

Dan Hinel Superintendent
616-634-1754
danhinel@sbcglobal.net
http://rxrr.webs.com
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The Setting

Rail Xpress Railroad (RxRR) is a terminal switching railroad with a CTC controlled double track beltline configuration surrounding a metropolitan area of Gotham. RxRR interchanges with several class I railroads with major interchange yard at Logan. Industries served by RxRR enjoy good competitive transportation links to the world. The great success of RxRR operations can be attributed to their prescription to effectively and economically serve over140 customers in 22 switching districts to quickly and timely freight operation. RxRR layout is a switching layout with industrial and interchange car spots to be over 700. On RxRR yard transfer rail traffic originates and terminates at Logan interchange yard and or Gotham Yard with intermediate stops at Havana and Sexton Yards, in addition to work at Ada, Lake, Doyle, Lee, Oneida, Dundee, Randall, Urbana, and Liberty Interchanges. There is a major classification yard at Gotham and minor yards at Sexton, Havana, Hudson and Rowan.

Customer base is primarily manufacturing, bringing in raw materials like steel, plastic pellets, crude oil, chemicals, lumber, and food stuffs. RxRR ships finished goods like appliances, machinery, furniture, truck parts, metal shelving, printed materials, chemicals, toys, sporting goods and bicycles to name a few products. Also, RxRR handles various agricultural products such as grains, fresh produce, canned fruits and vegetables, and meats.

A typical crew would be CTC Dispatcher, Gotham Yard Master, Havana/Sexton Yard Master, and eight 1 or 2 person road crews operating locals and yard transfers. A typical session will have 12 yard transfers trains, 20 local switching jobs, and 5 units trains (coal, aggregate, grain, and petroleum products) plus a lonely Doodlebug passenger train. There are 12 locals out of Gotham, and 5 out of Sexton and 3 out of Havana. Crews utilize telephone intercom system to communicate with Dispatcher and Gotham Yard Master.

