

# PTC Operating Practices Topics



## PTC Functionality During Switching Events July 30, 2020

This communication provides instructions for PTC operations during scenarios where work is performed, such as Locals, Road Switchers, Work trains, and through-freight trains at intermediate stations. When operating in these scenarios, proper PTC system operation will prevent PTC braking events and unnecessary delay that result.

This communication is available digitally under the PTC heading at:

<https://employee.bnsf.com/safety/Pages/communications-transportation.aspx#!#subnavigation-light-example-4>

### Restricted Mode (Refer to GCOR 18.9)

When performing work events such as switching, pickups and/or set outs, **Restricted Mode** will be used in place of Unmapped Track. Restricted Mode also may be used for **low-speed work train operations**, such as dumping ballast, or laying/picking up rail. After work has been completed, **turn off Restricted Mode**, then **update consist** information to reflect correct totals.

While operating in **Restricted Mode**: PTC will only enforce the maximum speed of **20 mph**.

- **NO** enforcement of: signals, switches, authority, ½ range of vision, etc.
- **NO** display of: *Next Target*, *Warning Distance*, *Stopping Distance*, or *Milepost location*.

### To enter Restricted Mode:

1. The train **must be located on PTC mapped track, and stopped**.
2. Select [**Restricted Mode On**], then answer the prompt indicating that only Restricted Speed will be allowed.
3. After selecting [**YES**], the system state will change to **RESTRICTED**.
4. After work has been performed and Restricted Mode is no longer required, select [**Restricted Mode Off**].
5. Review/Update **Consist Summary**, then re-select track to go back to ACTIVE state.



### Important:

**If train is continuously coupled (head-end and ETD/DP will move together), PTC must remain active for shove movements, reverse movements, and back-up movements.**

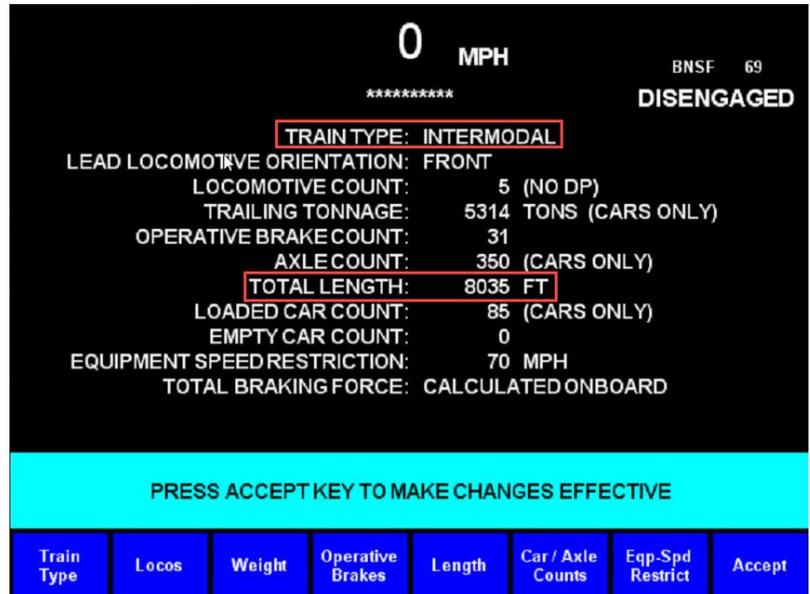
*Explanation: The PTC system will enforce all restrictions and signals ahead of the leading end of movement, including Restricted Speed in the same signaled block, then signal indications thereafter.*

## Consists Updates – Total Length and Train Type

**Accurate consist data is critical for proper PTC operation**, including: accurate calculation of stopping distances, correct enforcement of speeds for different train types, and determining position of the trailing end of the train. **Train crews must confirm consist data is correct at origin, and anytime train consist is changed in route.**

### Total Length

- When shoving with PTC active, **accurate input of total length is critical to avoid undesired enforcement** for signals ahead of the leading end of movement.
- Updates made via MTR/VTR will automatically update train consist. However, **when editing total length manually, Engineers MUST ensure the locomotive length is included in the total length of the train.**



For example:

Consist of two C44-9 (73 feet), Engineer will add 146 feet to total length of cars, or confirm with the conductor that length provided includes all locomotives.

