



Run 8 Simulator Southwest Region Block, Interlocking and Distant Signals

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**Run 8 Train Simulator Use Only
Do Not Use For Real World Operation**

Contents

BNSF Railway3-4
Union Pacific Railroad5-7

Introduction

This publication is authored as a companion to Run 8 Train Simulator. **This applies only to rail simulation and is not to be used for real life operation.**

Note Run 8 Simulator uses BNSF signal rules on some Union Pacific territories (for example the Mojave Subdivision). For the limited SCRRA (Metrolink) territory in Run 8 Simulator apply BNSF signal rules.

The author worked as a train dispatcher, chief dispatcher and rules consultant for the Southern Pacific Transportation Company, the Atchison, Topeka & Santa Fe Railway Company and the BNSF Railway Company from 1979 to 2015.

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Front cover: BNSF train entering Union Pacific Railroad at Mojave, California in Run 8 Train Simulator.

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BNSF Railway — SIGNAL ASPECTS AND INDICATIONS

All signals are subject to modification indicated under individual subdivision special instructions.

DISTANT SIGNALS

Aspects shown in Rules 9.1.3 through 9.1.8 may be displayed with a "D" sign on the signal mast to identify the signal as a distant signal. When a "D" sign is displayed, if train is delayed per Rule 9.9 and Rule 9.9.1 between a distant signal and the next signal, proceed prepared to stop short of the next signal. Absolute signals at automatic switches, outside of block system limits, convey main track distant signal information for the other end of the siding.

BLOCK AND INTERLOCKING SIGNALS

Aspects shown in Rules 9.1.3 through 9.1.8 and 9.1.13 may be displayed on signals with or without a number plate on signal mast.

Rule	Aspects of Color Light and Semaphore Signals	Cab Signal Aspects	Name	Indication	PTC Track Line
9.1.3			CLEAR	Proceed.	
9.1.4			APPROACH LIMITED	Proceed prepared to pass next signal not exceeding 60 MPH and be prepared to enter diverging route at prescribed speed.	
9.1.5			ADVANCE APPROACH	Proceed prepared to pass next signal not exceeding 50 MPH and be prepared to enter diverging route at prescribed speed.	
9.1.6			APPROACH MEDIUM	Proceed prepared to pass next signal not exceeding 40 MPH and be prepared to enter diverging route at prescribed speed.	
9.1.7			APPROACH RESTRICTING	Proceed prepared to pass next signal at restricted speed. Freight trains exceeding 30 MPH immediately reduce to that speed. (Note: Speed is 40 MPH for freight trains in PTC Full Enforcement Mode).	
9.1.8			APPROACH	Proceed prepared to stop at next signal. Trains exceeding 30 MPH immediately reduce to that speed. (Note: Speed is 40 MPH for passenger and trains in PTC Full Enforcement Mode).	
9.1.9			DIVERGING CLEAR	Proceed on diverging route not exceeding prescribed speed through turnout.	
9.1.10			DIVERGING APPROACH DIVERGING	Proceed on diverging route not exceeding prescribed speed through turnout prepared to advance on diverging route at the next signal not exceeding prescribed speed through turnout.	
9.1.11			DIVERGING APPROACH MEDIUM	Proceed on diverging route not exceeding prescribed speed through turnout prepared to pass next signal not exceeding 35 MPH. (Note: Speed is 40 MPH for trains in PTC Full Enforcement Mode.)	
9.1.12			DIVERGING APPROACH	Proceed on diverging route not exceeding prescribed speed through turnout; approach next signal prepared to stop. Trains exceeding 30 MPH immediately reduce to that speed. (Note: Speed is 40 MPH for passenger and trains in PTC Full Enforcement Mode.)	
9.1.13			RESTRICTING	Proceed at restricted speed.	
9.1.15			STOP	Stop.	

