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WMSC Inspection Report 20251116B

ISSUED 11/12/2025

Inspection Details

Title: 7000 Series Railcar Software Update Initial Observation Run

Location: K99 (West Falls Church Yard) to D06 (Eastern Market)

Date of Inspection: 11/5/2025 (into 11/6/2025)

Time of Inspection: 10:30pm to 4:00am

Announced (11/3/2025 email to Project Manager)

Risk-Based (Safety Certification Oversight)

Functional Area: Vehicles, Automatic Train Control & Signals

Hazard Rating: 3B

Overview

During the overnight starting November 5, 2025, into November 6, 2025, a WMSC Inspector attended planned overnight vehicle software configuration change work that began at West Falls Church Yard (K99) and proceeded to Eastern Market Station (D06) inbound and then outbound back to West Falls Church Yard. The objective of the work was to observe changes in behavior of the automatic train operations (ATO) functions via software adjustments that had been determined to be a contributing factor to station overruns in the 7000 series railcar fleet.

This is a risk-based inspection based on the WMSC's June 12, 2025 Letter of Concurrence that Metrorail may activate Automatic Train Operation and Return to Design Speed on the Blue, Orange, and Silver Lines. The WMSC's concurrence was made contingent on six items,[1] one was that Metrorail continue to analyze and mitigate station overrun events. Since Metrorail's activation of ATO, the rate of station overruns has been elevated compare[2] to levels observed during manual

[1] List of Blue, Orange, Silver concurrence contingencies: Completion of the 7000 Series railcar antenna normalization procedure, engineering disablement of the Station Stop Cancel button on 7000 Series railcars, ongoing analysis of station overrun events and documentation of causes and mitigations by the ATO Governance Committee, rules compliance checks with regular reporting of monitoring results, prepare and provide to the WMSC a single detailed technical analysis that follows ATO station overrun data reviews for at least 180 days following simultaneous ATO operations on all Metrorail lines, and evaluation of ATO-related training, based on the results of station overrun investigative activities, especially for train operators, to determine limitations or gaps, then revise training as needed.

[2] From January 1, 2025, to October 29, 2025, trains running in primarily ATO, 538 station overruns have occurred compared with the same time frame in 2024 (January 1, 2024, to October 29, 2024), with trains operating primarily in manual, which saw 111 station overruns. (Source: WMSC Overrun Analysis WMSC Safety Dashboard.)

operation. Metrorail is actively working to mitigate station overruns during Automatic Train Operations (ATO). Certain stations and railcar fleets experience overruns at significantly higher rates than others, and each presents unique challenges requiring specific mitigations—including permanent modifications. The overnight work taking place during this inspection at West Falls Church Yard is one example of a unique mitigation: Metrorail advised the WMSC that it would adjust multiple thresholds and behaviors of the 7000 series railcars with original equipment manufacturer (OEM) support for software development to reduce station overruns.

After concluding the inspection, the WMSC inspectors conducted a debrief with the WMATA vehicle engineers, in accordance with Program Standard Section 6.F.1.

Defects and Corrective Actions

WMSC Inspections identify safety issues that may be classified as defects, findings, or recommendations. Findings and recommendations are defined by Program Standard Section 5.E.2 and 5.E.3 respectively. Ordinarily, issues identified in a WMSC inspection report are classified as defects. Defects are specific safety issues of non-conformance/non-compliance that are identified, and that require remedial action.

This inspection did not identify any findings or recommendations and therefore does not require a WMSC Corrective Action Plan in accordance with Program Standard Section 5.E.4.

Defect Observations and Determinations

The WMSC Inspector joined the Metrorail work crew at West Falls Church (K99) rail yard where a Metrorail vehicle engineer and an Office of Equipment Manufacturer (OEM) engineer were installing the new train control software on both a 7000 series 6-car consist and a 7000 series 8-car consist for the observation runs. Once installations were completed, the Metrorail crew and WMSC Inspector received the track rights, a job safety briefing, and were able to proceed onto mainline to begin track work.

The WMSC Inspector opted to ride in the 6-car consist with two Metrorail engineers and the software original equipment manufacturer (OEM) vehicle engineer. The Metrorail engineers had a series of forms that were being used to make their observations for each segment of the ride between stations. The OEM engineer had their laptop connected to the railcar to receive real-time data on the performance of the vehicle.

All data and events captured by Metrorail and OEM engineers are to be taken for further analysis and review by Metrorail.

Two notable events occurred during the rides:

Observation 1

On track 1 inbound at McPherson Sq. Station (C02) the train received a 97 error on the speed indicator console and subsequently came to a stop. On the 7000 series railcar a 97 error indicates that the distance-to-go exceeds the station distance by more than allowable tolerance. The train operator was then able to press the “Restart ATO” button, and the train

began entering the station at approximately 5 MPH all the way to the 8-car marker and resumed normal behavior.

Observation 2

On track 2 outbound at McPherson Sq. Station (C02), the train performed a center platform stop which is short of the required 8-car marker and did not berth properly.

Next Steps

Please respond **by November 14, 2025,** to acknowledge receipt.