### Train Type

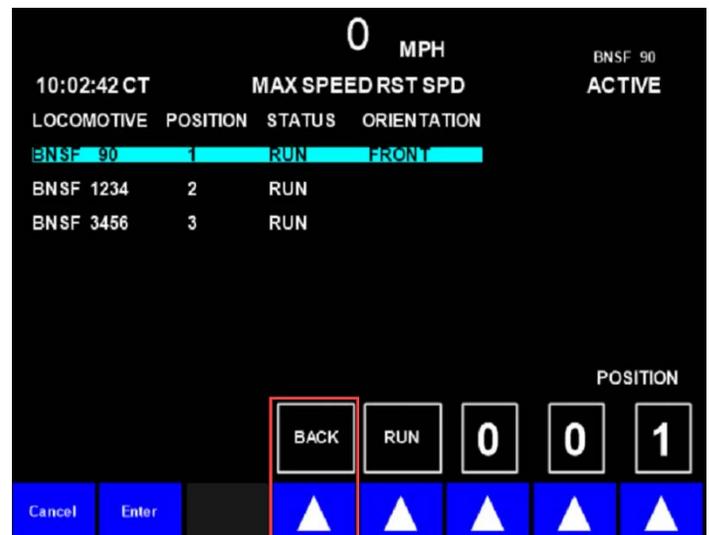
Local/Road Switcher/Work trains will only use **FREIGHT**. When operating with locomotives only, **PASSENGER** type may be used.

## Long Hood Forward

The PTC system supports operation of the lead locomotive oriented with the long-hood forward (F-stencil is not on the leading end of movement.) **Proper input into the PTC consist summary is critical to avoid unintended PTC enforcement.** Follow these steps to edit locomotive consist when operating long-hood forward:

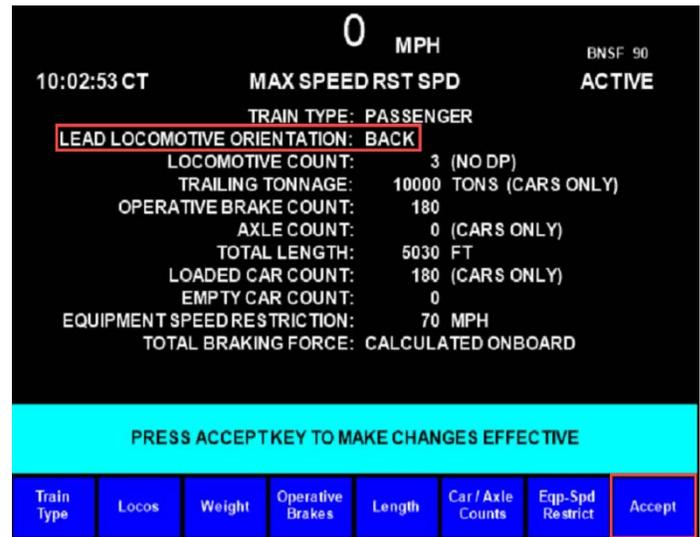
- From **Menu 1** screen, select **[EDIT CONSIST]**.
- Select the **[Locos]**, then a list of locomotives will appear.  
**Note: Locomotive IDs cannot currently be added or edited onboard. All locomotive IDs must be added by the Train Dispatcher, or assigned automatically by Work Order or AEI.**
- Select the locomotive that will be operated long hood forward
- Select **[Modify Loco]**

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## Long Hood Forward (cont.)