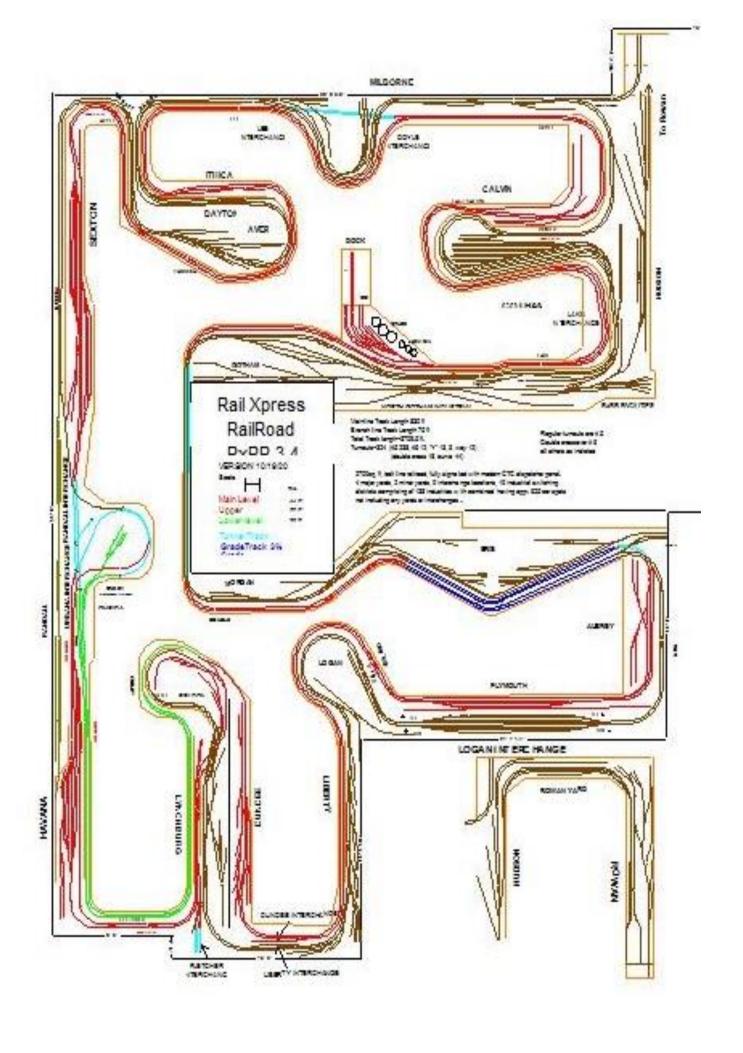
# **Operational Overview**

Yard transfers originating in Logan or Gotham have two uses. First, they provide cars to fulfill "car requests" at each of the yards from local freight agent. The cars are placed on destination tracks for local trains. Second, yard transfers pick up outbound cars that were set out by local train crew after completing their assignment and take them to Logan interchange yard. Thus, yard transfers provides the mechanism for taking care of in and out bound traffic. The local turns pickup and setout cars at the various industries. This car forwarding system is self staging and errors by crews are easily corrected. A more comprehensive description can be found in the "General Operating Information and Procedures" section.

The Dispatcher is responsible for moving rail traffic in division in a safe and effective manner. The dispatcher relies on his training and information displayed on dispatcher's panel as well as information from road crew via radio. Both train crews and dispatcher have a copy of Train Orders and are required to review before departure. Please take note of any special instructions indicated on train orders.

# THE LAYOUT

RxRR occupies an "F" shaped 2700 sq ft room. Track configurations is a figure 8 folded onto itself. The 830+ ft double track mainline is CTC dispatcher controlled, utilizing a 3 serial node c/mri detection and signaling system. Dispatcher panel is three LED monitors.



# **General Operating Information and Procedures**

# Car Orders-Car Forwarding System by Dan Hinel

# For more information on Car Orders see <a href="mailto:carrdersmrr@grops.io">carrdersmrr@grops.io</a>

This a car forwarding system based upon filling car requests made by industries for a certain car type, i.e. 40' box, 40' foot high cube box, 50' box, 45' high cube box, food tank, chem. Tank, covered hopper etc.. There is no matching of reporting marks just car type. The system is simple, flexible and self-correcting. What you do with the car order cards depends on which type of train, i.e. yard transfers or locals you are running.

## **Form**

The "Card" has two sides "CAR ORDER" and "PICKUP ORDER". The Car order side will indicate car type, destination town, industry and where to spot car. The Pickup side indicates where the car is and what to do with the car after returning to yard.

**GOTHAM** 

#### **CAR ORDER**

**CUSHION COIL** 

TO BE DELIVERED TO AVERY

#### **METAL COATERS**

SIDING # 1 SPOT # 1

WHEN CAR HAS BEEN SETOUT PLACE THIS CARD IN BOX LABELED

"SETOUT"

**GOTHAM** 

#### PICKUP ORDER

**CUSHION COIL** 

TO BE PICKED UP AT AVERY

#### **METAL COATERS**

SIDING # 1 SPOT # 1

LOCAL CREW TO SET OUT ON WESTBOUND TRACK
WHEN CAR HAS BEEN SETOUT PLACE THIS CARD IN BOX
LABELED

"UNFILLED"

# **Car Types**

RxRR car forwarding system is based in part by switching the appropriate car type/size. Since there are several types and sizes for cars use the following as guidelines.

#### Tank Cars

10K tank cars are for chemicals and are 25 scale feet long. All other tank cars are 20K in size.

Food Tanks usually will indicated "Corn Syrup" or a Corn logo on each side of car

Petro cars will have a "P" or indicate an oil company like "Standard Oil"

## **Hoppers**

Chemical hoppers are either 2 bay or 3 bay in size

Food Cov. Hoppers have an "F" on plate on upper right side of car or indicated flour

#### **Box Cars**

There is 40' & 40' High Cube (Taller and most have White strip on top of each end)

50' box & 50' High Cube (Taller and most have White strip on top of each end)

Mechanical reefers are same as insulated or refrigerated box cars

(Note: look for "I" on plate on upper right side of car)

"All door" box cars have multiple doors on each side

#### Gondola

Gondola covered or not car types are interchangeable Usually carry scrap material.

"Coil Steel" are NOT interchangeable with other types

# **Yard Transfers**

Yard Transfers use Car Order cards in the yards to fill "Car Order" requests found in the "UNFILLED" car order box at each yard. On the Havana (see example below) or Sexton Yard boards, find your train and read to the right for finding the priority of switching districts to be focused on. If a car in your train can "fill" a request then you set out car on to appropriate Local track in yard and place car order card into the "FILLED" box. You can pick up cars from pick up tracks (Locals) ased upon train direction to have a maximum numbers of cars. Yard transfers do not take any cards.

