

Basic Operations

A beginners guide to operations
on your model railroad.



Why?

How?

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Setting up

Setting up a basic operations plan involves two areas.

1. A method for deciding what cars go to what location

2. A method for granting the authority to move the cars

Where does that car go?

1. Variations of the old 'Tab on car'
2. Car cards and waybills
3. Check box car cards
4. Hand generated switch lists
5. Computer switch list programs

Tab on car

Letters and numbers on tabs can be set up any way that works.

Tabs can be paper, plastic, thumbtacks etc. C – channel works well.

Colors can be used to designate towns. Number = where in town.



Car cards and waybills

Can be a separate card for the car and a Waybill for the routing

Waybills can be switched from car to car so the same car goes to different places

CC&S XM	16603 Tuscan
Route empty	Paducah

Four sided waybill

XM	Dunston	1
Rte: South		
Via: Champaign/Fairview Turn		
To: Dunston IL		
Swanson Elevator		
From: Champaign IL		
CC&S Yard		
Contents: Empty		
Clean Out Prior to Departure		

Contents: Grain		
Swanson Elevator		
From: Dunston IL		
Frese Milling		
To: Champaign IL		
Via: Champaign/Fairview Turn		
Rte: North		
XM	Champaign	2

XM	Champaign	2
Rte: North		
Via: Champaign/Fairview Turn		
To: Champaign IL		
Frese Milling		
From: Dunston IL		
Swanson Elevator		
Contents: Grain		

Clean Out Prior to Departure		
Contents: Empty		
CC&S Yard		
From: Champaign IL		
Swanson Elevator		
To: Dunston IL		
Via: Champaign/Fairview Turn		
Rte: South		
XM	Dunston	1

Waybill sides three & four

XM	Chicago	3
Rte: North		
To: Chicago IL Wonder Bakery		
From: Champaign IL Frese Milling		
Contents: Flour		

Contents: Food Products		
Finer Foods		
From: Paducah KY		
U/I Warehouse		
To: Champaign IL		
Rte: North		
XM	Champaign	4

XM	Champaign	4
Rte: North		
To: Champaign IL U/I Warehouse		
From: Paducah KY Finer Foods		
Contents: Food Products		

Contents: Flour		
Frese Milling		
From: Champaign IL		
Wonder Bakery		
To: Chicago IL		
Rte: North		
XM	Chicago	3

Check box car cards

Car card and waybill all in one

Boxcar 40'	MILW	653892	Tuscan
DUN - Swanson Elev.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CHA - Frese Milling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CHI - Wonder Bakery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CHA - U.I. Warehouse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CHA - Freight House	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FVW - Freight House	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PAD - Freight House	9/1	<input type="checkbox"/>	<input type="checkbox"/>
CHI - U.I. Warehouse	10/2	<input type="checkbox"/>	<input type="checkbox"/>
HER - Garnhart Grain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CHA - Frese Milling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CHI - Wonder Bakery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hand made switchlists

ID	Car #	Type	From	To
SP	411562	XM	Yd 3	Freight House
SHPX	26634	TA	Yd 3	Caudle Oil
MILW	66290	FM	Yd 3	Team Track
CNW	233768	XM	Yd 3	Yd 5
L&N	446321	XM	Yd 3	Yd 6
UP	255674	XM	Yd 3	Yd 4
GN	49032	XM	Yd 3	Yd 6
IHB	26374	XM	Yd 3	Yd 4

Computer Generated Switchlists

Program setup and Learning curve

Most require input during operations

Restaging for the next session is simple

Complexity varies by program

**Freight Manager, Rail Op, JMRI, Ship –It and
Pro Trak**

Freight Manager Wheel Report

MONON CENTRAL RAILROAD
ENTR WHEELER LIST #265
08-05-2011

SETOUT

TANK	QSOX	746	empty for	SOR	S. OHIO REFINERY
BOX40	PRRC	1975	empty for	PRS	POLLARE RAIL SUPPLY
TANK	EMR	4820	empty for	SOR	S. OHIO REFINERY
BOX40	MON	9193	empty for	PBY	PILLSBURY
BOX40	CIL	12023	empty for	PBY	PILLSBURY
GON	MON	35003	TIE PLATES	PRS	POLLARE RAIL SUPPLY
TANK	HOKX	56658	empty for	SOR	S OHIO REFINERY
FLAT	SOU	116055	empty for	PRC	SIEMENS SERVICE

