



Return to Service Plan

Re-introduction of 7000-series railcars into passenger service

October 25, 2022

Contents

1. Purpose of Document.....	2
2. Coordination with Washington Metrorail Safety Commission (WMSC).....	2
3. Operations.....	2
3.1. Definitions	2
3.2. Movement of Compliant Cars	2
3.2.1. Step 1: Metered introduction of low press tonnage axles into passenger service.....	3
3.2.2. Step 2: Full introduction of low press tonnage axles	4
3.2.3. Step 3: Increase inspection interval to seven days	4
3.2.4. Step 4: Increase inspection interval	5
3.3. Transport of Non-Compliant Cars	5
4. Applicable Procedures.....	6

1. PURPOSE OF DOCUMENT

While the NTSB investigation is ongoing, in the absence of a root cause and engineering recommendation, Metro is committed to mitigation through an ongoing program of frequent measurement of wheelsets to support the continued safe operations of the 7000-series fleet. This document explains Metro's final Return to Service plan for re-introducing 7000-series railcars into passenger service and sustaining their use in normal operations via the use of manual inspection methods.

2. COORDINATION WITH WASHINGTON METRORAIL SAFETY COMMISSION (WMSC)

This plan incorporates the lessons learned from multiple prior plans that were developed under the oversight of the WMSC. This collaborative, incremental approach to expansion and improvements has informed this latest revision which relies upon the data collected during the implementation of these plans to support the mitigations necessary to return the full fleet to service. Metro will continue to coordinate with the WMSC as required by the WMSC's Program Standard and the order dated December 29, 2021.

Any deviation from this plan will be reported to the WMSC using the existing notification process per the WMSC Program Standard Section 7, Safety Event Notification. Notifications will be sent as O-25 events. Per the Program Standard, the WMSC may require a preliminary or final report per incident.

Metro will continue to communicate to the WMSC any exceedances based on MSI 140026.

3. OPERATIONS

3.1. Definitions

- High press tonnage axles – axles that have been pressed to a specification of 65-95 tons
- Low press tonnage axle – axles that have been pressed to 55-65 tons, the lower range of the former specification of 55-80 tons
- High press tonnage car – a 7000-series car with only high press tonnage axles
- Low press tonnage car – a 7000-series car with one or more low press tonnage axles
- Service day - single day of mainline operation in passenger service for operating hours, open to close.
- Non-revenue activities – any use of 7000-series trains that does not include non-WMATA passengers. WMATA employees and contractors may ride on trains in non-revenue activities.

3.2. Movement of Compliant Cars

Metro will use cars compliant with MSI 140026 and all other required inspections for all passenger service and non-revenue activities.

All of the conditions of each step must be completed before progressing to the next step.

#	Summary	Duration
1	Cars with only high press tonnage axles may run on all lines with a 4-day inspection interval Cars with at least one low press tonnage axle may run on Red, Green, Yellow with a 4-day inspection interval. Up to 80 cars may be in service.	4 measurement cycles of 4 days

#	Summary	Duration
2	All cars may run on all lines and measured with 4-day inspection interval	4 measurement cycles of 4 days
3	All cars may run on all lines and measured with 7-day inspection interval	60 days
4	Metro will submit an engineering analysis of performance to support any future proposed interval greater than 7 days.	To be determined

3.2.1. Step 1: Metered introduction of low press tonnage axles into passenger service.

Metro will begin its metered introduction of low press tonnage axles into passenger service. Metro will run under the following terms until a minimum of 47 low press tonnage cars are measured for four measurement cycles.

To ensure that the elements of the step related to the low press tonnage cars are carried out as specified, Metro will modify the existing 7K Active Railcar Report to specify whether the car is a high or low press tonnage car.

- No limit on number of trains in service.
- A back-to-back inspection per MSI 140026 is valid for four consecutive service days for cars in passenger service.
 - If a car qualified for service has entered the mainline, the car will be qualified for service for four consecutive service days.
 - Cars qualified for service which have not entered mainline shall be considered qualified for service for seven days before its inspection expiring.
- A back-to-back inspection per MSI 140026 is valid for seven consecutive service days for cars used in non-revenue activities.
 - If a car qualified for non-revenue activities has entered the mainline, the car will be qualified for non-revenue activities for seven consecutive service days.
 - Cars qualified for non-revenue activities which have not entered mainline shall be considered qualified for non-revenue activities for seven days before its inspection expiring.
- Low press tonnage cars
 - May only run on Red, Green, and Yellow Lines.
 - Up to 80 low press tonnage cars may be in service at once. Metro may use any car provided it is compliant with all inspections.
- Cars with only high press tonnage axles
 - May run on all operating lines.
 - No limit on number of cars in service.