# HAVANA YARD BOARD

ARRIVE TRACK 3 YARD MAIN CHECK FOR UNFILLED CAR ORDERS PER PRIORITY CHART BELOW

#### ONLY FILL CAR REQUESTS PER PRIORITY- MAX OF 2 DESTINATIONS

RED NUMBER IS MAXIMIUM NUMBER OF CARS NEEDED FOR TRAIN

BELDON (5) LYNCHBURG (6) HAVANA INDUSTRIAL (7)

PLACE CARS ON TRACK 1 OR 2. BLOCKING PER DESTINATION

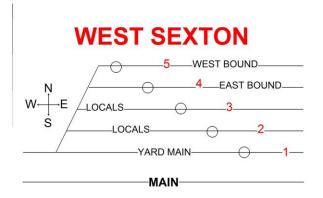
PLACE FILLED CAR ORDERS IN FILLED POCKET

PICK UP CARS FROM APPROPRIATE OUTBOUND TRACK FOR DIRECTION OF TRAIN

TRACK 4 FOR EASTBOUND TRACK 5 FOR WESTBOUND

TR#	NAME	DIR	1 <sup>ST</sup> PRIORITY	2 <sup>ND</sup> PRIORITY
H1	BELDON	W		
201	LOGAN-HAVANA- GOTHAM	Е	LYNCHBURG	HAVANA INDUSTRIAL
107	GOTHAM- HAVANA- LOGAN	W	LYNCHBURG	HAVANA INDUSTRIAL
H2	LYNCHBURG	W		
203	LOGAN-HAVANA-GOTHAM	Е	HAVANA INDUSTRIAL	BELDON
108A	GOTHAM-HAVANA- LOGAN	W	HAVANA INDUSTRIAL	BELDON
Н3	HAVANA INDUSTRIAL	Е		
E4	PASSENGER	W		
202	LOGAN-HAVANA-GOTHAM	Е	BELDON	LYNCHBURG
108B	GOTHAM- HAVANA- LOGAN	W	BELDON	LYNCHBURG

Yard Panel and box located on fascia in Yard.



UNFILLED	FILLED
<b>Car Requests</b>	(Local Track)

#### Train Orders

Obtain Train Orders from Dispatcher. Local trains have train numbers with first letter indicating destination town and yard transfers have 3 letters indicating originating yard, intermediate stops and destination plus 3 digit number. Review and consult route diagram if required, ie, 208 would be Departing Logan yard (Westbound) from track 8, stopping at Sexton and terminating at Gotham. The "MAIN" is the outside track (next to isle way) and "SIDING" is the inside track, except at Lynchburg where too much "Lynchburg lemonade" was drunk by design staff. Contact Dispatcher via radio for instructions. See Car Forwarding section for addition information. Please read Train orders and ask questions before you start. Document any problems, suggestions etc on train orders. (Front Side)

#### TRAIN 208A

**LOGAN - SEXTON- GOTHAM** 

MUST CONTACT DISPATCHER BEFORE LEAVING ANY YARD

LEAVE LOGAN WESTBOUND (LEFT) FROM TRACK # 8 TRAIN LENGTH 8 CARS

Proceed Per Signal Indication

Takes Siding at APPLE onto Sexton Yard Lead

## **LAKE INTERCHANGE**

## **See Special Instructions**

(West of Lake) Pick up 3 cars TRAIN LENGTH 11 CARS Proceed Westbound

#### LEE INTERCHANGE

#### **See Special Instructions**

(East of Lee) Pick up 4 cars From Track 2
TRAIN LENGTH 15 CARS Proceed Westbound

#### **SEXTON YARD**

ARRIVE TRACK # 1

SEE REVERSE SIDE FOR INSTRUCTIONS

#### **DUNDEE INTERCHANGE**

#### **See Special Instructions**

(West Dundee) Pick up 3 cars

TRAIN LENGTH 18 CARS

Takes SIDING at BART onto Gotham Yard Lead
DISPATCHER WILL CONTACT GOTHAM YARD MASTER WHO WILL FORWARD INSTRUCTIONS

