# Operating Practices

Transportation

## Train Handling When Slowing or Controlling Speed to Stop


Derailments can be life threatening incidents. Train crew knowledge and compliance with applicable rules and procedures are life-saving processes that can prevent these type of incidents.

Locomotive engineers must use their best judgment to operate trains safely and efficiently. Proper train handling methods, such as effective control of train slack, throttle manipulation and when to use the appropriate braking applications are necessary to minimize risk and prevent injuries and derailments that can cause further damage to equipment, rail, and lading.

For safe train operations, one of the primary responsibilities of locomotive engineers is to control/limit the amount of in-train forces. Rapid braking events or high-retarding forces during dynamic braking can cause excessive buff forces leading to derailments within a train. To avoid these events, ensure dynamic braking levels are slowly applied to allow slack to adjust gradually before moving into higher-dynamic braking levels.

### Minimize Risk by Discussing Exposures and Following Established Preventive Measures

Exposures exist in every task we perform. To help identify the exposures present in a given task, we should begin each task with a Job Safety Briefing. This allows opportunity to review and discuss applicable life-saving processes that may mitigate some of the risks associated with the identified exposures. Pause the work to re-brief when conditions change and debrief at the end of every task and shift. This series of briefing is part of our commitment to approach each other about safety, ensuring we all return home safely at the end of each day. Keeping alert and a sense of "what if" can help us to understand situations and then take precautions to guard against hazards.

With these series of briefings, consider briefing on locomotive consist details, train makeup information, stopping location, grade and speed. The engineer's train PROFILE is provided for every train and must be used to understand a given train's makeup. Reviewing the PROFILE is essential and will give the necessary guidance on how an engineer should handle their train.

### Questions and Answers For Discussion

☐ What train status information should the engineer take into consideration in controlling train movement?

The engineer should discuss with crew members the train status or other conditions affecting train movement well before conditions require action. It is the engineer's responsibility to ensure slack changes are controlled through the use of the throttle, dynamic, automatic and independent air brakes while moving in forward or reverse direction. This would include some or all of the following:

- Train makeup
- Train length and tonnage
- Tons per operative brake
- Speed
- Severity of the grade
- Block signal spacing
- Type and axle limitations (if any) of the dynamic brake
- Temperature and weather conditions
- Throttle response
- Amount and type of slack in the train

Locomotive speed, grade conditions and air gauge indications should be considered to ensure that the train or locomotive is being handled safely and is under control. If necessary, take immediate action to bring the train or locomotive under control.

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## What are the preferred methods for slowing or controlling train speed?

The following methods, listed in order of preference, should be used when operating conditions allow and for the best fuel efficiency:

1. Throttle manipulation
2. Dynamic braking
3. Dynamic braking supplemented with train air brakes

Use these train handling methods for starting, stopping, slowing, and controlling trains as well as unplanned stopping. These methods are guidelines; understand heavy tonnage, heavy grades, or specific locations may require other combinations for throttle modulation, dynamic braking, or air braking. For the application of these methods, use the following practices:

- When using dynamic and air brakes and the desired speed has been reached, maintain enough dynamic brake to control slack until the train brakes are fully released.
- When using the stretch braking method and the desired speed has been reached, reduce the throttle until train brakes are fully released.
- When operating in curved territory, keep the total braking effort at the lowest practical level.

## What factors must the engineer consider when planning a stop?

In-train forces and the effect of abrupt stops can be reduced by the engineer's ability to properly plan for a stop. Planning includes consideration of the stop location, grade, and train makeup information such as placement of loaded and empty cars, number and location of cars equipped with end of car cushioning, and the number of dynamic brake axles.

## Why is it important to apply proper train handling techniques on H-, M-, and V-type trains?

When slowing or planning to stop, controlling and limiting in-train forces for all trains is important. It is critical for additional consideration to be given to H-, M-, and V-type trains. Improper train handling techniques on these types of trains can generate greater buff forces. To limit the amount of buff force generated throughout the train, apply lower dynamic braking and supplement with train air.

Proper train handling and planning ahead will reduce the amount of excessive in-train forces, minimize risk and ensure our customers receive a damage-free product.

## What other materials are available for review?

Take time to review applicable rule references in their entirety, including ABTH 103.0, ABTH 103.1, ABTH 103.2.1, ABTH 103.6 and ABTH 103.6.3.