

# Lessons Learned?

from 20 years of ðformalö operations

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PCR LD/OP SIG Meet

January 28, 2017



# Frame of reference for this clinic

You want to go where? When?

“ ðformalö operations means the date that the prototype traffic control system, Time Table & Train Order was adopted on the Durlin Branch

“ Employee Time-Table No. 1 effective June 1, 1997

“ Durlin Branch management has borrowed a lot of ideas from others in the hobby, so you may have heard some or a lot of this before

# DURLIN BRANCH

## D&RGW Narrow Gauge in On3

ÉFreelanced Branch Line with scenes from the Rio Grande Fourth Division

É2-8-0s, 2-8-2s and 4-6-0s; 30 ft. wooden freight cars and 40 ft. wooden passenger cars

É1920s traffic operating patterns from the D&RGW Crested Butte, Ouray, Lake City branches and Durango-Alamosa mainline

ÉHelper district based on Chama ó Cumbres

*ÉAn attempt to capture indoors the small steam engine, TT&TO and mountain operations experience*

# Model RR Operations

- “ Another aspect of the prototype to research
  - “ Can help answer those modeling project questions as well
- “ An enjoyable part of the hobby
  - “ Not as scary as it seems at first glance
    - “ Can be implemented / learned in phases
    - “ Improvement is an iterative process
  - “ Meet some really great people
- “ Low \$ expense, but as much time as you care to invest
- “ Ops experience helps layout design
  - “ Experience can usually be gained on the other guy's RR!
- “ There are expectations (implicit/explicit) to be met by the layout host and visiting operators if an ops session is to be successful

# An Operating Layout Host can expect:



- ” to learn something about the physical plant
- ” to learn different ways of õgetting the job doneö
- ” to receive constructive feedback
- ” to have fun
- ” to see the sessions get better over time

*The Layout Host expects the crew to support the operating scheme*

# Homework for the Host

- ✓ Reliable track work, rolling stock and electrical control system
- ✓ A method or methods of communication during the session
- ❑ A car forwarding system (which cars go to what destinations)
- ❑ A traffic plan or train line up (how cars get to their destinations)
- ❑ A traffic control method (moving trains safely)
- ✓ Appropriate documentation of the above three items for the crew
- ✓ The number of operating positions
- ✓ Crew Call
- ✓ A means to collect bad order reports
  - ❑ These can be selectively modeled from your prototype

# More homework for the Host

- ✓ Session Length
- ✓ Mail out of RR documentation prior to session
- ✓ Crew lounge area
- ✓ Food/beverages in layout room?
- ✓ Lunch break /other social time?
- ✓ Session Introduction & Crew assignment

