me at (248) 767-7451 ]
If you would like a copy of this presentation, please e-mail a request to:

SWVRC@USA.NET
Well, that’s it folks !!

Hope you enjoyed.

Thank you and right neighbourly of you to come too !