

FINAL REPORT OF INVESTIGATION A&I E18365
August 23, 2018
Derailment

Adopted by the Metrorail Safety Commission at its meeting on June 11, 2019.

Washington Metrorail Safety Commission
777 North Capitol Street, NE, Suite 402
Washington, DC 20002



FINAL REPORT OF INVESTIGATION A&I E18365**SMS 20180823#73715**

Date of Event:	8/23/2018
Type of Event:	Derailment
Incident Time:	01:35 hrs.
Location:	National Airport Rail Station (C10)
Time and How received by SAFE:	01:36 hrs., On-call Phone
Safety Officer Response:	Yes
Time of Safety Officer Arrival:	02:10 hrs.
Time of Safety Officer Departure:	04:00 hrs.
Rail Vehicle:	Hi-Rail Unit-M1699
Injuries:	None
Damage:	None
Emergency Responders:	MTPD, SAFE, TRST, ATC, CTEM

Executive Summary

On Thursday, August 23, 2018 at 01:35 hrs., Rail Operations Control Center (ROCC) received a report of a Contractor Roadway Maintenance Machine (RMM) Hi-Rail Unit-M1699 derailing at National Airport Rail Station (C10), Chain Marker (CM) C1 370+00. Once Unit-M1699 entered the interlocking, the front of the vehicle derailed by losing contact with the running rail as it traversed C10, Switch 5. Unit M-1699 was re-railed utilizing a RMM Prime Mover (PM) 59 without further incident. ATC personnel responded and reported no damage to the interlocking components. The incident vehicle was removed from service for incident inspection. Car Track Equipment Maintenance (CTEM) post incident inspection revealed that no damage occurred to Unit-M1699, however, the unit's front piston rod on the Hi-Rail gear was not fully engaged. The Equipment Operator (E/O) was removed from service for post incident testing and an interview. No injuries or property damage were reported at this time.

Based on review of the Audio Recording System (ARS) of the C10 derailment, the following information was revealed:

- At 01:32 hrs., Track Unit-M1699, which is a contractor unit, reported to the ROCC on OPS 3 that Unit-M1699 derailed at CM C1 370+00.

- At 01:34 hrs., ROCC Controller R/C 2 notified ROCC Assistant Superintendent A/S of the derailment.
- At 01:37 hrs. - ROCC A/S notified Assistant Director of ROCC Operations of the derailment at CM C1 370+00.

Based on post incident inspection, SAFE came to the following conclusion related to the Hi-Rail vehicle involved:

- Unit-M1699 front piston rod on the Hi-Rail gear was not fully engaged.

Considering all the salient facts, SAFE has concluded that this event was a result of Unit-M1699's front piston rod on the Hi-Rail gear not being fully engaged. This allowed the rubber tire of Track Hi-Rail Unit-M1699 to ride on top of the rail and caused the fixed Hi-Rail system to derail. Track and Structures (TRST) stopped usage of Contractor Track Hi-Rail Unit-M1699 and it has since been removed from Washington Metropolitan Area Transit Authority (WMATA) system.

Finally, there was no data to support an improper operation by the E/O of Unit-M1699.