*HINT - Get experience as a guest crew member on other railroads*

# A Guest Crew Member can expect:

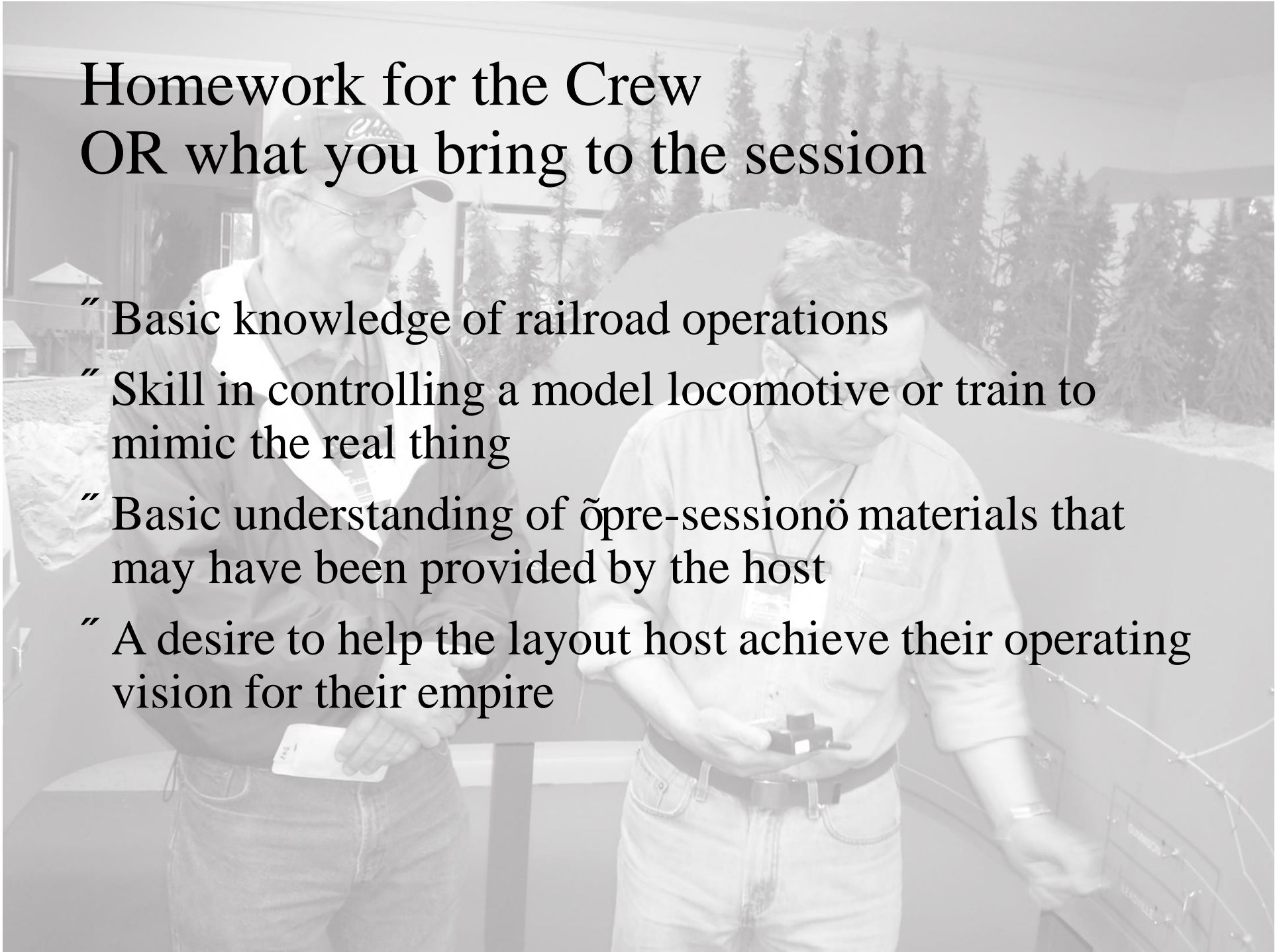


- “ to learn something new
- “ to help bring the railroad as envisioned by the Host to life
- “ to role play
- “ to be supported by the host and crew helpers
- “ to have fun



# Homework for the Crew OR what you bring to the session

- “ Basic knowledge of railroad operations
- “ Skill in controlling a model locomotive or train to mimic the real thing
- “ Basic understanding of “pre-session” materials that may have been provided by the host
- “ A desire to help the layout host achieve their operating vision for their empire