BNSF Railway

SPECIAL ASPECTS WHICH ARE NOT PART OF AUTOMATIC BLOCK, CTC AND INTERLOCKING SYSTEMS			
Rule	Aspects	Name	Indication
9.1.16		TAKE SIDING INDICATOR	When illuminated, hand operate switch to enter next siding or to leave siding and enter main track.
9.1.22		SLIDE FENCE INDICATOR	When illuminated continuously or when not illuminated, slide fence has been activated; proceed at restricted speed.
9.1.23		SLIDE FENCE INDICATOR	When flashing, slide fence has not been activated.
9.1.24		RESUME SPEED	End of slide fence restriction; resume speed.
9.1.25		HIGH WATER INDICATOR	When red or not illuminated, high water may be present; proceed at restricted speed through detection limits identified by timetable.
9.1.26		HIGH WATER INDICATOR	When green, no high water has been detected.

General Signal Instructions

In addition to Rule 9.1 of the General Code of Operating Rules, the following General Signal Instructions apply on BNSF Railway:

- Dwarf signals will display the same aspects and indications as high signals.
- The following symbols are used in diagrams of signal aspects.



To indicate a number plate.



To indicate position of semaphore arm.



To indicate a flashing light.



To indicate grade marker.



To indicate color light signal head.

Wayside Horn System (WHS)



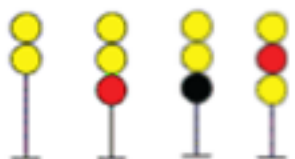
Flashing - operating as intended.

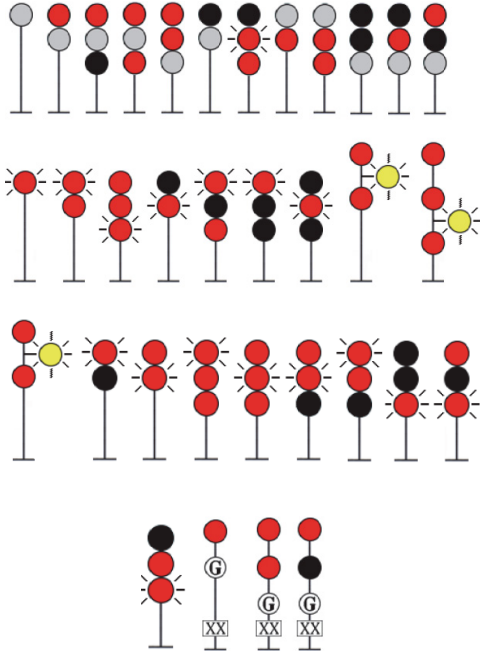
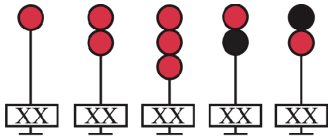
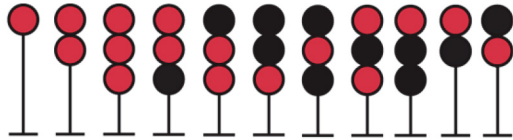


Steady or not illuminated - not operating as intended.

PTC Display Information

Track Line			Track Line Overlays		
Color	Symbol	Description	Color	Symbol	Description
Red		Unauthorized track	Red-hash overlay		Stop required
Yellow		Authorized speed restricted track	Yellow-hash Overlay		Restricted Speed
Green		Authorized track	Blue-hash Overlay		Work Zone (Form B) Limits
Grey		Non-enforcing or unknown track			

