

MINNESOTA STREETCAR MUSEUM

Operations Department

Sequence of Operation – Excelsior Streetcar Line for Duluth Street Railway No. 265

Revised – May 11, 2021

General

Foreman must adhere to the Excelsior Streetcar Line Foreman's checklist for general procedures to prepare the streetcars at the beginning of the day's operations and when the car is put away at the end of the day's operations. Checklist is posted in ESL Barn on the Operations bulletin board by the N. W. Entry Door.

At the beginning of each operating season the Passenger Traffic Manager publishes instructions and information regarding general passenger operations in the annual General Procedures Memorandum.

Foreman should arrive at the ESL car barn at least 30 minutes prior to start of scheduled operations to pump up the air on the streetcar and to prepare the trip sheet, set up POS etc.

This sequence of operations will assume that:

(1) In the Yard, and on the 1st run of the day from the carbarn to Old Excelsior Boulevard and then west to Water Street, the Foreman will control the operation of the car and the Operator(s) will assist as requested. Once the car is on the main line the Foreman and Operator(s) will assume the Motorman and Conductor positions as directed by the shift Foreman.

(2) A typical ESL round trip lasts 25 minutes. It starts at the Water Street Platform, travels east to the Old Excelsior Boulevard Platform, returns west stopping at the carbarn for a 5-10 minute carbarn tour before returning to the Water Street Platform.

At the Beginning of the Day's Operations

This sequence begins after the Foreman has brought the car out of the barn and performed all the start of shift actions as listed in the ESL Foreman's checklist. The crew is present and ready to start day's operation. The streetcar is ready to leave the yard to approach the mainline switch.

Move from Car barn to Water Street Platform

Location	Foreman's Actions	Conductor's Actions
<p>From front of car barn through yard switches to mainline switch</p>	<ul style="list-style-type: none"> • Check points of all switches to ensure they are set for the route the car is supposed to take • After ringing the foot gong move car slowly through yard switches making sure trolley wheel properly tracks through overhead wire frogs • After car has entered onto the main line and stopped, align the switch for main line running and lock the switch. • Move to the rear of car for the trip to Old Excelsior Boulevard. 	<ul style="list-style-type: none"> • Assist Foreman as requested. • Observe trolley wheel as it passes through overhead wire frogs. • Move trolley pole from car barn wire to mainline wire after car is stopped on mainline. • Move to the front of the car for the trip to Old Excelsior Boulevard.
<p>From mainline switch to Old Excelsior Blvd.</p> <p>At Start of the Day's operation – Foreman operates car to Old Excelsior and back to Water Street to check the rails and overhead wire</p>	<ul style="list-style-type: none"> • When ready to depart: <ol style="list-style-type: none"> 1. Unfold brake handle and put it in full apply position (all the way to the right). 2. Ring three times to request permission to proceed towards Old Excelsior Blvd. • When Conductor grants permission to proceed east towards Old Excelsior Blvd., and when it is safe to move car, ring the foot gong, release the air and push START switch. When car attains speed of 3-5 mph, push OFF switch, and conduct rolling brake test by applying a small amount of air • If speed of car slows as expected, release air, push START switch and proceed to Old Excelsior Blvd., obeying all line targets. • If power does not shut off when OFF switch is pushed, immediately apply brakes by placing brake lever in full apply position (all the way to the right). 	<ul style="list-style-type: none"> • After request to proceed signal from Conductor is received (3 rings): <ol style="list-style-type: none"> 1. Move the control transfer lever to rear movement position and ensure it is fully engaged for rearward movement. 2. Move the reverser handle to reverse position 3. Place controller in 1st notch. • Answer Conductor's request to proceed, providing it is safe to do so (3 rings). • Leave controller in 1st notch while Conductor conducts rolling brake test. • After a successful rolling brake test and once past the east end of the car barn, advance controller slowly to fifth notch. • Shut off controller when Foreman cuts power.