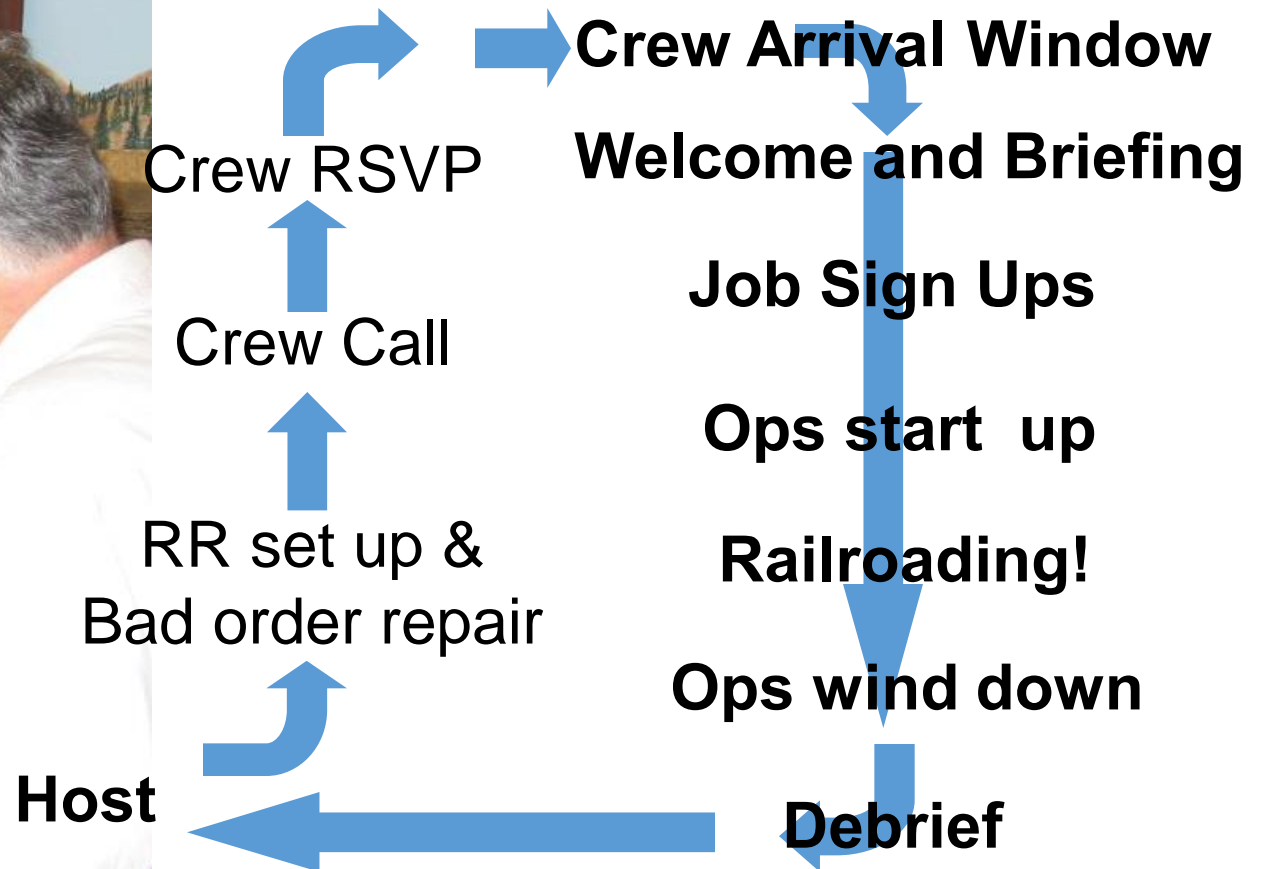


# Common Sense and Courtesy is appreciated by Layout Hosts

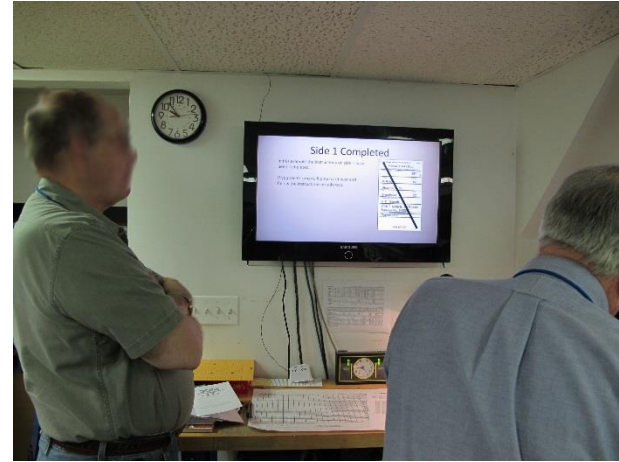
- ” Do show up on time
- ” Do ask for help if you are not sure
- ” Do your best to emulate prototype practices appropriate for the era
- ” Do observe and fit in with the tone of the session
- ” Do tell the host if you break something
- ” Do enjoy yourself
- ” Do thank the host when you leave
- ” Donø show up uninvited
- ” Donø bring a guest without asking the host
- ” Donø leave early
- ” Donø impose your favorite RRø practices
- ” Donø pick up or touch the models without the hostø ok
- ” Donø leave without making sure your pockets are empty of card cards, uncoupling pics, etc.

