



Colorado & Southern Railway Company

OPERATIONS SUMMARY

Station Names and Direction

All stations listed in the Time Table are labeled on the fascia with a black and white station sign. Each station sign also shows the next town along the line in either direction, along with the prototype (not the modeled) distance.



The Train Manifest and Station Maps supplement to the Time Table shows the modeled and unmodeled portions of the Colorado and Southern Railway, connections to the rest of the U. S. rail network, and towns, tracks, and industries on the layout.

Turnouts and Routes

All turnouts are controlled by slow-action Hanksraft motors. Turnout controls are on the fascia, along with route diagrams. The Main Line is shown as a thick white line; yellow lines are passing sidings and secondary routes; red lines are spurs; dashed and black lines are foreign roads. Note that the Rules require that all Main Line turnouts be left lined for the Main. The Time Table specifies the normal alignment of grade crossings and gates.

Turnouts in Boulder are controlled by manual Handstand switch stands, with the exception of the tail of the DB&W narrow gauge wye. Targets are edge-on for the normal route (which is not necessarily the straight route), and face-on for the reverse route. Round targets control switches for the DB&W narrow gauge, and should always be edge-on for C&S and UP trains. Rectangular targets are for standard gauge and 3-rail switches. Please be gentle when throwing and working near switches.

Track polarity is handled automatically at Ara and DB&W wyes, and all grade crossings. Clearance points are not marked and must be judged by experience.

Staging

Staging yards are Longmont (North Staging) and South Denver (South Staging, adjacent to Rice Yard). Routing in and out of staging yards is controlled from the fascia at Longmont and South Denver. The Main Line is a through track for continuous running and is shown with a thick white line. All other tracks are numbered front to back: 2 – 5 for Longmont; 6 – 8 for South Denver. Track 1 in Longmont is nearby under Fox. Select the desired track and push the button to align switches.

Trains

The Train Manifest and Station Maps supplement to the Time Table lists the trains and summarizes their activity. The Dispatcher may run fewer or additional trains as needed.

Coal, ore, and sugar beet consists are live loads. Coal locals load at the mine and weigh their hoppers at the mine company's scale. Needless to say, live loads require careful handling.

Passenger trains are announced as they leave or arrive at Denver Union Station. The Union Station Assistant Yardmaster is responsible for activating their announcement via the fascia control box.

Time Table and Train Orders

Each engineer needs to have a Time Table. While set in 1958, our Time Table is based on a 1933 version to give us a variety of scheduled trains and meets. We also run extra trains authorized by train order. First class trains are superior to second class trains; regular (scheduled) trains are superior to extra trains; inferior trains must clear superior trains by 5 minutes. Use the Time Table schedules to estimate your train's travel time between stations.

In addition to schedules, the Time Table contains instructions. These include train direction superiority, speed restrictions, facilities at each station, and more.

Time Table and Train Order (TT/TO) operation for the C&S Northern Division is kept relatively simple and generally follows these basic rules:

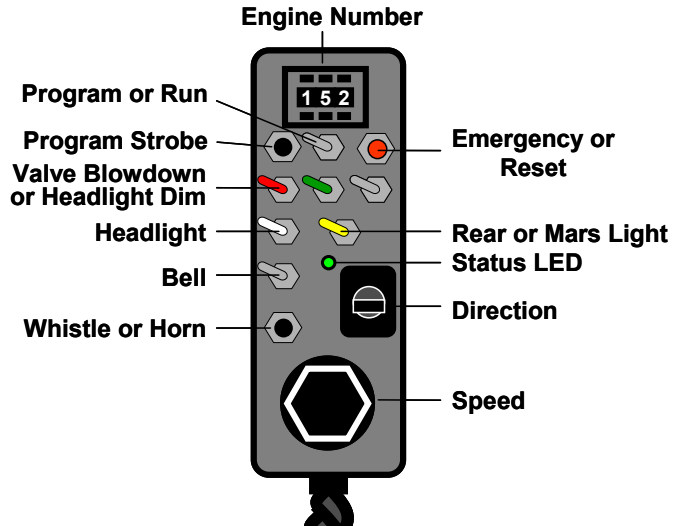
- Train crews decide when and where to move through understanding of the rules, Time Table, and their orders; they are not under direct control of the Dispatcher.
- Upon assignment, each train crew will receive a Clearance Form and perhaps orders from the Station Operator. Each crew also needs a Train Description card, available at their starting point from either a yardmaster (Rice Yard, Union Station) or a card box (staging). For most trains, there will also be a packet of car cards.
- Referring to the Time Table, scheduled trains cannot leave listed stations earlier than shown.
- Before passing any station along the line, or leaving a town after switching, check the position of the Train Order Board. If the Train Order Board is in the stop (horizontal or red) position, you must stop and receive orders and another Clearance Form from the Station Operator before proceeding. (Pinewood Derby cars deliver orders to Broomfield and Niwot; others see the Station Operator in person.)
- Register your train at the Register stations designated in the Time Table (bold “R” in “Signs” column). Check the register for overdue trains before proceeding. Register clipboards are hung near the fascia station sign.
- Send out a flagman to protect your train when fouling the Main Line. The Dispatcher will issue orders to prevent head-on “cornfield meets” between extra trains, but you are responsible for following trains. Don’t forget to whistle your flagman back in before you leave.