Move from Car barn to Water Street Platform – Continued

Location	Foreman's Actions	Conductor's Action
Arrival at Old Excelsior Blvd.	<ul style="list-style-type: none"> Shut off power at yellow target. Coast to a stop at the red target Move to front of the car for trip to Water Street. 	<ul style="list-style-type: none"> Upon arriving at Old Excelsior Blvd., put reverser handle in neutral position. Move to the rear of car for trip to Water Street
Departing Old Excelsior Blvd	<ul style="list-style-type: none"> When ready to move to Water Street, move control transfer lever to forward movement position and ensure it is fully set for forward movement. Request permission to move car (2 rings). When permission to move car is granted from Conductor, place reverser handle in forward position. When it is safe to move car ring the foot gong and release the air brake and move controller to first notch. After car attains speed of 3-5 mph, shut off power and apply a small amount of air to conduct rolling brake test. When car slows and it's apparent that the brakes are functioning, release the air and proceed west to the Water Street Platform complying with this SoO and the line targets. 	<ul style="list-style-type: none"> When request for permission to proceed is received from Foreman, fold-up rear brake handle and put it in stowed position. Give Foreman permission to proceed (2 rings) if it is safe to move car. Follow normal sequence of operation when proceeding to the Water Street platform.
Arrival at Water Street	<ul style="list-style-type: none"> Stop car so front doors are centered on cement platform. Remove reverser handle from controller and keep it with you. Open front doors. Set up Ticket Booth, signs, POS and place the orange cone at the front of the car. 	<ul style="list-style-type: none"> Assist Foreman as necessary in set up prior to first run of the day. Interact with waiting riders.

Regular Round-Trip Operations – DSR NO. 265

Location	Motorman's Actions	Conductor's Actions
<p>Depart Water Street Platform</p>	<ul style="list-style-type: none"> • Passengers board at the front. • Close front doors and rear doors on signal from Conductor (2 buzzes) • After request to proceed signal from Conductor is received (3 rings): <ol style="list-style-type: none"> 1. Move control transfer lever to rear movement position and ensure it is fully set for rearward operations. 2. Move reverser handle to reverse position. 3. Place controller in 1st notch. • Answer Conductor's request to proceed using the buzzer signal, providing it is safe to do so (3 rings). • Leave controller in 1st notch until Conductor successfully conducts the rolling brake test. • After the successful rolling brake test is completed, and after the front end of the car has passed the west end of the ELMHS Museum, watch the ammeter and when current drops to approximately 70 amps, advance the controller one notch at a time 2to 3 seconds between each notch until it is in the 5th notch. 	<ul style="list-style-type: none"> • Signal Motorman to close rear door if open (2 short buzzes). • Make announcement to passengers to remain seated while the streetcar is in motion and to keep body parts inside the streetcar. • When ready to depart: <ol style="list-style-type: none"> 1. Unfold brake handle and place in full apply position (all the way to the right). 2. Ring 3 times to request permission to proceed towards Old Excelsior Blvd. • After permission to proceed is granted, check front and sides of car for people or obstructions. Double check the Library crosswalk at the rear of the car, • When it is safe to move car, ring the foot gong and push START switch. When car attains speed of 3-5 mph, push OFF switch, and conduct rolling brake test. • If speed of car slows as expected, release air, push START switch and proceed to Old Excelsior Blvd., following this SoO and line targets. • If power does not shut off when OFF switch is pushed, apply brakes immediately by placing brake lever in full apply position.
<p>Approaching Lyman Lumber Company Office Building and bike path crossing</p>	<ul style="list-style-type: none"> • Shut off controller and move it to first notch when conductor shuts off power. • Watch right side of trail for pedestrians and bikers as car approaches trail crossing. • Signal Conductor to stop if needed. 	<ul style="list-style-type: none"> • Shut off power when car reaches yellow target. • Watch for bicyclists, joggers/pedestrians as car approaches the trail crossover.