PICKUP

GON	TSO	504	SCRAP	JBM	J. BRAND METRONOMES
	consignee:	CHI	RECYCLING CO	WB#	243
FLAT	CIL	902	15KV BREAKERS	PRC	SIEMENS SERVICE
	consignee:	COM	EDISON CHICAGO	WB#	255
FLAT	MON	960	RAILS	PRS	POLLARE RAIL SUPPLY
	consignee:	ILL	RAIL MUSEUM	WB#	242
TANK	SCCX	1227	PETROCHEMICALS	SOR	S. OHIO REFINERY
	consignee:	WETHERPRUF	WOODS	WB#	481
TANK	NATX	1416	PETROCHEMS	SOR	S. OHIO REFINERY
	consignee:	WAUKEGAN	SHIPYARD	WB#	445
GON	MON	3029	TIE PLATES	PRS	POLLARE RAIL SUPPLY
	consignee:	BALTIMORE &	OHIO	WB#	182
TANK	EBAX	6008	PETROLEUM SP	SOR	S. OHIO REFINERY
	consignee:	LOUISVILLE	PAINTS	WB#	263
FLAT	MON	7227	15KV BREAKERS	PRC	SIEMENS SERVICE
	consignee:	PSC	OHIO	WB#	257

**Trains need
Authority to
use the main
track!**

Why do we need Authority?



Types of Authority

None – Model railroad only!

Verbal – Model railroad only!

Signal authority – CTC, ABS etc.

Written authority – Warrants, TT&TO

Headlight Rules

No formal Authority

Works well on smaller railroads

Look, ask, proceed

Lower traffic density is better

Class of train provides superiority

Direction provides superiority

Verbal Authority

Now we need a Dispatcher!

