



Operations and Dispatching

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June 2026

Operations

- Railroads exist to move things from one place to another
 - Safely
 - On-Time
 - Profitably



Jobs on the Railroad

- Engineer! But what about...
 - Conductor
 - Brakeman
 - Fireman
 - Hostler
 - Towerman
 - Yardmaster
 - Dispatcher
 - Trainmaster
 - And more...
- All can be simulated on model railroads



Moving Trains Safely and Efficiently

- Track arrangement
 - Passing sidings
 - Double track (and more)
- Authorizing train movement
 - Signals and signal systems
 - Blocks
 - Interlocking signals, ABS, CTC, and more
 - Track Warrant Control
 - Yard Limits
 - Timetable and Train Order
 - Dark Territory

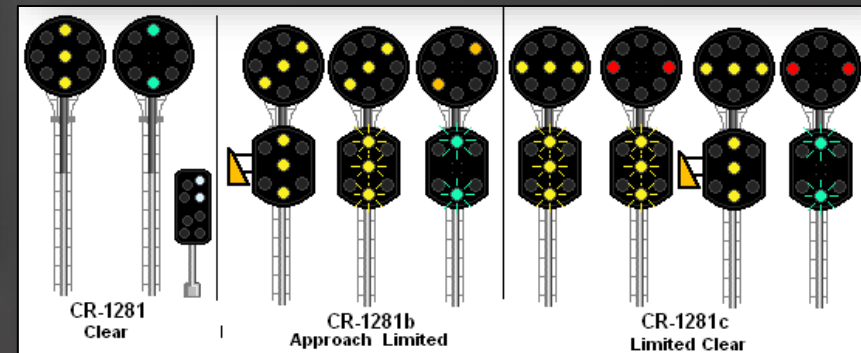


Signal Aspects

AUTOMATIC BLOCK, TRAFFIC CONTROL AND INTERLOCKING SIGNAL INDICATIONS

RULE	ASPECT	NAME	INDICATION
281		CLEAR	PROCEED.
282		APPROACH MEDIUM	PROCEED, APPROACHING NEXT SIGNAL AT MEDIUM SPEED.
283		DIVERGING CLEAR	PROCEED ON DIVERGING ROUTE. OBSERVE PRESCRIBED SPEED THROUGH TURNOUT.
284		ADVANCE APPROACH	PROCEED, APPROACHING NEXT SIGNAL AT PRESCRIBED TURNOUT SPEED. TRAINS EXCEEDING MEDIUM SPEED MUST AT ONCE REDUCE TO THAT SPEED.
285		APPROACH	PROCEED, PREPARING TO STOP AT NEXT SIGNAL. TRAINS EXCEEDING MEDIUM SPEED MUST AT ONCE REDUCE TO THAT SPEED.
286		DIVERGING APPROACH	PROCEED ON DIVERGING ROUTE, APPROACHING NEXT SIGNAL PREPARED TO STOP. OBSERVED PRESCRIBED SPEED THROUGH TURNOUT.

RULE	ASPECT	NAME	INDICATION
287		DIVERGING RESTRICTING	PROCEED ON DIVERGING ROUTE AT RESTRICTED SPEED, EXCEPT OBSERVE RULE 105 WHERE APPLICABLE. OBSERVED PRESCRIBED SPEED THROUGH TURNOUT.
288		RESTRICTING	PROCEED AT YARD SPEED IN ACCORDANCE WITH SPECIFIC TIMETABLE INSTRUCTIONS.
291		STOP AND PROCEED	STOP, THEN PROCEED AT RESTRICTED SPEED.
292		STOP	STOP.
292-A		OPEN THE SWITCH	STOP; OPEN THE SWITCH, THEN PROCEED IN ACCORDANCE WITH FINAL INDICATION DISPLAYED.