TAKE MOTIVE POWER TO ENGINE FACILITY

**Turn Off Head Light** 

(Back Side)

#### SEXTON YARD INSTRUCTIONS

ARRIVE TRACK # 1

CHECK YARD BOARD FOR

UNFILLED CAR ORDERS

FILL CAR ORDERS BASED UPON TRAIN NUMBER AND SWITCHING DISCTRICT PRIORITY ANY CARS THAT CAN

FILL CAR ORDERS

MAX # OF CARS PER DESTINATION AS INDICATED ON YARD BOARD

> BLOCK CARS PER DISTINATION ON TRACKS 2 OR 3

> > PLACE THESE CARDS IN

FILLED ORDER BOX.

PLACE TRACK LOCATION CARD IN FRONT ONCE MAX # OF CARS PER DESTINATION ARE IN BLOCK

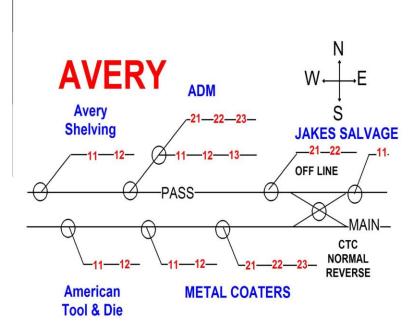
FROM TRACK 4 PICKUP ANY **EASTBOUND** CARS EQUALING NUMBER OF CARS DROPPED OFF

DO NOT EXCEED 15 CARS IN YOUR TRAIN

# Local

Local trains will be made up from cards found in "Filled" Yard box. Depending on destination you will have to sort through the cards and pick the appropriate cars. Remember if car orders require a 50' box and you see 3 of them on the local setout track, take any one of them. Again the max number of cars is indicated on top of the Yard Board. Verify the Car Order Cards with the rolling stock in train. Contact Dispatcher when ready to depart. Proceed to your destination per train orders or dispatcher directions. At the towns make pickups per "Pickup Orders" and Setouts per "Car Orders'. Remember for pickups you cannot exceed maximum number of cars when leaving town and remove "Pickup" order card from "PICKUP" box. (You will take these cards back with you to the yard.) You will notice on Card Orders for each industry a Siding # and Spot # for where the car is to be spotted. These spots a indicated on fascia panels. Place car order cards into "Setout" box after you have spotted the car. . Before you leave town we must do the paper work shuffle. First take cards found in "HOLD" box and flip them over to "PICKUP" side and place in pickup box. (These cars will be picked by next local). Proceed per train orders.

Control panel and box located on fascia for town or industrial district.



SETOUT	HOLD	PICKUP

At the yard, you will place **car** on appropriate **outbound** track as indicated on Pickup Order side of **card**. Flip card over to "**Car Order**" side and place in "**Unfilled**" box. If by chance you find a car that has been spotted before but no "PICKUP ORDER" you may add car to you train. If by chance you find a PICKUP Order and no car, just take order back to yard, flip to "Car order side and place in "Unfilled" box.

HAVANA LOCAL FRT

## **H2** LYNCHBURG TURN

SERVING SWITCHING DISTRICTS

#### **LYNCHBURG**

MUST CONTACT DISPATCHER BEFORE LEAVING HAVANA YARD AND FOR TRACK AND TIME QUESTIONS SEE SUPERINTENDENT

Pick up Motive Power & Caboose from Track 6
DO NOT EXCEED 6 CARS IN TRAIN
Follow Train Makeup Instructions on reverse side.

#### TRAIN ORDER

Leave HAVANA WESTBOUND (LEFT)

Yard Limits at IDA proceed per Signal Indication Take Main at Ida then take Siding at Cliff Junction

#### **LYNCHBURG**

Contact Dispatcher for T&T
Follow switching instructions
found on reverse side
Return to HAVANA yard via
Cliff Junction Take Yard Lead at IDA

#### **HAVANA YARD**

Follow returning yard instruction found on reverse side

Return Motive Power & Caboose to

Track 6 Turn Off Head Light

**Back Side** 

# HAVANA TRAIN MAKEUP INSTRUCTIONS

Make up your train as follows From **HAVANA YARD BOARD** pickup **CAR ORDERS** from **FILLED CAR ORDER** box for cars going to industries in the towns served. Using **CAR ORDERS** to determine what type and number of cars needed. Make up train from cars on tracks 1 **OR**2.