Regular Round-Trip Operations DSR NO. 265 – Continued

Location	Motorman's Actions	Conductor's Actions
Lyman Lumber Company Office Building Area	<ul style="list-style-type: none"> • Leave controller in 1st notch. • Be watchful for bikers and pedestrians. 	<ul style="list-style-type: none"> • Coast through this area at speed not to exceed 5 MPH. • Watch for and be prepared to stop for pedestrians and bicyclists.
Morse Avenue	<ul style="list-style-type: none"> • Shut off controller when car stops. • After conductor rings for permission to proceed (3 rings), check for pedestrians and bikers. When safe put controller in 1st notch. • Answer Conductor's bell signal when it is OK to proceed. • After car has moved across Morse Ave., watch the ammeter and when current drops to approximately 70 amps advance the controller to 2nd notch only. 	<ul style="list-style-type: none"> • Make complete stop at Morse Ave. • When traffic on Morse Avenue is clear, request permission from Motorman to proceed (3 rings). • When permission is received, and it is still safe to do so, ring the foot gong, release brake and push START button. • Proceed cautiously across Morse Avenue watching for cars turning down the hill and exiting Anytime Fitness.
Approaching Mill Street Bridge	<ul style="list-style-type: none"> • Shut off controller when conductor shuts off power at yellow target. • Move controller to 1st notch. 	<ul style="list-style-type: none"> • Cut power when car reaches yellow target. • Coast downhill to mainline switch. • Apply brakes to slow car to 5 MPH as it passes under the bridge and through the through mainline switch
Passing Car barn	<ul style="list-style-type: none"> • Leave controller in 1st notch passing the car barn. • At East end of car barn watch ammeter, when it drops to approximately 70 amps advance the controller one notch at a time to the 5th notch. 	<ul style="list-style-type: none"> • Turn power on after car clears mainline switch if necessary. • Pass car barn at speed not to exceed 5 or less MPH. • Use foot gong passing the car barn
Passing under old TCRT Bridge	<ul style="list-style-type: none"> • Shut off controller when conductor shuts off power at yellow target. 	<ul style="list-style-type: none"> • Shut off power at yellow target just beyond the old TCRT bridge.

Regular Round-Trip Operations DSR NO. 265 – Continued

Location	Motorman's Actions	Conductor's Actions
<p>Arrival at Old Excelsior Blvd. Platform</p>	<ul style="list-style-type: none"> • Put reverser handle in neutral position. • Open front doors if passengers are entering or alighting. • Inform boarding passengers to purchase tokens upon arrival at the ticket booth. • Give a very short end of line talk. NOTE: Most information to passengers will be given during the carbarn tour. If an end of line talk or Q&A session occurs at all, it should be very short. 	<ul style="list-style-type: none"> • Coast to a stop at the red target.
<p>Depart from Old Excelsior Blvd. Platform</p>	<ul style="list-style-type: none"> • Move control transfer lever to forward movement position and ensure it is fully placed in its forward movement position. • Signal Conductor for permission to proceed forward (2 rings) • When permission to proceed is granted, put reverser handle into forward position. • Ring foot gong, release air brake and put controller in first notch. • After car attains speed of 3-5 mph, shut off power and apply a small amount of air to conduct rolling brake test. • When car slows and brakes are functioning as intended, release the air and proceed west obeying line targets. • Stop at the carbarn platform for unloading passengers and conducting the tour (5-10 minutes) 	<ul style="list-style-type: none"> • When request for permission to proceed is received from Motorman, fold-up rear brake handle and place it in stowed position. • Answer Motorman's signal to proceed if it is safe to do so (2 rings). • Observe passengers in main compartment to ensure their safety. • Prepare to assist passengers departing the streetcar for the carbarn tour, the next stop.

Regular Round-Trip Operations DSR NO. 265 – Continued

Location	Motorman's Actions	Conductor's Actions
<p>Stop at Carbarn for tour</p>	<ul style="list-style-type: none"> • Stop at the carbarn platform, turn controller off and move reverser handle to neutral position. • Open front doors. • Announce the carbarn tour to the passengers. • Remove reverser handle from controller and take it with you into the carbarn. • Assist passengers departing the streetcar. • Either conduct the carbarn tour or stand in the store area to sell merchandise and answer questions. 	<ul style="list-style-type: none"> • Assist passengers departing the streetcar. • Either conduct the carbarn tour or stand in the store area to sell merchandise and answer questions. • NOTE: Either the Motorman or the Conductor may conduct the carbarn tour. Limit tour to 5-10 minutes, keeping total ride at 25 minutes.
<p>Departing Carbarn</p>	<ul style="list-style-type: none"> • Check to make sure passengers are seated and it is clear outside the car to proceed. • Signal Conductor for permission to proceed (2 rings) • When permission to proceed is granted, move reverser handle into forward position. • Ring the foot gong, release air brake and put controller into the 1st notch. • Cut power when front of car passes carbarn parking area driveway. • Coast through mainline switch at speed not to exceed 5 MPH. • After passing switch move controller to 1st notch. • Watch ammeter, when it drops to approximately 70 amps advance the controller one notch at a time to the 5th notch. 	<ul style="list-style-type: none"> • Answer Motorman's signal to proceed if it is safe to do so (2 rings). • Observe passengers in main compartment to ensure their safety. • Count and record number of passengers, all children and adults, on run sheet.