Controlling Train Movements

- Signals are only one tool
 - Movement authority must come from somewhere
- Some other methods used (and modeled):
 - Timetable & Train Order
 - Direct Traffic Control (DTC)
 - Track Warrant Control (TWC)
 - Automatic Block Signaling (ABS)
 - Centralized Traffic Control (CTC)
- Different eras and railroads use different methods

TRACK WARRANT

No.,

To at

1. Track Warrant No. is void.

2. Proceed from to

3. Proceed from to

4. Work between and

5. Not in effect until am / pm

6. This authority expires at am / pm

7. Not in effect until after arrival of at
..... at

8. Do not foul limits ahead of

9. Clear Main Track at last named point.

10. Hold Main Track at last named point.

11. Between & make all movements
at restricted speed. Limits occupied by train or engine.

12. Do not exceed mph between &

13. Other specific instructions

14. Joint with between &
..... between &

Ok am / pm Dispatcher Copied

Reported clear at am / pm by

Reorder Micro-Mark #84187

Dispatching with CTC

- Communication
- Track authority
 - Not just trains
- Switches
 - But not all of them
- Signals
 - Control points (absolute signals)
 - Signal logic - safety
- Efficiency



Operations

- Model railroads exist for many reasons
 - Realistic operation is only one of them
 - Not everyone is in the hobby for realistic operation – and that's fine!



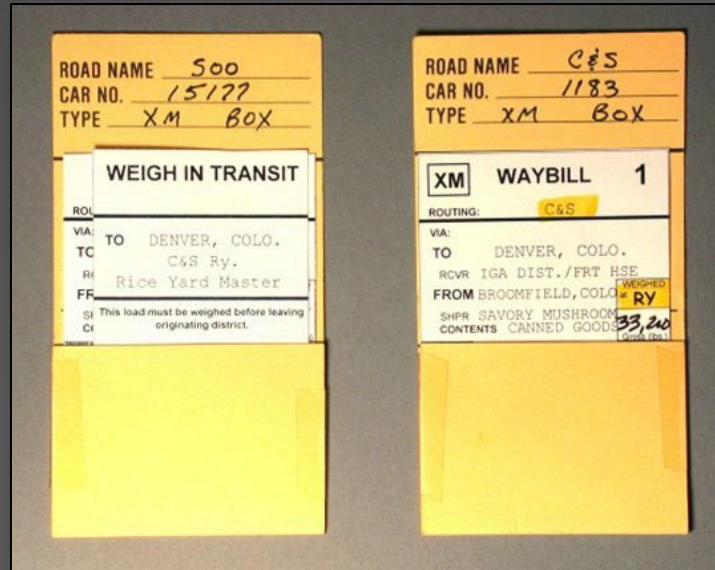
Realistic Operations

- Controlling the locomotive
 - Jack-rabbit starts or sudden stops
 - Momentum
 - Realistic speeds
 - That doesn't always mean "slow!"
- Operating the train
 - Brake tests (and walking the train)
 - Throwing switches (and walking the train)
 - Coupling and uncoupling cars (and walking the train)



Realistic Operations

- Car movements
 - Yards and staging
 - Off-layout
 - Industries
- Modelling operations
 - Car cards and waybills
 - Switch lists
 - Software-generated
 - Staging



PCDB Form 16 Revised ①

FOREMAN'S WORK LIST

DELIVER THIS LIST TO YARDMASTER AT END OF EACH TRIP

List all cars switched, including cars moved from one spot to another on same Industry Track, also cars from or to hold or Storage Tracks. When tracks are numbered, use track number instead of name. When car cannot be spotted or picked up, show cause in memo column, using number designated below, and also show in some column on what track cars not spotted were placed.

1. Gate locked	6. No one on hand to direct switching.	9. Track in bad order.
2. Track full.	7. Ordered placed in preference.	10. Switch spiked.
3. Spot ordered to occupied.	8. Spotted—No more cars wanted.	11. Car in bad order.
4. Obstruction on track.		12. Short of time.
5. Oil car connected.		13. Loading not completed.
		14. Billing not ready.