#### **SWITCHING DISTRICT INSTRUCTIONS**

Pickup cars per PICKUP ORDERS
Setout cars per CAR ORDERS
FLIP CARDS IN HOLD BOX
MOVE TO PICKUP BOX
MOVE CARDS IN SETOUT BOX TO
HOLD BOX

#### RETURNING YARD INSTRUCTIONS

Follow car routing instructions on **PICKUP ORDERS** to determine on which track to set out cars

EASTBOUND TRACK 4

WESTBOUND TRACK 5

Flip cards from PICKUP ORDER side to CAR ORDERS side and Place

into UNFILLED CAR ORDER BOX

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Since there are several types sizes for tank cars use the following as guidelines.

10K tank cars are for chemicals and are 25 scale feet long. All other tank cars are 20K in size.

Chemical hoppers are either 2 bay or 3 bay in size

Food Cov Hoppers have an "F" on plate on upper right side of car.

Mechanical reefers are same as insulated or refrigerated box cars

(Note: look for "I" on plate on upper right side of car)

#### **Communications**

RxRR uses telephone intercom system for communications.

Operating instructions

# **Road Crews**

## Calling Dispatcher. (Instructions on top of phone display)

- 1. Press "Menu" button and scroll down using large center button to "Intercom".
- 2. Press "Menu" button again.
- 3. Curser should be on Dispatcher.
- 4. Press "Menu" button and screen will indicate calling dispatcher.
- 5. If screen displays "Dispatcher not available" he/she is talking to someone else.
- 6. Repeat you call in a few minutes.
- 7. A typical conversation with dispatcher would be.

Road Crew "Dispatch, this is Crew # (7) Train 100." (Crew # displayed on phone)

Dispatcher "Go ahead Train 100"

Road Crew "Setting at a Red at Ida junction" See Relay box or fascia for name of OS section

Dispatcher "Train 100 hold for Train 200 then proceed per signal indication"

Road Crew "Train 100 to hold for Train 200 then proceed per signal indication, over"

8. To terminate call press "OFF".

#### **Receiving Call From Dispatcher**

- 1. Phone will ring and display will indicate call from Dispatcher.
- 2. Press Green "Phone" button and **listen** to dispatcher.
- 3. Once conversation is complete Press RED "OFF" button.

### Dispatcher

#### **Calling Road Crews**

- 1. Press "Menu/Select" Button.
- 2. Press down arrow key labeled "CID")
- 3. Press "Menu/Select" button Display will indicate "Crew 1"
- 4. Press the down key until you have crew that you want.
- 5. Press "Menu/Select" button and display will indicate "Calling Crew 7" and phone will be ringing.
- 6. To end call press "Speaker" button.

#### Receiving Call From Road Crews.

- 1. When a call comes in. Phone will ring and Display will indicate Crew #.
- 2. Just ignore, they can wait. (Just Kidding)
- 3. Press "Speaker" button found on bottom right of phone and you will be connected.
- 4. Listen carefully and be patient as to why they have disturbed the "all great and wise Dispatcher".
- 5. To end call press "Speaker" button.

# Standard Hand Signals for Model Railroad



#### **GO FORWARD**

USE: In switching, Hand moved up and down about the wrist. Speed of motion represents required locomotive speed



USE: For general stopping. Flat hands are waved across each other



#### INCHING

USE: To take up slack or move short distances. Combination of "go forward" or "go backward" signal with one hand while the other shows car distance equal to space between thumb and first finger



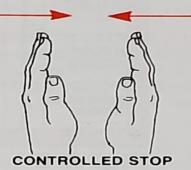
#### HIGHBALL

USE: All switching complete and/or train cleared to proceed. Thumb and forefinger form a circle



#### GO BACKWARD

USE: Switching. Hand with pointing finger moved in circle. Speed of motion represents required locomotive speed



USE: Coupling or uncoupling. Hands brought together at a speed so as to touch at the exact desired stopping or coupling point. Distance between hands is maintained equal to distance between cars to be coupled or between coupler pairs and uncoupling ramp



#### **THROW TURNOUT**

USE: In switching only to request tower operator to throw turnout. Tap top of head with one hand and with the other point to the desired track for which turnout is to be aligned.