Union Pacific Block and Interlocking Signals			
Rule	Name	Aspects	Indication
9.2.1	Clear		Proceed.
9.2.2	Approach Clear Sixty		Proceed. Trains exceeding 60 MPH proceed prepared to pass the next signal not exceeding 60 MPH. When signal governs approach to a control point with a 60 MPH turnout speed be prepared to advance on diverging route.
9.2.3	Approach Clear Fifty		Proceed. Trains exceeding 50 MPH proceed prepared to pass the next signal not exceeding 60 MPH. When signal governs approach to a control point with a 50 MPH turnout speed be prepared to advance on diverging route.
9.2.4	Advance Approach		Proceed prepared to stop at second signal. Trains exceeding 40 MPH proceed prepared to pass the next signal not exceeding 40 MPH. When signal governs approach to a control point with a 40 MPH turnout speed be prepared to advance on diverging route. When the next signal is seen to display an aspect more favorable than Diverging Approach or Approach, the requirement to proceed prepared to stop short of the second signal is no longer required.
9.2.4P	Advance Approach Passenger	 With diamond shaped "C" plate and with or without number plates.	Proceed prepared to stop at second signal. Freight trains exceeding 40 MPH proceed prepared to pass the next signal not exceeding 40 MPH. Passenger trains may proceed, but must be prepared to pass the next signal not exceeding 60 MPH. When the next signal is seen to display an aspect more favorable than Diverging Approach or Approach, the requirement to proceed prepared to stop short of the second signal is no longer required.
9.2.5	Approach Diverging		Proceed prepared to advance on diverging route at next signal at prescribed speed through turnout.
9.2.6	Approach		Proceed prepared to stop before any part of train or engine passes the next signal. Freight trains exceeding 30 MPH must immediately reduce to 30 MPH. Passenger trains exceeding 40 MPH must immediately reduce to 40 MPH. When the next signal is seen to display a proceed indication, the requirement to proceed prepared to stop no longer applies.

Union Pacific Block and Interlocking Signals			
Rule	Name	Aspects	Indication
9.2.12	Diverging Approach Diverging	 Without number plate.	Proceed on diverging route not exceeding prescribed speed through turnout prepared to advance on diverging route at the next signal at prescribed speed through turnout.
9.2.13	Restricting		Proceed at restricted speed, not exceeding prescribed speed through turnout when applicable.
9.2.14	Restricted Proceed		Proceed at restricted speed.
9.2.15	Stop	 Without number plates.	Stop before any part of train or engine passes the signal.
9.12.16	Diverging Approach Clear Fifty	 Without number plate.	Proceed on diverging route at prescribed speed through turnout. Freight trains exceeding 50 MPH must immediately reduce to 50 MPH. Passenger trains may proceed, but must be prepared to pass the next signal not exceeding 50 MPH. When signal governs approach to a control point with a 50 MPH turnout speed be prepared to advance on diverging route

Union Pacific Block and Interlocking Signals

This table does not include position color light signals, Automatic Cab Signals or UP Chicago Lake Street Interlocking signals. Unless otherwise specified or signal mast is shown with a number plate, signal aspects shown apply to signals with or without number plates.



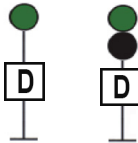
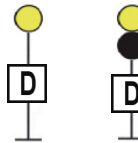
6.27: Movement at Restricted Speed

When required to move at restricted speed, movement must be made at a speed that allows stopping within half the range of vision short of:

- Train
- Engine
- Railroad car
- Men or equipment fouling the track
- Stop signal
- or
- Derail or switch improperly lined

When a train or engine is required to move at restricted speed, the crew must keep a lookout for broken rail and not exceed 20 MPH. Comply with these requirements until the leading wheels reach a point where movement at restricted speed is no longer required. Train and / or engine speed must allow for movement to stop of the obstructions listed consistent with good train handling.

Union Pacific Distant Signals

Rule	Name	Aspects	Indication
9.1.1	Distant Signal Clear		Proceed. If delayed between this signal and block or interlocking signal, proceed prepared to stop before any part of train or engine passes the next signal.
9.1.2	Distant Signal Approach		Proceed prepared to stop before any part of train or engine passes the next signal or switch point indicator. The maximum speed is 20 MPH within interlocking limits or within the limits of the control point for which Distant Signal Approach is displayed at the distant signal.
9.1.3	Distant Signal Approach Diverging		Proceed prepared to advance on diverging route at next signal at prescribed speed through turnout.