*You Just Might Want to Get Invited Back!*

# Operating Session Cycle



# Feeling a little apprehensive?



- ” It's natural and usually disappears once the session starts
- ” Best ways to lower apprehension?
  - ” Be a student - study and learn operations
  - ” Practice - Operate every chance you can get!
  - ” Chase the mechanical and electrical gremlins out of the RR

*Mistakes will be made  
Good news - in model railroad ops, nobody really dies*

# How does a crew know what to do?

## Experience!

(plus rule book, time-table  
& train orders)



## Train Procedures!

(plus content of train wallet and TT&TO  
õcheat sheetö)



# Train Procedures ó Durlin Branch

Extra Freight Chama-Durlin Turn
<b>Chama (yard limits)</b> <ul style="list-style-type: none"><li>• Obtain clearance from dispatcher</li><li>• Service engine -drop ashes, take water, coal, sand</li><li>• Check consist: cars for Carrumba, Fritz Park, Resin Creek and Durlin only</li><li>• Perform air brake test</li><li>• Check train register, sign register</li><li>• OS dispatcher on departure</li></ul>
<b>Grandt Line Junction</b> – Line switch for branch
<b>Cresco</b> - Water stop for T-12 and C class engines
<b>Toltec Gorge</b> - Slow order 5mph
<b>Carrumba (yard limits)</b> <ul style="list-style-type: none"><li>• Check train order board, obtain clearance</li><li>• Water stop for all engines; cut off helper engine</li><li>• Sign and check train register</li><li>• Spot cars for Carrumba, pull cars for Fritz Park, Resin Creek and Durlin</li><li>• OS dispatcher on departure from Carrumba</li></ul>
<b>Fritz Park</b> <ul style="list-style-type: none"><li>• Spot cars for Fritz Park, pull Resin Creek &amp; Durlin</li><li>• Set up retainers and run air brake test</li></ul>
<b>Durlin (yard limits)</b> <ul style="list-style-type: none"><li>• OS dispatcher, sign train register</li><li>• Service engine and turn</li><li>• Spot Durlin cars, pull cars all other destinations</li><li>• Obtain orders and clearance from dispatcher</li><li>• Perform air brake test</li><li>• OS dispatcher on departure</li></ul>
<b>Resin Creek</b> <ul style="list-style-type: none"><li>• Spot Resin Creek cars, pull all other destinations</li></ul>
<b>Fritz Park</b> <ul style="list-style-type: none"><li>• Spot Fritz Park cars, pull cars for Durango, Alamosa, Chama, Flint and Carrumba</li><li>• Set up retainers, run air brake test</li></ul>
<b>Carrumba (yard limits)</b> <ul style="list-style-type: none"><li>• Take water, check train order board, obtain clear.</li><li>• Pull cars for Durango, Alamosa, Chama; drop cars for Carrumba and Flint in spur</li><li>• Set retainers and run air brake test</li><li>• Check and sign train register, OS dispatcher</li></ul>
<b>Cresco</b> – Cool wheels 10 minutes
<b>Grandt Line Jtn.</b> – Call Chama yard for track assignment
<b>Chama (yard limits)</b> <ul style="list-style-type: none"><li>• OS dispatcher, sign register</li><li>• Cut off engine, service, and tie up in engine house</li></ul>

ÉCovers the trip from terminal to terminal

ÉDescribes the activity or what is to be done at each point on the RR

ÉDoes not describe how to do it

ÉDoes not grant authority to occupy mainline

ÉEasy to carry

# Ops aid - Train wallet (no known prototype)

Extra Eastward/Westward Turn  
Freight Chama to Durlin & return

D&RGW

Decoder

	DSX	Tsunami
Headlight:	F	F
Class Lamps	F	F
Whistle – L	F	F
Whistle – S	F	F
Bell	F	F
Pop/Blowdown	F	F

Whistle Signals

Sound	Indication
o	Apply brakes. Stop
--	Proceed
- 0 0 0	Flagman protect rear of train
- - - -	Flagman return from west
- - - - -	Flagman return from east
- - -	Train has parted
o o	Release brakes. Answer to any signal not otherwise provided for
o o o	When standing: back up When running: stop at next station
- - o -	Approaching public crossings at grade
-	Approaching stations
- - o	Approaching meeting or waiting points
o -	Inspect train line for leaks or sticking brakes
Many short sounds	Warning to persons or livestock on the tracks
- o	Warning at places where view is obstructed. Answer to a yellow flag