# **Dispatcher's Panel**

RXRR utilizes a 45" 4K LG TV to display and control the railroad. Computer connections for input/output is via C/MRI serial nodes. Since the railroad is a loop and most trains leave the interchange yard of Logan this is where the schematic is split and displayed. The panels provides various types of information, Track Status, Turnout Orientation and Control(CTC vs Local control(OFFLINE), Signal Indication, Direction Of Traffic(DOT), Track and Time at industrial switching districts and Train ID. West is the left and East is to the right. The curser will change based upon what function you a controlling, "+" for turnouts, hour glass for Direction of Traffic (DOT), and "I" beam for signals. Basic operating procedure is first select route by via turnout control and then clicking on signal for DOT which turn appropriate signal indication, line status to green and DOT arrow. To clear an assigned track either click on signal or DOT. Yards are labeled in Red, Town are Blue, and OS Sections in light Blue.

#### **Track Status**

White Lines represent clear unoccupied tracks

Red Lines represent Occupied tracks

Green Lines represent assigned tracks

Yellow Lines represent Yard tracks (non dispatcher control)

Blue Lines are the various switching districts

#### **Turnout Orientation**

Turnouts are controlled by place curser is middle of OS section. The curser will change from arrow to a "+"

## **Signal Indication**

All RED signals are absolute. Yellow prepare to stop at next signal (only cleared for one block) and Green proceed (cleared for two blocks)

#### **Direction Of Traffic DOT**

If there is clear unassigned track ahead and turnout orientation is correct then clicking on signal turns track line green and change signal indication.

#### Track and Time (TT)

Each industrial district will have a small button labeled "TT" Clicking this with display a pop up box which will add 15 minutes to current time. Time call be adjusted up or down by clicking on corresponding arrows. Once time has expires the red word "Expired" will be displayed.

#### **Train ID**

When a train leaves a yard its train number MUST be entered into the appropriate text box.

## **Dispatching**

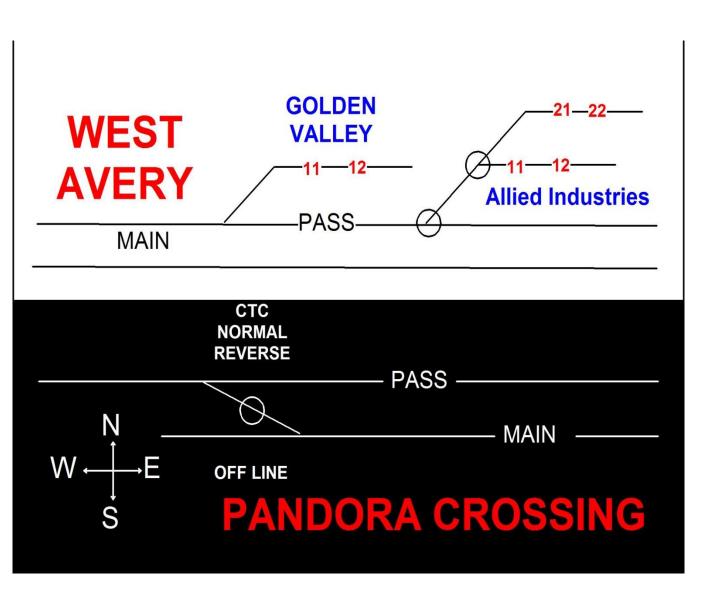
Operators will come to you for train orders, there is 2 copies one for dispatcher and one for the road crew to review and discuss any questions. Make appropriate log entries on "Dispatcher Train Log Sheet'. The road crew should contact you via radio when ready to proceed. Dispatcher will notify via radio that a train is at Yard Limits and is entering yard. To align turnouts and assign DOT for trains leaving Logan click on signal head. Trains leaving Gotham, Sexton, or Havana crews can proceed on Yard Lead to Yard Limits as posted and must contact dispatcher. ALL Red signal indications are absolute and dispatcher controls the flow of operations and may adjust trains orders as needed.