Notification

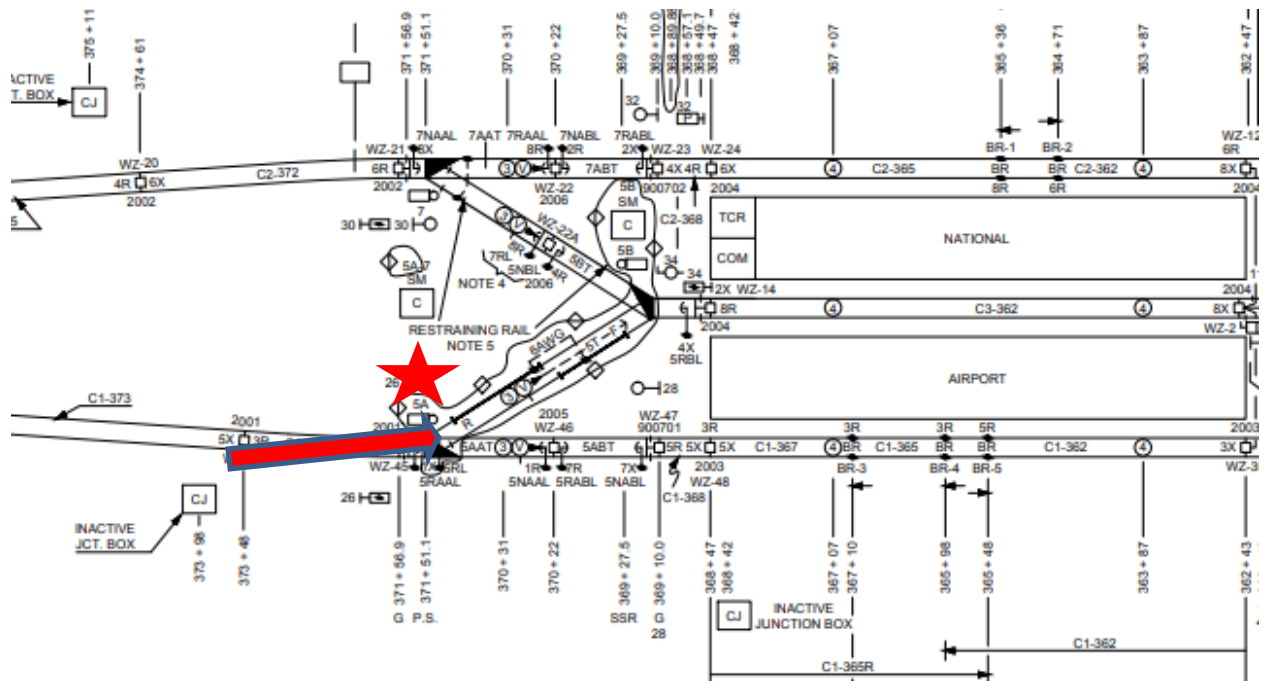
Title	Time	Comment:
FTA	03:00 hrs.	FWSO Email Notification
WMSC	03:00 hrs.	FWSO Email Notification
Other	02:52 hrs.	CMC

Incident Site

The incident area was located at Chain Marker (CM) C1-370+00. The area is described as a:

- Tangent to Spiral Area
- Direct fixation track
- Restricted view: curve as defined in Roadway Access Guide
- Inbound train movement

Field Sketch/Schematics



Investigation

On Thursday, August 23, 2018 at 01:30 hrs., Unit-M1699 operated by a contractor representing M&M Mechanical was traveling inbound approaching the National Airport Interlocking (C10) platform on Track 1. Once Unit-M1699 entered the interlocking, the front of the vehicle derailed by losing contact with the running rail as it traversed C10, Switch 5.

TRST personnel were notified of a derailment and Unit-M1699 was stopped at the interlock at CM C1 370+00, 200 feet south of C10 station. There is no evidence or supporting data for Point of Derailment and Final Resting point. When TRST personnel arrived on scene at C10 they found that the contractor Unit-M1699 front end had derailed going through a frog. TRST first attempt to re-rail the unit was by trying to raise the front Hi-Rail gear, but the right side of the Hi-Rail gear would not raise. The TRST supervisor called for a Prime Mover (PM) to come into the work area to assist with re-railing Unit-M1699. The attached crane of PM59 arrived and dropped their flatcar in the C10 pocket track then proceeded down Track 1. The E/O utilized the crane and picked up the front of the vehicle and set it back on the running rails correctly. After Unit-M1699 was moved off the Switch 5A, all track equipment was recovered and Unit-M1699 was ordered back to Alexandria Rail Yard (C99). The roadway was cleared and returned to service by 4:30 AM.

The Unit-M1699 was sent to CTEM for post incident inspection. CTEM post incident inspection revealed no damage occurred to Track Unit-M1699, however, the unit front piston rod on the Hi-Rail gear was not fully engaged. Finally, ATC performed a post incident switch inspection and reported no damage to Switch 5A. The E/O was sent for post incident testing.

ROCC

NICE System Audio Recording System (ARS)

- **01:32 hrs.** - Unit-M1699, which is a contractor unit, reported to the ROCC on OPS 3 that Unit-M1699 derailed at CM C1 370+00. ROCC then asked Unit-M1699 if there were any injuries or damage to the track and unit. Unit-M1699 responded that there were no injuries or damage to the track and unit. Unit-M1699 then reported that there was no hot stick available to check if power was de-energized at C10. Unit-M1699 then reported that the unit went past signal C10-26, past Switch 5A and is on top of the frog and that there was correct rail alignment.
- **01:34 hrs.** - ROCC Controller R/C 2 notified ROCC Assistant Superintendent A/S of the derailment.
- **01:37 hrs.** - ROCC A/S notified Assistant Director ROCC Operations of the derailment at CM C1 370+00.

ROCC Controller 1

Per R/C 1 Written Statement, the R/C gave Unit-M1699 an absolute block from Braddock Road Station, (C12) on Track 1, to C10 on Track 1 verifying all the lunars along the way. Unit-M1699 confirmed the block to C10 on Track 1. On Thursday, August 23, 2018 at approximately 01:34 hrs., Unit-M1699 reported to the ROCC that Unit-M1699 derailed at C10 on Track 1 just clear of Switch 5. Reportedly, the solution by TRST Mechanic was to jack the unit up but that failed. The contingency plan was to utilize PM59 to assist with re-railing the unit and sending Unit-M1699 back to C99 yard.