WESTWARD			DURLIN BRANCH			EASTWARD					
SECOND CLASS	FIRST CLASS		Miles from Denver	Sub-Division 12-A	Stations	Time Table No.4 March 1 2007	Miles from Grand Line Jct.	Car Capacity	Sidings	FIRST CLASS	SECOND CLASS
	23 Flint Mixed (1)	123 Durlin Passenger								115 San Juan & New Mexico Express	116 San Juan & New Mexico Express
Leave Daily	Leave Daily	Leave Daily								Arrive Daily	Arrive Daily
		9:26am		DI	DURLIN	BCPRTW X	45	Yard		4:28pm	
		9:32am			RESIN CREEK	P	38	2		4:18pm	
		9:46am			FRITZ PARK	BP	31.9	7		4:10pm	
2:36pm	9:53am			Cr	CARRUMBA	BJPRWX Y	27.9	12		3:56pm	12:05pm
4:30pm	10:10am				TOLTEC GORGE					3:46pm	10:50am
					CRESCO						
4:50pm	10:25am				GRANDT LINE JCT.						
4:55pm	10:30am	11:50am	340								
5:01pm	10:35am	12:20pm	344	Ch	CHAMA						

Note 1: Train ... Carrumba on the siding. C

ROAD NAME **D&RGW**

CAR NO. **1800**

TYPE **GOBOLA**

*wt. 10 ton*

**WAYBILL 2**

ROUTING

TO **ALAMOSA**

*BCVR NATURAL Lumber +*

**CE FORM A**

*8/15 AM Sept. 09*

*Chama*

No. .... No. ....

No. .... No. ....

further orders for your train.

Operator *J.P.D.*

Engineerman and Operator, the latter retaining a copy.

Recorder Micro-Mark #94184

**Extra Freight Chama-Durlin Turn**

**Chama (yard limits)**

- Obtain clearance from dispatcher
- Service engine -drop ashes, take water, coal, sand
- Check consist: cars for Carrumba, Fritz Park, Resin Creek and Durlin only
- Perform air brake test
- Check train register, sign register
- OS dispatcher on departure

**Grandt Line Junction** – Line switch for branch

**Cresco** - Water stop for T-12 and C class engines

**Toltec Gorge** - Slow order 5mph

**Carrumba (yard limits)**

- Check train order board, obtain clearance
- Water stop for all engines; cut off helper engine
- Sign and check train register
- Spot cars for Carrumba, pull cars for Fritz Park, Resin Creek and Durlin
- OS dispatcher on departure from Carrumba

**Fritz Park**

- Spot cars for Fritz Park, pull Resin Creek & Durlin
- Set up retainers and run air brake test

**Durlin (yard limits)**

- OS dispatcher, sign train register
- Service engine and turn
- Spot Durlin cars, pull cars all other destinations
- Obtain orders and clearance from dispatcher
- Perform air brake test
- OS dispatcher on departure

**Resin Creek**

- Spot Resin Creek cars, pull all other destinations

**Fritz Park**

- Spot Fritz Park cars, pull cars for Durango, Alamosa, Chama, Flint and Carrumba
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**Cresco** – Cool wheels 10 minutes

**Grandt Line Jtn.** – Call Chama yard for track assignment

**Chama (yard limits)**

- OS dispatcher, sign register
- Cut off engine, service, and tie up in engine house

Fits in hip, shirt or apron pockets. Uses one 8-1/2 x 11 inch card stock sheet

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Arrive Daily	Arrive Daily	Arrive Daily							Leave Daily	Leave Daily

Note 1: Train Numbers 22 and 23 arrive and depart Carrumba on the siding. Other trains meeting 22 or 23 at Carrumba use main track

**4. Fold lengthwise on center line**

Top of glue tab 5 in from bottom of paper

**3. Fold tabs over folded pocket flap and glue**

Trim left and right side of paper 1/4 in from top of glue tab to top of paper  
Score glue tabs vertical fold lines 1/4 in from outer edge of tabs

