



Trip Optimizer Q & A

General

Q: Am I required to initialize and use TO?

A: Yes. ABTH 106.9 requires all trained engineers to initialize and utilize the system to the fullest extent possible during their trip.

Q: What train types are supported by Trip Optimizer?

A: Current supported train types are: B/C/E/G/Q/S/X/Z/H/M/V and some U.

Q: Where can I use auto control?

A: Auto control is only to be engaged when the entire train is on a main track or performing “main to main” diverging moves. Do not use auto control on any siding or other than main track.

Q: Does TO know signals or the limits of my authority?

A: No. TO does not know signals or recognize limits of authority. However, auto control is to be utilized when running on clear signals and diverging signal more favorable than approach. Manual control is required for block signals less than Clear, and when approaching the end of authority limits.

Q. Can locomotive power mode be updated on the fly?

A: Yes. Power mode can be updated in manual control. This is the only item in the train setup that can be updated while moving.

Q. Can maximum train speed be updated on the fly?

A: No. This functionality has been developed and is coming in a future software release.

Dynamic Braking and Air Brake Prompting

Q: Will TO apply the air brakes on my train?

A: No. TO will only display air brake prompts on the TO operating screen.

Q: Will TO prompt for air brakes when in auto, manual or both?

A: TO will only prompt for air brake applications when you are in auto control.

Q: How does TO determine when and how much air to prompt?

A: TO uses train make-up, grade and speed to calculate the retarding force required to achieve/maintain the desired speed. This force is then compared to the expected available retarding force provided by Dynamic Braking. If the expected DB retarding force is not sufficient, then the system will prompt for an application of the airbrakes.

Q: What does expected/actual DB retarding force mean?

A: TO recognizes the locomotives entered in the train make-up screen and knows the DB capability for each based on type, model, etc. The system then calculates an expected DB retarding force for the locomotive consist as a whole. This value can vary from the actual DB retarding force for several reasons: mechanical defect, b/o MU cable, and inaccurate reporting of locomotive power mode in the TO train make-up screen are a few. Just as when operating without TO, actual DB effectiveness can only be measured at the time of use.

Q: Due to a mechanical failure, I lost a unit of dynamic braking in my locomotive consist. How will that affect the air brake prompting in TO?

A: Any change in the ability of your consist to provide dynamic braking effort will affect the timing and accuracy of air brake prompts. Should you have an en route failure, at the first opportunity, you must correct the consist information on the train make-up screen. Just as when operating without TO, you should remain vigilant for underperforming DB and be prepared to act accordingly.

Q. Under performing dynamic brake: Does it give this message when you are slipping due to wet rail, snow, etc.?

A: No. The underperforming brake detection will not trip quickly due to an acute incident of reduced braking. It is a learned function that takes multiple incidents of reduced braking effort to trip.

Q. What should I expect when TO prompts “NO AUTO DB”?

A: When TO displays the prompt “NO AUTO DB”, it will also display the “AIR ADVISEMENT UNAVAILABLE” prompt. This means that a condition exists that restricts TO from using DB and providing air brake prompts in Auto Control. If DB or air is needed to control train speed, then Manual Control must be taken immediately to control train speed.

Q: Will TO prompt for split reductions?

A: Yes.

Q: What is the maximum BP reduction for which TO will prompt?

A: 15 psi.

Q: What happens if I do not execute an air brake application as requested by TO?

A: The system will force manual control after the **two** 15 second countdowns.

Q: What if TO prompts for an air brake application that I feel is unnecessary?

A: You may take manual control immediately, otherwise, if you do not execute the requested application, the system will force manual after the **two** 15 second countdowns. Resume auto control when practical.

Q: What if I feel an air brake application is necessary, but TO has not prompted for one?

A: Make the desired air brake application. TO will remain in auto with an unprompted min set and one split reduction to 10psi.

Q: What if I feel an air brake application should be maintained, but TO is prompting for a release?

A: Maintain the application as necessary. You may take manual control immediately, otherwise, if you do not execute the requested release the system will force manual after the **two** 15 second countdowns. Resume auto control when practical.

Q: What if I feel an air brake application should be released, but TO is not prompting for a release?

A: Execute the release as desired. Upon the release, TO will remain in auto control, then recalculate the need for subsequent air brake applications. If TO determines another application is required, it will prompt you.

Q: Will TO allow a manual control to auto control transition with air brakes already applied?