SHEET NO. _____ DATE 5-9 1966

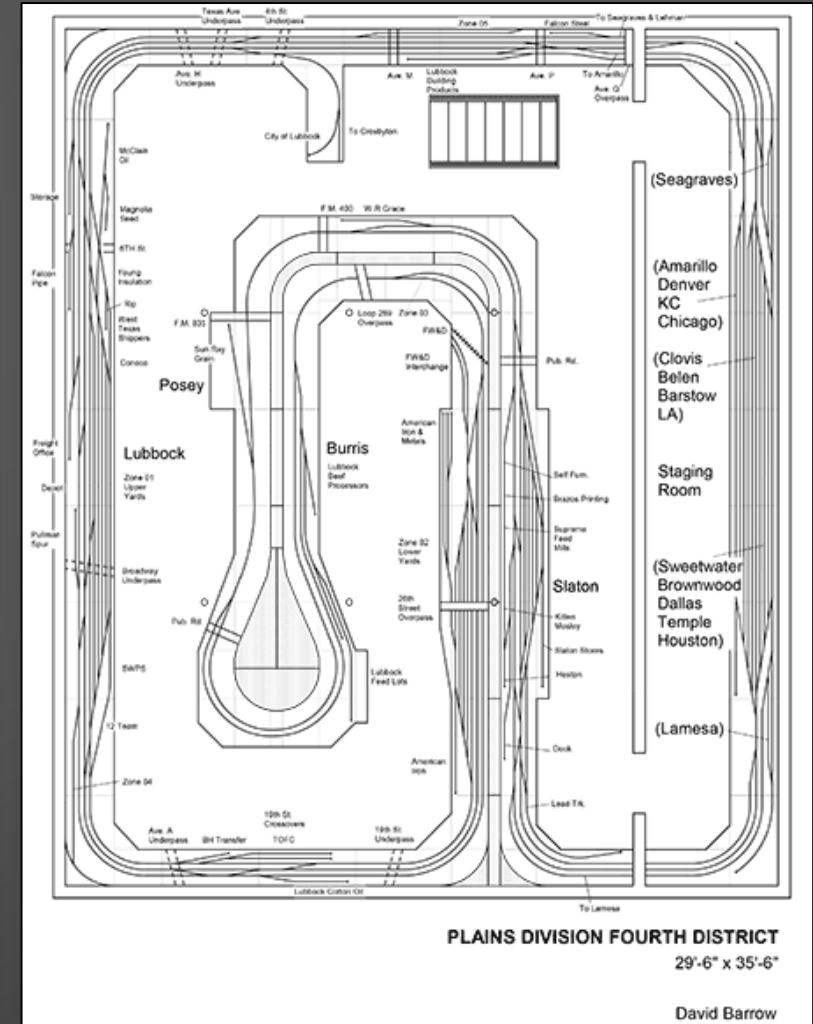
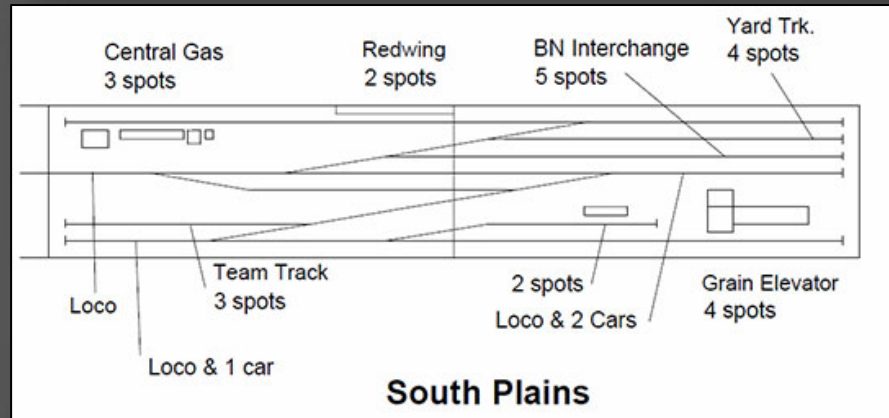
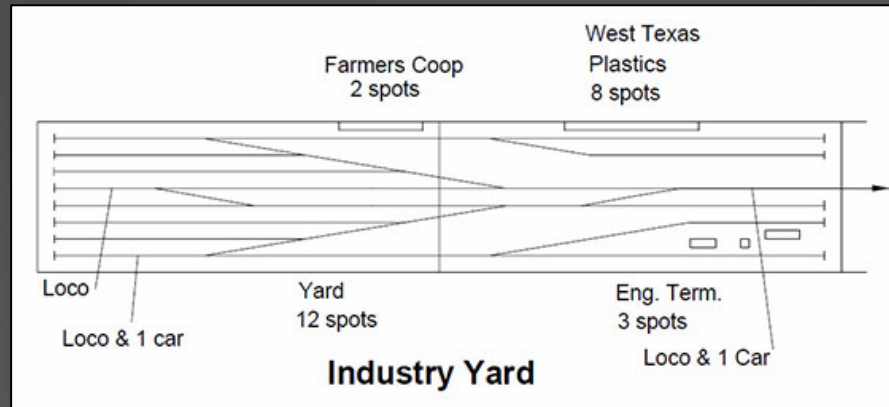
ENGINE NO. 708 SHIFT COMMENCED 9:15 AM

NAME OF FOREMAN KAZMIR, P.