Regular Round-Trip Operations DSR NO. 265 – Continued

Location	Motorman's Actions	Conductor's Actions
Morse Avenue	<ul style="list-style-type: none"> • Cut power at yellow target approaching Morse Avenue. • Make full stop at Morse Avenue. • When it is clear and safe to proceed, signal conductor for permission to proceed (2 rings). • When permission from conductor is granted and it is safe to proceed, ring the foot gong, release brakes and move controller to first notch. 	<ul style="list-style-type: none"> • Check for bike riders or pedestrians on right side and automobile traffic on Morse Ave. • Give Motorman permission to proceed if the way is clear and safe (2 rings). • Continue to watch traffic on Morse Ave, especially coming down the hill. • If necessary, signal Motorman to stop.
Lyman Lumber Company Office Building area and bike path crossing	<ul style="list-style-type: none"> • Leave controller in first notch. • Be watchful for bike riders and pedestrians that might cross in front of car. • After car has passed bike path crossover, and when current drops to approximately 70 amps, advance controller one notch at a time until it is in the 5th notch. 	<ul style="list-style-type: none"> • Watch for and be prepared to signal Motorman to stop if dangerous situation might occur out of Motorman's field of vision to the right or left.
Approaching Water Street Platform	<ul style="list-style-type: none"> • Shut off power when car passes yellow target • Before the ELMHS Museum building apply air to slow down the car. Approach Water Street platform at dead slow speed (3mph). • Ring foot gong as car starts to pass the ELMHS Museum building. • Take extra caution when approaching the library crosswalk. • Come to full stop at the orange cone placed to align streetcar door with step. 	<ul style="list-style-type: none"> • After car comes to complete stop, signal Motorman to open rear doors (1 buzz). • Supervise unloading of passengers.

At the End of the Day's Operations

This sequence begins after the day's operations are finished. The Conductor will operate the car from the Water Street platform and stop the car approximately 10 feet before the mainline switch. The crew is present and both are ready to move the car in the yard and the carbarn.

Move from Water Street platform to carbarn

Location	Motorman's Actions	Conductor's Actions
Return to carbarn	<ul style="list-style-type: none"> Follow normal sequence of operation to mainline switch into carbarn yard. 	<ul style="list-style-type: none"> Follow normal sequence of operation. Stop car before mainline switch. Signal Motorman to open rear doors.
Location	Foreman's Actions	Operator's Actions
Carbarn Yard	<ul style="list-style-type: none"> Change switch from mainline to yard. Lock the switch in this position. Move trolley pole to yard wire. Move car into yard and through the overhead wire frog. Just after the trolley wheel passes through the 1st overhead wire frog, stop car and check to make sure the trolley wheel is on the correct yard wire (when going through the frog it usually puts the wheel on the wrong wire). Stop after trolley wheel passes through 2nd overhead wire frog to make sure the trolley wheel is on the correct yard wire. Stop car about 15 feet from carbarn door. Open carbarn door to full position and move the car into the carbarn. Follow all end-of-day procedures contained on the Foreman's checklist. 	<ul style="list-style-type: none"> Assist Foreman as requested. One Operator departs car to observe the trolley wheel as the Foreman moves the streetcar through the 2 wire frogs to ensure the trolley wheel remains on the correct wire as the car moves through the yard. Sweep out car before car is put into carbarn. Check supply of brochures and replenish the supply in the brochure rack on the car.