A: Yes. TO will allow you to go from manual to auto with a minimum application only. If greater than a minimum is applied, you will have to wait until the air is released to go to auto control.

Q: My train will be operated in extremely cold temperatures, how does that affect air brake prompting?

A: TO currently cannot tell temperature and is not designed for extremely cold weather (below 0° F). Auto control must not be used below 0° F. Take manual control and be governed by ABTH 103.3.1.

Q: When prompted for a minimum, then prompted for a release. Can I increase to 10 psi for accelerated release and stay in auto?

A: No. Once prompted for a release, an additional set would result in TO forcing manual. If conditions require additional air to take advantage of accelerated service release, then take manual and perform the necessary application/release. Return to auto when practical. Another option would be to increase to a 10psi reduction after making the min set but before the release is prompted. This could become a guessing game, but if TO prompts for min set, the engineer could make the min set and once the prompt grays out, then increase to 10 psi and remain in auto control.

Q: Does TO comply with the “3-Set Rule”? (Item 1(A), 4 in timetable)

A: Yes. For 70 mph trains on long descending grades, TO counts brake applications as follows:

- If air brakes are applied at 55 mph or slower, the application does not count.
- If air brakes are applied at speeds above 55 mph, the application counts.
- Upon the release of the 3rd application, TO will re-plan to a max speed of 55 mph until the count is reset.
 - This release will be requested at <55 mph.
- The count is reset by operating in power on an ascending grade (uphill) for a minimum of 1 mile.

This counting method will sometimes be more conservative than what we would normally count. If TO restricts max speed to 55 mph when your train still qualifies for 70 mph, take manual control for the remainder of the descending grade.

Auto Independent

Q: I have a DP train with the new software, how will TO operate my train?

A: While in auto control, TO will put the “fence” up, controlling the lead and remote consists separately.

Q: Will TO leave the fence up at all times?

A: Yes. While the throttle/DB settings may be the same on the front and rear consists, TO will always operate with the “fence up” while in auto.

Q: I have to take manual control, what will TO do with the fence? Why?

A: TO will always return control to manual with the **fence up**. This method is used to avoid detrimental train handling when the lead consist is in power and the remote is in DB. Also, it provides a consistent method of returning to manual, allowing the engineer to choose how to handle the remote consist based on operating conditions. An engineer does not have to “figure out” what state TO returned to manual control. The fence will always be up.

Q: I have a DP train with mid and rear remote consists, can TO run this train too?

A: Yes, but currently TO will only manage one fence. The system will place the fence between the lead and mid consist and run the mid and rear remotes as one consist. Manual control is required to move the fence between the mid and rear remotes.

Q: What if I experience a DP comm loss while in auto?

A: TO will continue to run in auto control with a DP comm loss for up to 85 minutes until:

- The lead power mode changes (power to DB or DB to power)
- The system commands a remote power mode change
- The system commands a power change on either consist by more than 3 notches
- The system commands a DB change on either consist by more than 2 notches
- An air brake application is made

Q: My train will require manned helpers for a portion of my trip. Can I utilize auto control with the helpers attached?

A: No. TO will only manage the locomotive consist(s) identified on the train makeup screen. When manned helpers are attached, do not use auto control.

Q: I have a DP empty coal train that is TO equipped. I am required by Division GN to operate this train as head end power only. How do I accomplish this and still use auto control?

A: The DP system operating mode must be in RUN for auto control to be offered. Ensure that the system operating mode is in RUN, and the individual remote mode for each remote is in IDLE. This will keep the remote consist in idle and enable all remote air brake functions. As with any change to train setup, the remote locomotives must be identified as isolated on the TO train make up screen. With this configuration, the system should offer auto control and operate head end only.

Auto Through Divergence

Q: Will TO remain in auto control when I select a main track crossover move?

A: Yes. When the diverging route is selected, TO will stay in auto control while calculating the crossover plan. The system will display AUTO ACTIVE CALCULATING in the prompt box. If TO can accomplish the crossover move, the prompt will return to AUTO CONTROL ACTIVE.

Q: What happens if TO calculates that it cannot accomplish the crossover move?

A: The prompt will transition from AUTO ACTIVE CALCULATING to TAKE MANUAL CONTROL NOW. You must immediately take manual control for the crossover move.

Q: Can I use auto control for siding and other than main track turnouts?

A: No. Siding and other than main track turnouts remain manual control only.