3.2.1.1. Supporting Data

- List of cars that meet high press tonnage or low press tonnage criteria
- Weekly wheel movement data and analysis of the up to 80 cars in passenger service consisting of measurement data and movement of the wheels relative to baseline
- Complete dataset of minimum of 47 low press tonnage cars measured for four cycles that have operated 4,500 miles each on the mainline in passenger service during the step
- Weekly vehicle/track interaction (VTI) data consisting of raw data from the VTI system
- Monthly VTI analysis consisting of an analysis from the interdisciplinary team chartered under Phase 2. The submittal will include consideration of all other relevant available track and structure inspection data, responses to trends observed in VTI data requiring a special condition assessment, and any corrective actions taken.

3.2.2. Step 2: Full introduction of low press tonnage axles

Metro will then allow full use of low press tonnage axles in passenger service. Metro will run under the following terms for four measurement cycles.

- No limit on number of trains in service.
- All cars may run on all operating lines.
- No limit on number of cars in service for any population
- A back-to-back inspection per MSI 140026 is valid for four consecutive service days for cars in passenger service.
 - If a car qualified for service has entered the mainline, the car will be qualified for service for four consecutive service days.
 - Cars qualified for service which have not entered mainline shall be considered qualified for service for seven days before its inspection expiring.
- A back-to-back inspection per MSI 140026 is valid for seven consecutive service days for cars used in non-revenue activities.
 - If a car qualified for non-revenue activities has entered the mainline, the car will be qualified for non-revenue activities for seven consecutive service days.
 - Cars qualified for non-revenue activities which have not entered mainline shall be considered qualified for non-revenue activities for seven days before its inspection expiring.

3.2.2.1. Supporting Data

- Weekly wheel movement data and analysis consisting of measurement data and movement of the wheels relative to baseline
- Weekly vehicle/track interaction (VTI) data consisting of raw data from the VTI system
- Monthly VTI analysis consisting of an analysis from the interdisciplinary team chartered under Phase 2. The submittal will include consideration of all other relevant available track and structure inspection data, responses to trends observed in VTI data requiring a special condition assessment, and any corrective actions taken.

3.2.3. Step 3: Increase inspection interval to seven days

Metro will then increase its inspection interval to seven days. Metro will run this step for 60 calendar days.

- No limit on number of trains in service.

- All cars may run on all operating lines.
- No limit on number of cars in service for any population
- A back-to-back inspection per MSI 140026 is valid for seven consecutive service days for cars in passenger service and used in non-revenue activities.
 - If a qualified car has entered the mainline, the car will be qualified for seven consecutive service days.
 - Qualified cars which have not entered mainline shall be considered qualified for seven days before its inspection expiring.

3.2.3.1. Supporting Data

- Monthly wheel movement data and analysis consisting of measurement data and movement of the wheels relative to baseline
- Monthly vehicle/track interaction (VTI) data consisting of raw data from the VTI system
- Monthly VTI analysis consisting of an analysis from the interdisciplinary team chartered under Phase 2. The submittal will include consideration of all other relevant available track and structure inspection data, responses to trends observed in VTI data requiring a special condition assessment, and any corrective actions taken.

3.2.4. Step 4: Increase inspection interval

Metro will submit an engineering analysis of performance to support any future proposed interval greater than 7 days.

3.3. Transport of Non-Compliant Cars

Metro will transport cars out of compliance with MSI 140026 under the following conditions:

- Include a CMNT Road Mechanic on all transports
- Reduced speed of 15 miles per hour in non-revenue movement
- Car does not have axles that have failed MSI 140026

3.4. Responding to Exceedances

For any exceedance based on MSI 140026, Metro will:

- Investigate the car's track movement history
- Investigate any other relevant information, such as other rail car exceedances, track information, or other unusual observations.
- Communicate the exceedance to WMSC and supply relevant supporting information

If any patterns in the data indicate additional safety steps are necessary, Metro will communicate these patterns to the WMSC and take the necessary safety actions.

4. APPLICABLE PROCEDURES

Metro will use the most recent revision of the following procedures as part of normal operations. Metro may add additional procedures or rescind existing procedures based on the appropriate Department's document control procedures.

- MSI 140026, Wheel Back-to-Back and Journal Bearing Measurements
- SBF 110, Removing a 7K Car from Service Due to Back-To-Back Failures
- MSI 000002, Back-to-Back Tools – CMM Calibration Procedure
- MSI 000003, Procedure for Utilizing Tread Worn Hollow Gauge
- CMOR SOP 102.07, Control of 7K Vehicles for Compliance with Wheelset Requirements
- CMOR SOP 101.02, Procedures for Control of Non-Revenue 7K Vehicles and Release for Mainline Travel