Plug-in Throttles

We use custom-built plug-in throttles for the Lenz DCC system. Speed, direction, lighting, and sound can all be controlled. There is also an emergency stop/DCC reset button on these throttles. The Status LED will blink to indicate engine control (single wink), double header control (double wink), not assigned (slow blink), or DCC shutdown (fast blink).

All engines have “memory” and will continue in motion when the throttle is unplugged.

Controls are not labeled, but are color coded as in the figure. For toggle switches, on is to the right, off



is to the left. The Program/Run toggle must be centered for operation. Direction, Whistle, Bell, and light switches are closest to the Speed control – the only controls needed to run a train.

To assign a throttle to a locomotive simply dial up the last 3 digits of the engine number. If you do not have control of the locomotive you dialed up (indicated by a slow blink), change a control setting on the throttle to take control. Turning a light on or off is a good way to do this.

Wireless Throttles

My custom-built wireless throttles are similar to the plug-in throttles and the controls are labeled. Main Line crews are issued a wireless throttle and a “personality card” describing how to acquire and release an engine.

Running

I **insist** on running scale speeds or slower. The Time Table lists speed restrictions. Estimate your speed by the time it takes a 40 foot car to pass a fixed point: 1 second is 30 MPH, 2 seconds is 15 MPH. Be aware – my engines have momentum.

Steam engines should be started by quickly running up the speed setting, producing a prototypically loud exhaust. As you approach running speed, reduce the throttle setting.

Uncoupling

Please do not touch equipment to uncouple – ensure there is slack and use the uncoupling tools. Watch out for scenery and structures when reaching in.

Car Cards

We use car cards to generate traffic as described by Tony Koester in the March 1993 and March 1994 Model Railroader. In addition, special block waybills are used for coal, ore, and sugar beets. The Coal Mine Block waybill must be filled in with car reporting marks and numbers, as well as weight, by crews of the coal locals.

XM	WAYBILL	1
ROUTING: C&S • ATSE		
VIA:		
TO	ALBUQUERQUE, NM.	
RCVR	IGA DISTRIBUTOR	
FROM	LONGMONT, COLO.	WEIGHED at RY
SHPR	KUNER'S FOODS	
CONTENTS	CANNED GOODS	
	<small>Gross (tons)</small>	

Local freight is weighed in Rice Yard upon arrival and weight is recorded on the waybill. To help local crews, a special “Weigh in Transit”

card is placed in front of the waybill for local freight that must be brought to Rice Yard for weighing.

UP waybills in Boulder and Ara will be marked by orange highlighting of “UP” in their “ROUTING” line. UP-billed cars are not for C&S local trains.

Denver-bound cars with highlighted “RCVR” are to be switched by the Rice Yard crew.

Car cards are not turned during an operating session. See me if you are not familiar with car cards.

Telephones

The Station Operator observes live video from each station, so telephones are not used for reporting the passage of trains (OSing).

Rice Yard and Denver Union Station share a telephone, requested by single and double rings respectively. Trains inbound to Rice Yard at Fox stop to call Rice Yard for yarding instructions. The Station Operator calls Rice Yard and Denver Union Station as needed. Other telephones along the railroad are for emergency use only.

Turntable

To use the turntable at Rice Yard, run the engine onto the table and turn the table switch to select

either a clockwise or counter-clockwise direction and power setting. The first notch in either direction is low power for light engines or when approaching the target track (and is **always** used for turning an empty table). The second notch is more powerful for heavy engines. Power must be routed to the appropriate roundhouse track by the adjacent switch.

Engine Servicing

Instructions for servicing engines before or after a run are posted at Rice Yard. Enjoy the animation and sound effects.

Defect Detector

A talking defect detector on the lower deck Main Line (opposite Niwot) will alert passing trains to hotboxes and dragging equipment. Follow the instructions posted on the fascia if you are unlucky.

Operating Positions

A full compliment of 10 operators includes:

- Dispatcher (may be combined with SO)
- Station Operator
- Yard Master
- Rice Yard Assistant YM
- Union Station Assistant YM
- Engine House Foreman
- 4 Extras (3 minimum)

A train crew is one operator, acting as Engineer and Conductor. The Station Operator assigns all train crews from the first-in-first-out Extra Board as needed – the “Extras” listed above.

I’ve created brief duty summaries for all of the “non-extra” operating positions. These hints will help you get the most out of your operating assignment.

Having Fun

Operations can be as simple or as complex as you want to make them. I only insist that crews run at slow, prototype speeds, leave turnouts lined for the Main, and respect the equipment and layout. I encourage train crews to attempt to use light and sound prototypically, stop to let their brakemen throw switches, and make a standing brake test after making up their train.

Safety first and have fun!

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