Initial	Car Number	L Load X Mty.	From Track or Industry	To Track or Industry	Time Set Out or Picked up	Memo.
CO	-899			KAISER	9:54a	1
WP	6584			↓	↓	
WP	6639			↓	↓	
WP	6759			↓	↓	
WP	-803			JAMIESON	10:13a	
WP	-905			LIV. TEAM	10:41a	
SHPX	-390			↓	↓	
WP	-260			↓	↓	
WP	-325			COAST	11:54a	
WP	9010			ARMCO 3	12:01p	
WP	9045			↓	↓	

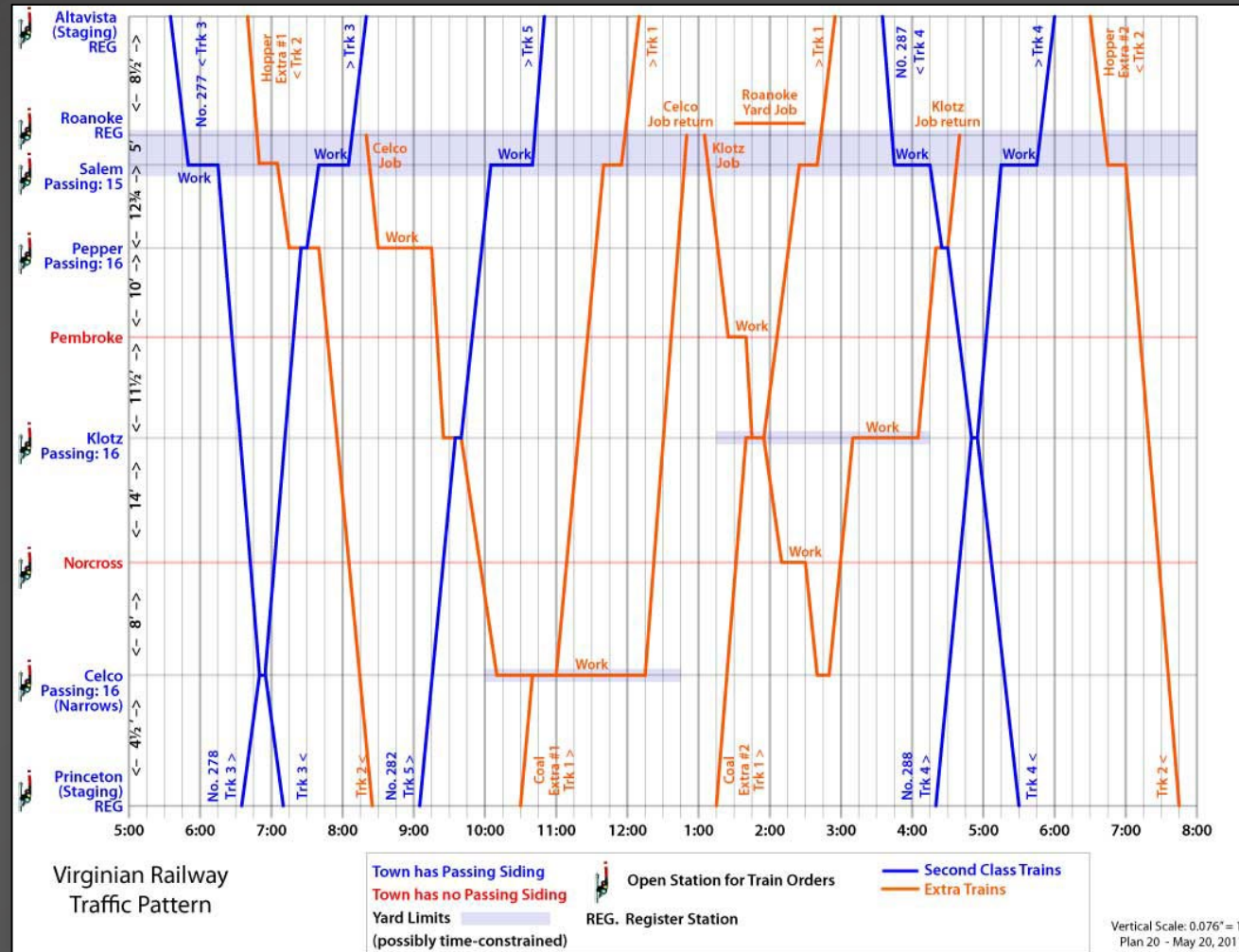
Planning Model Railroad Operations

- Track Planning



Planning Model Railroad Operations

- Train Chart / String Diagram



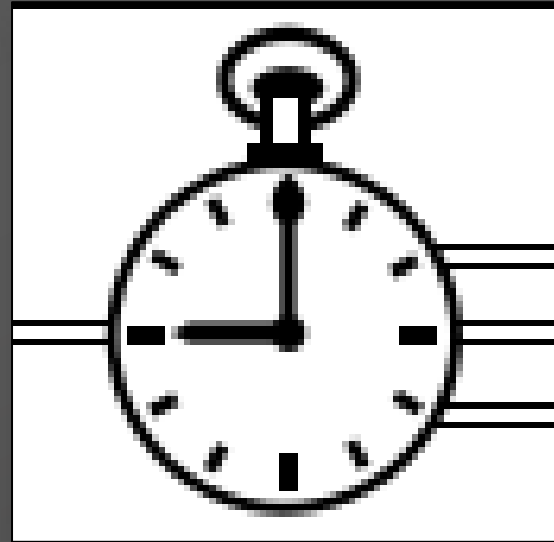
Planning Model Railroad Operations

- Schedule

Dispatcher's Lineup						
Train	Call Time	Location	Stg Tk	Destination	Description	Stops
✓39	0600	Kansas City	5	Houston	Manifest Frt	Caldwell, Brenham, Sealy
✓16	0600	Galveston	10	Chicago	Texas Chief	Houston
✓26/25	0615	Houston	-	Sealy	Sealy Turn	Sealy, Rosenberg
✓203	0700	Temple	3	Houston	Local Pass	Caldwell, Brenham, Sealy
✓28/27	0800	Houston	-	Brenham	Brenham Turn	Sealy, Brenham
✓251	0815	Galveston	2	Houston	Local Pass	Non Stop
✓40	0830	Galveston	9	Kansas City	Reefer	Houston, Caldwell
✓15	0930	Chicago	7	Galveston	Texas Chief	Houston
✓290	1030	Houston	-	Temple	Mail	Sealy, Brenham, Caldwell