Horizontal pocket Fold line and bottom of glue tab 2-1/2 in from bottom of paper  
Score horizontal fold line for pocket  
Score center line for vertical fold

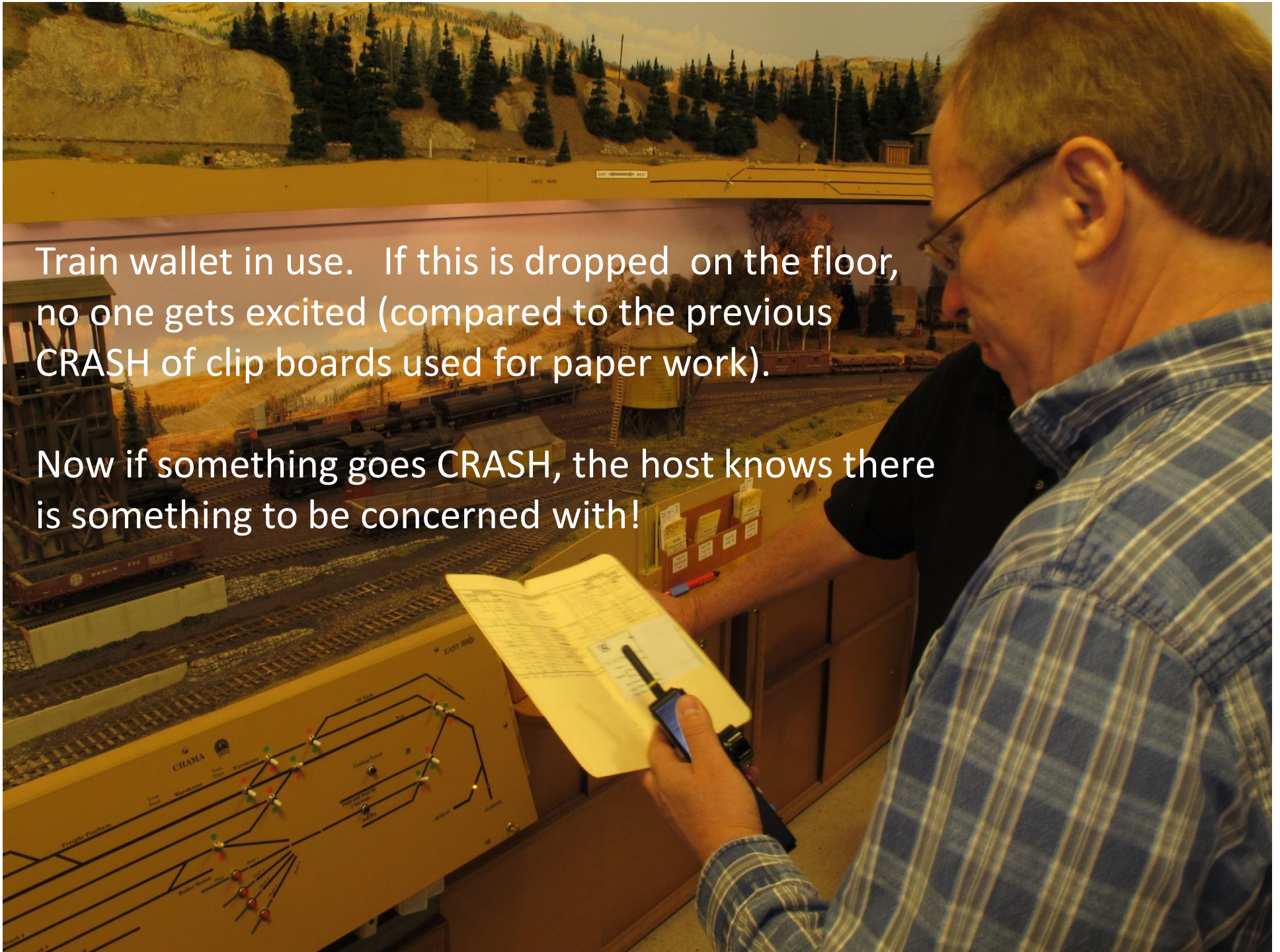
Trim left and right side of paper 5/32 in from bottom of glue tab to bottom of paper

**2. Fold up to form pocket**

**1. Cut off 1/4 in. of edge to create tabs**

8-1/2 x 11 inch card stock printed two sides





Train wallet in use. If this is dropped on the floor, no one gets excited (compared to the previous CRASH of clip boards used for paper work).