ROCC Controller 2

Per R/C 2 Written Statement, on Thursday, August 23, 2018 at approximately 01:30 hours, AIM displayed Unit-M1699 stopped shunting in approach to C10 on Track 1. At approximately 01:35 hours, Unit-M1699 reported to the ROCC that the hi-rail unit derailed by Switch 5 at C10. At approximately 01:36 hours, power was de-energized. ROCC A/S and all concerned personnel were notified. Unit-M1699 informed the ROCC that a lunar and correct rail alignment were verified before movement.

Weather

At the time of the incident, the temperature was 65°F, and SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) – Location: Washington, DC.)

Human Factors

Post-Incident Testing

After reviewing the E/O's post-incident testing results, it was determined that the E/O was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/5, therefore, being under the influence of a controlled substance has been excluded as a contributing factor.

Findings

- CTEM inspected Track Unit-M1699, the unit front piston rod on the Hi-Rail gear was not fully engaged.

Immediate Mitigation to Prevent Re-Occurrence

- E/O removed from service for Post-Incident Testing and Interview
- Unit-M1699 removed from service for Post Incident Inspection
- TRST inspected the track and reported all track measurements were in tolerance
- ATC inspected the interlocking component and no damage was reported

Conclusion

Based on the salient facts identified as part of this investigation, Metro Safety Rule and Procedures Handbook (MSRPH), ARS playback, ROCC Controller's written statement and CTEM post incident inspection, SAFE has reached the following conclusion:

1. SAFE concurs with the TRST findings and has concluded that the root cause of this incident is that the unit front piston rod on the Hi-Rail gear was not fully engaged. See Attachment 1.
2. The above condition allowed the rubber tire of Track Hi-Rail Unit-M1699 to ride on top of the rail and caused the fixed Hi-Rail system to lose contact with the running rail as it traversed C10, Switch 5.

Considering all the facts gathered from this investigation, SAFE has no further information to reveal regarding E18365 and recommends its closure.

Corrective Action

1. TRST shall take the appropriate action deemed necessary to support prevention of repeated recurrence.
 - a. **TRST stopped usage of Contractor Track Hi-Rail Unit-M1699 and has since been removed from WMATA's system.**

Attachment

From: [REDACTED]
To: [REDACTED]
CC: [REDACTED]
Subject: RE: Request for Information - Derailment Incidents 20180823 - National Airport
Date: Tuesday, April 2, 2019 2:58:17 PM

[REDACTED]

I inspected the hi-rail unit (M1699) a few days after the unit derailed. I was with the TRST mechanic and we decided the vehicle Hi-Rail gear did not meet WMATA specification to negotiate our system.

Let me know if you have any questions

[REDACTED]

Attachment 1 – Request for Information Email



Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
Work Order Details

Work Order #: 14480778
Type: CM



Status: WAPPR
08/23/2018 01:47

Work Description: C10 C1 370+00 M1699 DERAILED
Job Plan Description:

Asset Information		Work Information	
Asset: TC1	C-LINE,TRACK-1 EQUIPMENT PARENT	Owning Office: TRST	Parent:
Asset Tag:		Maintenance Office: TRST-TRAK	Create Date: 08/23/2018 01:47
Asset S/N:		Labor Group: TRST-TRAK-ALEX	Actual Start:
Location: C	ORIM, C Line, Huntington	Crew:	Actual Comp:
Work Location:		Lead:	Item:
Failure Class: TRSTRAIL	TRST, RAIL	GL Account: WMATA-02-33660-50499360-042-*****.OPR**	Target Start:
Problem Code: D92	DERAIL TIES	Supervisor:	Target Comp:
Requested By: [REDACTED]		Requestor Phone: [REDACTED]	Scheduled Start:
Chain Mark Start:		Chain Mark End:	
Create-Mileage: 0.0		Complete-Mileage: 0.0	

Related Incidents				
Ticket	Description	Class	Status	Relationship
8350398	Unit M1699 derailed at CM C1-370+00, no injuries reported.	SR	PENDING	RELATED

Failure Reporting			
Cause	Remedy	Supervisor	Remark Date
Remarks:			

Attachment 2 – Page 1 of 1

Photos



Photo 1 – Unit-M1699 Derailed at CM C1-370+00



Photo 2 - Right Front Truck Derailed Gauge Side



Photo 3 - Hi-Rail Vehicle Unit-M1699 has been removed from WMATA system.