✓292	1145	Galveston	2	Temple	Mail	Houston, Sealy, BR, CA
✓294	1310	Galveston	2	Houston	Mail	Non Stop
✓37	1315	Kansas City	11	Galveston	Grain	Sealy, Houston
✓36	1445	Galveston	8	Kansas City	TOFC	Houston
✓202	1500	Houston	-	Temple	Local Pass	Sealy, Brenham, Caldwell
✓38	1630	Houston	-	Kansas City	Manifest Frt	Sealy, Brenham, Caldwell
✓252	1730	Houston	-	Galveston	Local Pass	Non Stop
Run Extras as needed – TOFC, Grain, Second 15, Second 16, Reefer, etc.						
Other Trains (operated by Houston Yard)						
✓451	-	Beaumont	1	Houston	Tank Car	
✓533	-	Houston	4	Houston	HB&T Transfer	
✓452	-	Houston	-	Beaumont	Tank Car	
✓556	-	Houston	-	Houston	HB&T Transfer	
Other Trains (operated by SP)						
✓902	-	Marble Falls	-	Caldwell	Local Pass	
✓955/956	-	Caldwell	-	Caldwell	Quarry Train	
✓999	-	Caldwell	-	Caldwell	Caldwell Switcher	
✓903	-	Caldwell	-	Marble Falls	Local Pass	
Siding Lengths (Count engine and caboose as 4 cars)						
Sealy	16 Cars	Brenham	22 Cars	Caldwell	18 Cars	

Chief Dispatcher Certificate

- Operate
 - Minimum of 50 hours
 - In different jobs
- Present:
 - A track plan
 - A train chart
 - A timetable/schedule
 - An operating scheme
- That's it!





Thank You!