# Fascia Panels (see example)

Fascia panels are of several types, ranging from informative (East/West directions) to operating turnouts on main line to local industrial districts. Please note the direction EAST is to your right and direction WEST is to your left.

Same panels are used for multiple levels of layout. Top has white background, middle grey and bottom has black. All toggles should be orientated to main line for normal operation. Some industrial sidings have an bi-color LED red for siding and green for main line.

CTC controlled turnouts have 3 positions "CTC" and local control of "Normal" and "Reverse" Only when Dispatcher authorizes local control, you may operate a CTC controlled turnout (red LED will be light). All signals surrounding OS section will turn to a red blinking light indicates a permissive approach.



#### Fast Clock

RXRR has a fast clock ration of 1:1 and local times are used. All trains start in sequence and can take as long as it takes. No trains are dependant on other trains so Do not rush.

#### **NCE Radio Throttles**

To turn ON press "HORN" (Red LED will blink when communicating to base station).

To assign engine press "SELECT LOCO", red LED will light and enter engine number, then press enter. LED turns off. Turn Head Light Off

To unassign engine press "SELECT LOGO", enter "0000" and press enter.

Remember throttle will turn off after non use. To reactivate press "HORN".

## SIGNALING SYSTEM

RXRR signals are based upon C&O configuration with 3 Red , Yellow, and Green aligned vertically. In multi head signal, top head is for Main and bottom head is for Divergent route. Proceed per signal indication.

#### **SPEED**

Always operate in SAFE and REALISTIC speeds.

Do not rush or face Union fines and a great deal of harassment.

Main Line and Siding (Times rounded off for ease of counting) (9 inches is average length of engine)

Maximum speed is 25 mph (decoders are adjusted to this speed)

(2 real seconds to go 9 actual inches)

Yards

Maximum speed is 5 mph (8 real seconds to go 9 actual inches)

Passing Another Train

Maximum speed is 15 mph (3 real seconds to go 9 actual inches)

Taking Divergent Route (Red over Yellow aspect)

Maximum speed is 15 mph (3 real seconds to go 9 actual inches)

Swing Gate

Maximum speed is 10 mph (5 real seconds to go 9 actual inches)

## **SWING GATE**

Before opening swing gate to enter train room verify that there are no flashing red lights. Yes, flashing red lights means a train is coming and do not enter until the lights stop flashing. If you are leaving the train room verify that there is no train coming. The adjacent tracks to the swing gate **have dead man switches** which will cut off power to the tracks stopping the train so, once you have entered/left make sure gate is closed and latched. Maximum speed is 10 mph (5 real seconds to go 9 actual inches)

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Main- 30 MPH (20 seconds to travel 10 feet (1 smi (scale miles))

Yards- 10 MPH (60 seconds to travel 10 feet)

## TRACK SIDE SIGNAGE

"Whistle" posts-Air Horns Usage at Grade Crossings, Tunnel and Bridge Entrances

CTC- "Begin CTC" Leaving yard or industrial siding complex

"End CTC" Entering yard or industrial siding complex

"Yard Limits"-entering yard trackage

Mile Markers-every 3 scale miles (0-60) begin end Logan Interchange

Speed Signs- Maximum speed is 25 mph unless posted by the following

Restricted Signs "R"

Bridges/Tunnels-15 mph (3 real seconds to go 9 real inches)

Blocks next to yard trackage -15 mph

Swing Gate- 10 mph (5 real seconds to go 9 real inches)

# TRAIN MASTER

Train Master will provide needed assistance when required.

# **SWING GATE**

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# TRAIN MASTER

Train Master will provide needed assistance when required.

# **UNCOUPLING**

Main- you may uncouple cars via picks or 050 method.

**Industrial siding/ some yard tracks**- use of under track magnet see light rust paint on side of rail webbing or pair of round cylinder magnets found between rails(Rust color pole at center).

# YARDS (See diagram above)

Yards on 3 types of tracks as indicated on fascia panels, 1) arrival/departure (Yard Main), 2) Local set outs, 3) Eastbound and Westbound yard transfer pick up tracks. Track numbers start with TK 1 at front of fascia and increase towards back. Gotham yard has 4 arrival/departure tracks plus 11 destination tracks. It is operated by Yard Master and assistant who communicates with Dispatcher via radio.