Federal Railroad Administration
Positive Train Control
Fact Sheet

What is Positive Train Control (PTC)?

PTC is a system of integrated technologies capable of preventing collisions, over-speed derailments and unintended train movements. Such systems require active train location detection and tracking capabilities, computer networking technologies, software that accurately calculates braking distances for different types of trains, and a reliable wireless communication network to link all of these operating elements and system components.

The Rail Safety Improvement Act of 2008 (RSIA) mandates that PTC be implemented across a significant portion of the nation's rail network by December 31, 2015. With limited exceptions and exclusions, PTC is required to be installed and implemented on Class I railroad main lines (i.e., lines with over 5 million gross tons annually), lines over which any poisonous- or toxic- inhalation hazard (PIH/TIH) commodities are transported; and, on any railroad's main lines over which regularly scheduled intercity passenger or commuter operations are operated. It is currently estimated that approximately 70,000 miles of track and 20,000 locomotives will have to be equipped with interoperable PTC technology.

Train control systems providing full PTC functionality are already in place on portions of the Northeast Corridor where trains operate at 125 mph or higher, and on Amtrak's line in Michigan on which its trains operate at speeds up to 110 mph.

Why is PTC Necessary?

PTC technology is capable of automatically controlling train speeds and movements should a train operator fail to take appropriate action in response to operating instruction or orders. For example, PTC can force a train to a stop before it passes a signal displaying a stop indication, or before diverging on an improperly lined switch, thereby averting a potential collision. PTC systems must reliably and functionally prevent:

- Train-to-train collisions
- Overspeed derailments;
- Incursion into an established work zone
- Movement through a main line switch in the improper position

PTC systems must also provide for interoperability in a manner that allows for equipped locomotives traversing other railroad's PTC-equipped territories to communicate with and respond to that railroad's PTC system, including uninterrupted movements over property boundaries.

PTC Final Rule/FRA Report to Congress

In 2010, FRA issued a final rulemaking specifying how the technically complex PTC systems must function and indicating how FRA will assess a railroad's PTC plan before it can become operational. In August of 2012, FRA issued its report to Congress, which outlined the status of industry's PTC implementation half way through the implementation period. In December of that same year, FRA also issued an amendment to the Final Rule exempting railroads from conducting necessary risk assessments before deciding not to install PTC. The amendment affects 10,000 miles of track that will not carry passengers or PIH commodities after the December 2015 deadline. Click here to learn more about PTC.

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