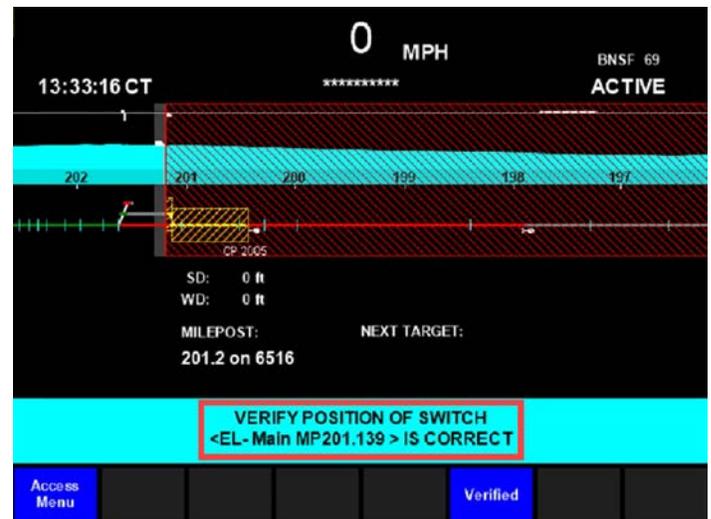
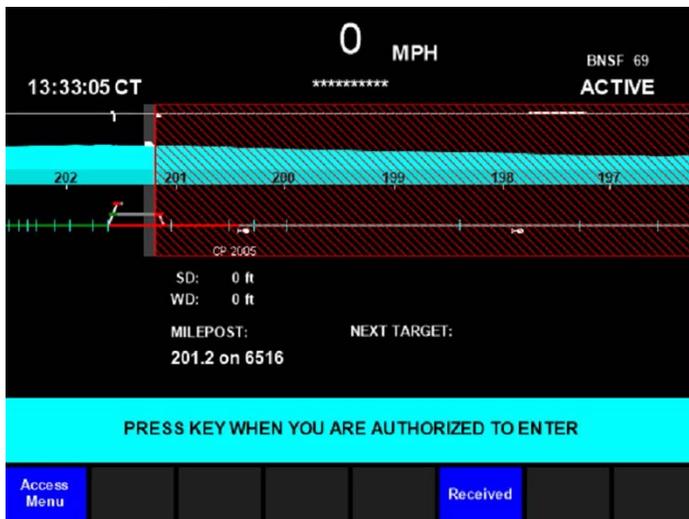
- Using the arrow key, change **FRONT** to **BACK**. The orientation in the locomotive list will change to **BACK**. Then select **[Enter]**.
- When the consist summary screen appears, ensure the **LEAD LOCOMOTIVE ORIENTATION** is **BACK**, then press **[Accept]**.
- When prompted to review consist update, select **[Review]**, then confirm all consist information is accurate.



## Enter Main Track (EMT) (also applies to Controlled Sidings)

When requesting verbal authority to enter a main track or controlled siding, and there is more than one point of entry, specify the point being entered using milepost, CLIC number, or other specific description, if known. The Train Dispatcher then will select the point of entry within the dispatching system.

Prior to entering the main track or controlled siding, exit Restricted Mode, then select track to go Active. If authorized to enter and a Red Fence remains displayed, stop within 1,500' of the entry point to receive the EMT prompt. Once the **[Received]** key is pressed, the red fence will be removed allowing movement to proceed.



## Track Selection over Hand-operated Switch (Unmonitored Switch)

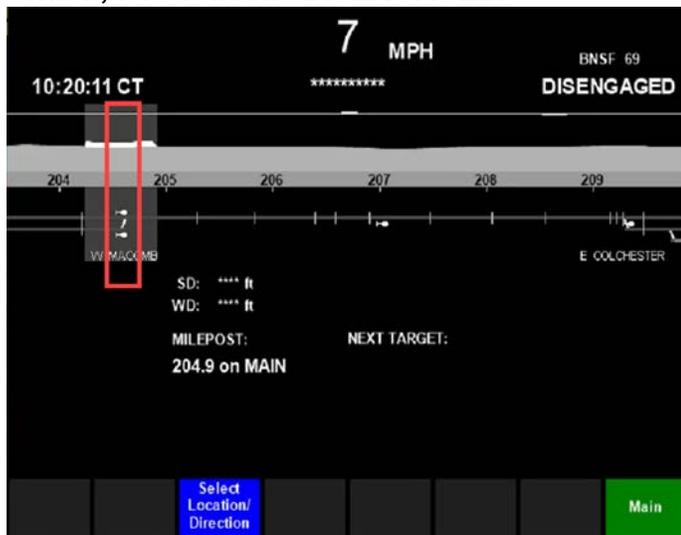
When selecting track at initialization, cut-in, or exit from Restricted Mode, if the **train is spanning an unmonitored switch** (a non-PTC equipped switch—usually at yards or industry leads) PTC will not go ACTIVE until the train clears this switch.