Now if something goes CRASH, the host knows there is something to be concerned with!

# TT&TO cheat sheet

## D&RGW Durlin Branch

### Time Table and Train Order Operation:

Answer questions with regard to YOUR train –

#### TRAIN ORDER ISSUED?

- YES: Train order instructions supersede the timetable. Obey the train order with regard to the instructions given. Otherwise be governed by the superiority chart below
- NO: Be governed by the superiority chart below

#### IS YOUR TRAIN A SCHEDULED (REGULAR) TRAIN LISTED IN THE TIMETABLE?

- YES: According to the timetable, what class is your train?
  - FIRST CLASS:
    - Moving in the superior timetable direction?
      - YES: ☞ You are superior to ALL opposing trains.  
☞ First class trains moving in the same direction have equal superiority  
☞ You are superior to Second and Third Class trains and Extras in the same direction.
      - NO: ☞ You are required to clear opposing First Class trains  
☞ First class trains moving in the same direction have equal superiority  
☞ You are superior to Second and Third Class trains and Extras in both directions
    - SECOND CLASS:
      - Moving in the superior timetable direction?
        - YES: ☞ Clear First Class trains in both directions  
☞ Second class trains moving in the same direction have equal superiority  
☞ You are superior to opposing Second and Third Class trains and Extras  
☞ You are superior to Third Class trains and Extras in the same direction.
        - NO: ☞ Clear First Class trains in both directions  
☞ Clear opposing Second Class trains  
☞ Second class trains moving in the same direction have equal superiority  
☞ You are superior to Third Class trains and Extras in both directions
      - THIRD CLASS:
        - Moving in the superior timetable direction?
          - YES: ☞ Clear First Class and Second Class trains in both directions  
☞ Third Class trains moving in the same direction have equal superiority  
☞ You are superior to opposing Third Class trains  
☞ You are superior to Extras in both directions
          - NO: ☞ Clear First Class and Second Class trains in both directions  
☞ Clear opposing Third Class trains  
☞ Third Class trains moving in the same direction have equal superiority  
☞ You are superior to Extras in both directions
    - NO: You are operating an EXTRA train
      - ☞ To operate on main track you must have a train order authorizing your train to "...run extra \_\_\_ to \_\_\_."
      - ☞ Clear First Class trains in both directions
      - ☞ Clear Second Class trains in both directions
      - ☞ Clear Third Class train in both directions
      - ☞ Extra trains in the same direction have equal superiority
      - ☞ Train orders will govern your movements with respect to opposing extras

#### OPERATION WITHIN YARD LIMITS:

FIRST CLASS: Operate at restricted speed expecting main track to be clear and switches properly lined.

ALL OTHER TRAINS: Operate at restricted speed. You must clear times of superior trains.

YARD ENGINE MOVEMENTS: Operate at restricted speed. You are required to clear First Class trains only

Durlin Branch RQS: Feb-2005

Credit for sheet design: M. Amfahir/Dispatcher's Office/Oct 2002

“ Front of page contains a logic flow for understanding what other trains your train needs to look out for ”

“ Back of page contains info about other TT&TO rules and application on the Durlin Branch ”

Thanks to Mark Amfahir and the Oct 2002 Dispatcher's Office for the front page

# Is it possible to:

“ Learn TT&TO in one session?

➤ No, TT&TO requires a lot more study & practice

“ Get a flavor for TT&TO in one session?

➤ Yes, with a good TT&TO mentor along

“ òfake itò through a TT&TO session?

➤ The risk is screwing up the session for everyone else. Much better to ask questions

“ Enjoy or have fun in a TT&TO session?

➤ Absolutely!

“ Include teenagers in TT&TO sessions?