Dispatcher's desk not needed

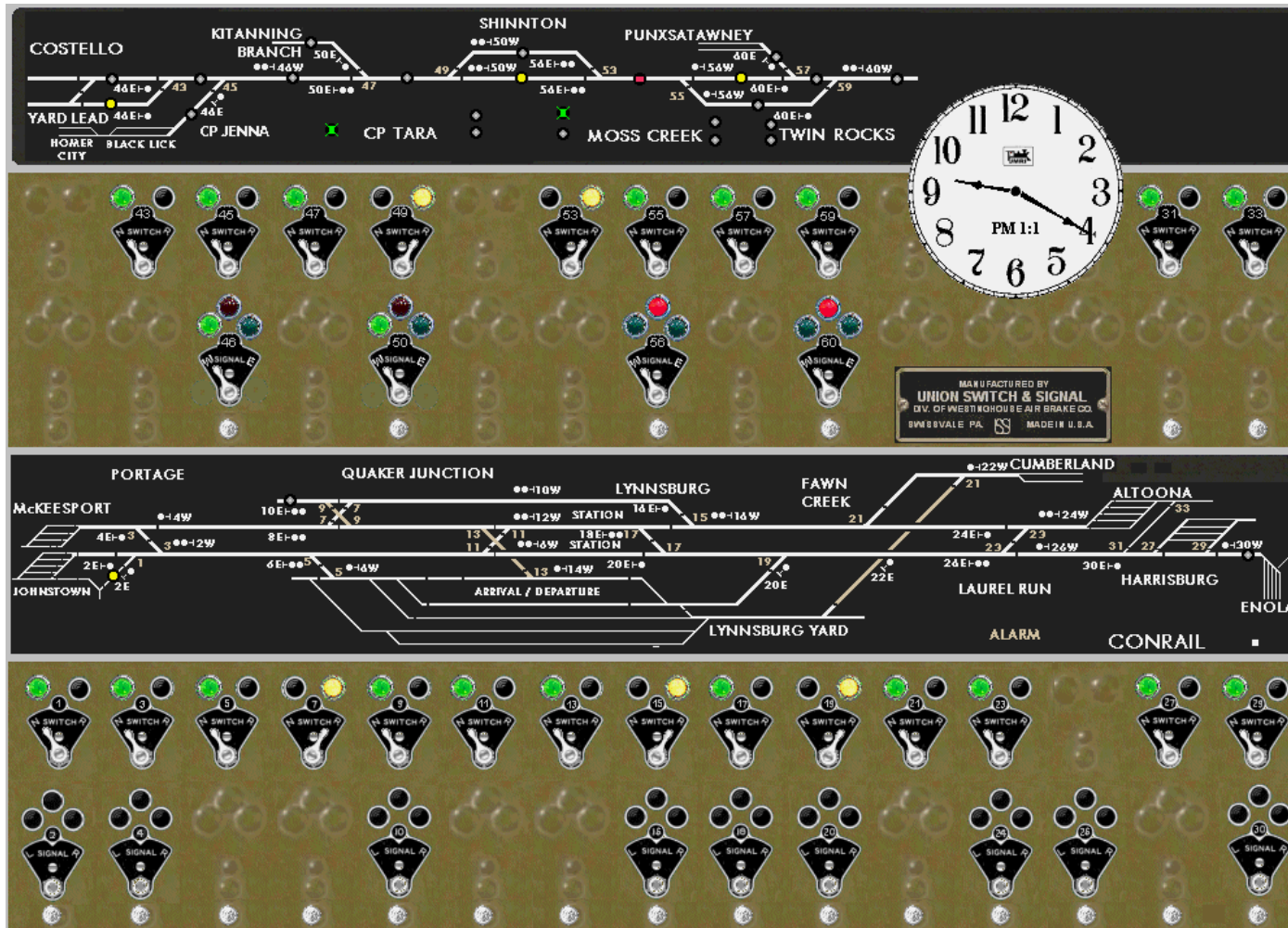
Communications needed

O.S. reports to Dispatcher needed

Good Dispatcher = the railroad flows

Lesser Dispatcher = delays

Signal Authority

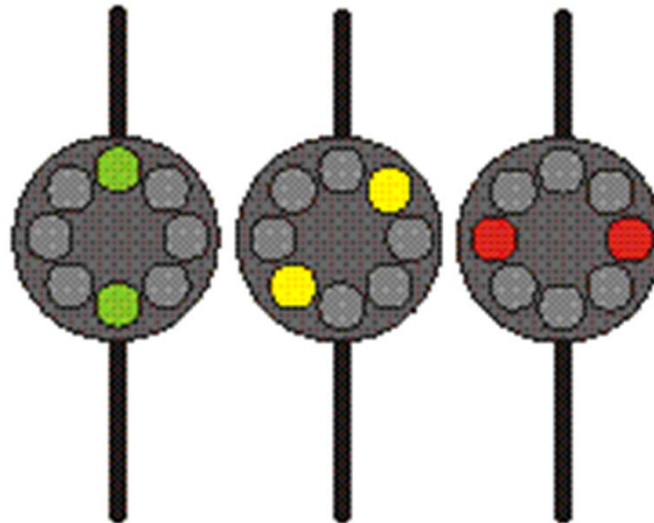


Advantages of signals

Highest traffic density

Looks really cool!

Lowest communications traffic



Disadvantages of Signals

Cost and the wiring is complex

Computer needed



Paperwork Authority

Track Warrants, OCS control, TT&TO Etc.



Track Warrant # _____ DATE ____ / ____ / ____
Warrant number _____ VOID

To C & E engine number _____ at _____

1 ☐ TRACK WARRANT # _____ is VOID

2 ☐ PROCEED FROM _____ TO
_____ ON _____ TRACK

3 ☐ PROCEED FROM _____ TO
_____ ON _____ TRACK

4 ☐ WORK BETWEEN _____ AND
_____ ON _____ TRACK

5 ☐ NOT IN EFFECT UNTIL AFTER THE ARRIVAL
OF _____ AT _____

6 ☐ HOLD _____ TRACK AT LAST NAMED
POINT

7 ☐ BETWEEN _____ AND _____
PROCEED AT RESTRICTED SPEED
PREPARED TO STOP FOR TRAIN OR OTHER
OBSTRUCTION

8 ☐ OTHER SPECIFIC INSTRUCTIONS _____

OK TIME _____ am/pm DISPATCHER _____
CLEARANCE TIME _____ am/pm

Track Warrant

**This is a model railroad
Warrant. Prototype warrants
have more lines. This will
vary by railroad but may
include:**

Track Bulletins in effect

Speed limits not in Timetable

Flag protection waived

TimeTable & Train Order

The most complicated dispatching system

Big learning curve but it was a huge step forward for the railroads. Morse set up the first telegraph line between Washington and Baltimore in 1844. Transcontinental lines were in place by 1869. This not only replaced the pony express, it gave the railroads the tool to dramatically increase traffic density. TT&TO became possible.

TT&TO Components

Rule book and the decision making process

The Dispatcher, the Operator and the Train Crew

The Timetable, the Clearance Form and the Orders

Form 19 Trainorders / Form 31 Trainorders, others

Other paperwork = the Trainsheet, the Train Register,
the OS log, and the Dispatcher's Order Book

Train Order Forms

- A - Fixing meeting points for Opposing trains
- B - Directing a train to pass or run ahead of another train
- C - Giving Right to a train over an opposing train
- D - Giving right to a train over a train in the same direction
- E - Time orders (run late or wait until)
- F - Sections
- G - Extra trains
- H - Work extra trains
- J - Holding order
- K - Annuling a schedule or section
- L - Annuling an order
- M - Annuling part of an order
- N - Calling on order (UCOR '50)

More Forms

- P - Superseding an order or part of an order
- Q - Timetable receipt
- R - Providing for a movement against the current of traffic
- S - Providing for the use of a section of double track as single track
- T - Directing a train in emergency to pass stop indication in manual block territory (NYC '37)
- U - Advance authority to proceed from an automatic block stop signal
- V - Check of trains
- W - Change in train register requirements
- X - Advancing order (CCOR)
- X - Temporary speed restrictions (post 1960's)
- Y - Protection of men and equipment working on the track (post 1960's)
- Z - Taking signals out of service

A through R – Standardized S through Z varies by Railroad

Operate your Railroad

It can be as simple as you want it to be!

It can be as complex as you want it to be!

It can be a lot of fun seeing your railroad
come to life more prototypically



Remember



Model Railroading is fun!