- When PTC does go ACTIVE, the train will be held to Restricted Speed until the leading wheels pass the next signal (see next section, Delay Within Block)
- PTC does not protect against any targets while **DISENGAGED**

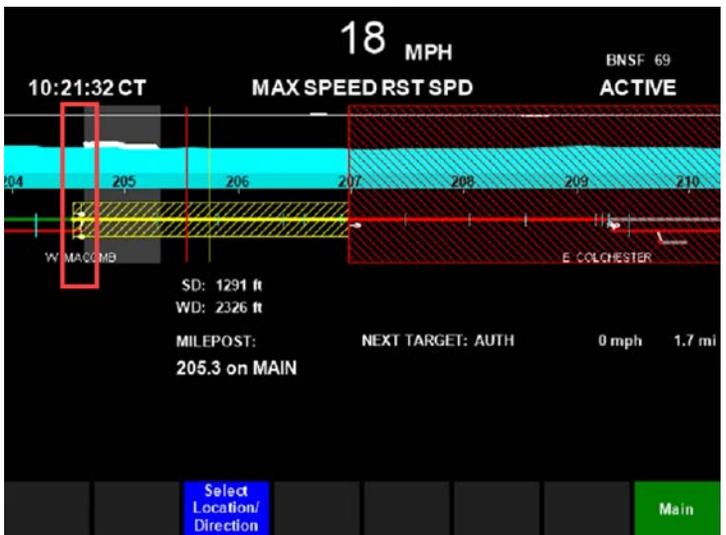
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## Track Selection (cont.)

Track is selected spanning an unmonitored switch, PTC remains DISENGAGED:



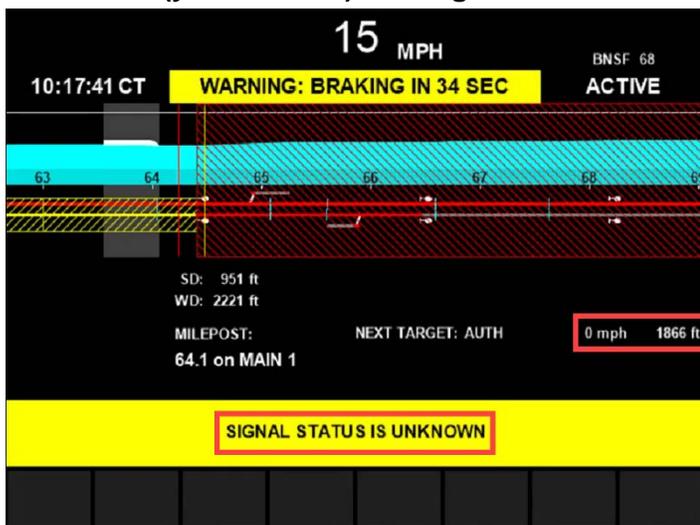
PTC transitions to ACTIVE after clearing unmonitored switch, held to Restricted Speed:



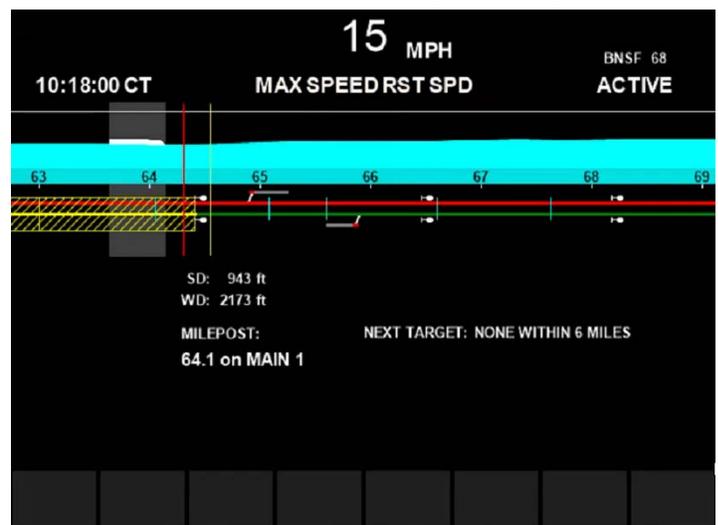
## Delayed Within Block (DIB)

When selecting track within a signaled block, PTC will hold the train to Restricted Speed regardless of whether previous signal indication is known. As the train approaches the next signal, PTC will not convey signal information until the train is 1,500 feet from the signal.

PTC transitioned to ACTIVE within signaled block and the next signal is Proceed. PTC holds train to 20 MPH (yellow fence) and Signal is Unknown:



Train is within 1,500 feet of next signal, that signal is displaying Proceed. Train is restricted to 20 MPH (yellow fence) until next governing signal:



## Reporting:

Trains experiencing PTC issues must contact the PTC Desk to assist with troubleshooting. Additional comments, including any PTC brake event details, should be reported on the PTC defect screen at Tie-Up.