➤ You bet! They will probably learn and practice TT&TO better than some old heads

# Is it possible to: (continued)

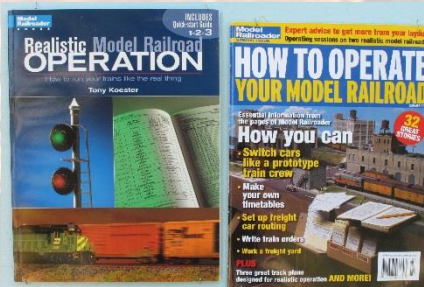
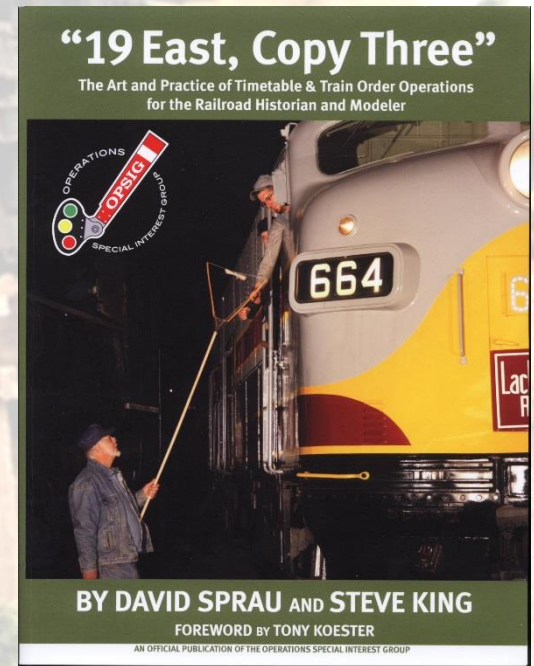
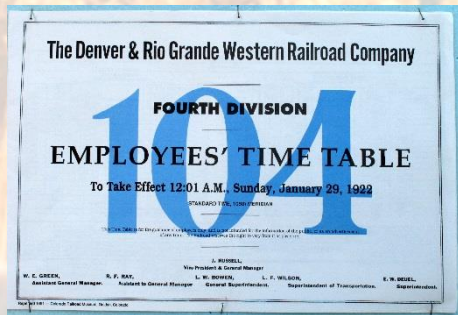
- “ Act as Host/Superintendent and Dispatcher in a TT&TO session?
  - Yes, if the layout is not too large or complex, is solid mechanically and electrically, and most of the crew is experienced
- “ Run TT&TO without train order boards, phones or radios using voice across the room only?
  - Yes, if the crew keeps the unnecessary chatter down. You do lose some of the “magic” when all hear the OS-ing and call out of “red board set at 1:00
- “ Enjoy or have fun in a TT&TO session with voice across the room communications only?
  - Absolutely!
- “ Run a TT&TO session as smooth as is sometimes described in the magazines?
  - Once in a while it actually does work out like that. Other times it

# School of hard knocks

- “ Waited 6 years after the layout was designed and well along in construction and then decided to learn about TT&TOí
  - “ No useful space for a Station Operator position
  - “ Crew can see òstation to stationö and operate under VFR
- “ Spent time to add lots more rotary block switches to use DC, PFM and Soundtraxx Sound control in TT&TO ops rather than going to DCC at the time
  - “ Changed to DCC in 2001 anyway (a great move for ops)
  - “ In 2016 steam decoder sound quality did catch upí
- “ Failed to prove ò# Staging tracks needed = 2n+1ö false
- “ Learned a lot of time is spent creating/maintaining documentation for ops
  - “ Letting documentation slip screws up sessions
  - “ Needing to document gets this layout owner to think things through
- “ Learned sound and animation are not gimmicks, but great stretchers of train crew time and activity in a session

# School of hard knocks (continued)

“ Learned it is well worth the time, energy and cost of obtaining prototype and other Ops information ”  
“ Danger -this can become a hobby within the hobby!



# Some Recommendations

- “ Just get started.
- “ Take it slow - lives are not at stake, so don't burn out doing it all at once.
- “ Work on those aspects of operations that most interest you. Over time your knowledge and skills will evolve.
- “ Stay grounded in the prototype, and take your liberties from there. Gain a new appreciation of the railroaders on your favorite prototype.

*Operate Early and Often!*



Looking forward to many more  
years of operations

You should be too!