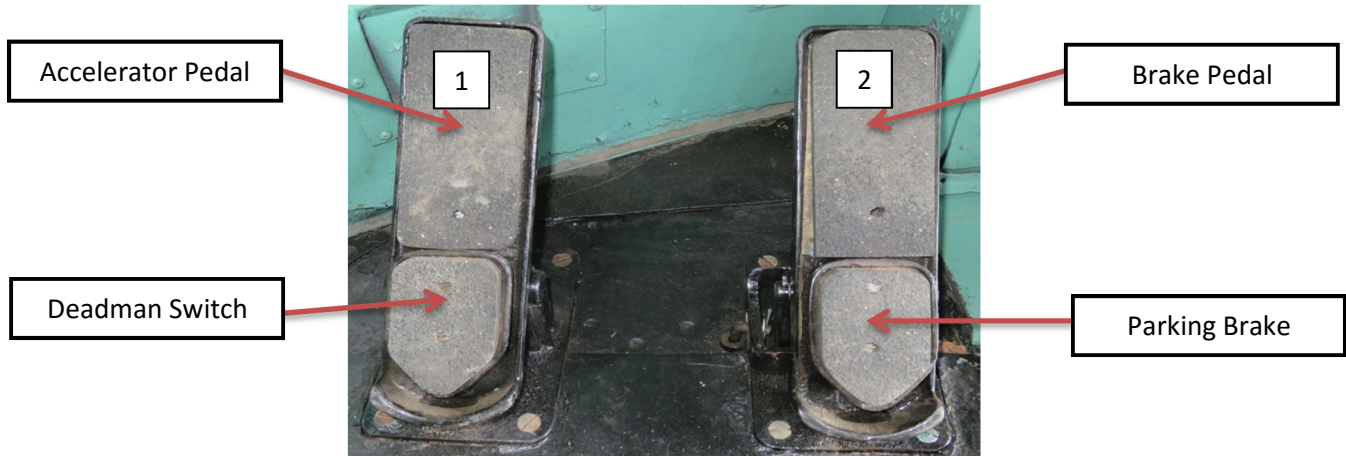


Saint Louis Public Service PCC Car #1743

Controls and Devices

Control Pedals



1. **POWER PEDAL** – The **POWER PEDAL** is located on the left side of the floor at the operator's position. The heel (lower) portion of this pedal is the **DEADMAN** switch. The heel switch must be depressed at all times for the streetcar to operate. The upper portion of this pedal is the **ACCELERATOR PEDAL**. Depressing the Accelerator Pedal will provide power to the traction motors propelling the streetcar. The further the Accelerator Pedal is depressed the faster the streetcar will accelerate. The Accelerator Pedal causes a drum contactor to operate. This contactor provides power to the motors through a set of resistors. As long as the Accelerator Pedal is pressed down, the drum rotates decreasing resistance in the motor circuit. When the Accelerator Pedal is in the up position, the drum contactor reverses taking power off the motors and initiating dynamic braking. To minimize maintenance on the contacts of the controller, the Accelerator Pedal should be depressed to a position where the streetcar accelerates. When the streetcar reaches the desired speed the Accelerator Pedal should be released until braking is desired or acceleration is again desired. Releasing the Accelerator Pedal will activate dynamic braking.
2. **BRAKE PEDAL** - The **BRAKE PEDAL** is located to the right of the Power Pedal. The lower portion of the Brake Pedal is the Parking Brake. The upper portion of the brake pedal is used to slow and stop the streetcar. Initial depression of the Brake Pedal will engage the dynamic braking mode of the traction motors. Further depression of the Brake Pedal will also engage the drum brakes on the traction motors. Total depression of the Brake Pedal will engage the electromagnetic track brakes as well.

To set the parking brake, press the upper portion of the Brake Pedal without having your heel on the Parking Brake portion of the Brake pedal. The Parking Brake portion of the Brake Pedal will raise up and the parking brake will be engaged. To release the parking brake, depress the Parking Brake portion of the Brake Pedal with your right foot heel. After releasing the parking brake, remove your foot from the brake pedal. **DO NOT PUT YOUR FOOT ON THE BRAKE PEDAL UNTIL YOU NEED TO SLOW THE CAR!** Leaving your foot on the brake pedal will activate the brakes and is called “riding the brakes”, and causes the brakes to be applied while you are trying to move the car which causes excessive wear of the brakes.

Shift Lever

1. **SHIFT LEVER** – The **SHIFT LEVER** is located on the floor to the left of the operator's seat.



Shift Lever
In "Park"



Shift Lever
In "Off"



Shift Lever
In "Forward"



Shift Lever
In "Reverse"

- A. **PARK Position** - In the fully forward position, the streetcar is in PARK mode in which it will not move.
- B. **OFF Position** - When the Shift Lever is moved back to the first detent position, the streetcar is in OFF mode.
- C. **FORWARD Position** - When the Shift Lever is moved backwards to the next detent position, the streetcar is in the FORWARD mode and **may be moved** forward under the operator's control.
- D. **REVERSE Position** - When the Shift Lever is moved backwards to the last detent, the streetcar is in the REVERSE mode and **may be moved** backwards under the operator's control.

Note: in the REVERSE position, the Shift Lever may be removed from the selector and used to open or secure the Battery Compartment and operate the Reverse Controller.

When secured from running, the Shift Lever is to be laid flat on the floor just behind the shift lever control box.

Battery Switch

1. **BATTERY COMPARTMENT/BATTERY SWITCH** – The Battery Compartment is located on the rear of the Streetcar. The bottom of the Shift Handle should be used to open the battery compartment fasteners. Insert the square end of the Shift Handle into the top door fastener and rotate counter clockwise until the door fastener releases. Pull open the right hand door and then the left hand door.

The **BATTERY SWITCH** (which is also the battery circuit breaker) is on the left side wall of the Battery Compartment. Turn the battery on by moving the switch **UP**. Turn the battery off by moving the switch **DOWN**. Close the left hand door, then close the right hand door and use the square end of the Shift Handle to secure the battery compartment top fastener.



Battery Compartment
On Rear of Streetcar



Battery Compartment
Fastener & Bottom of Shift Lever



Battery Compartment with
Right Door Open



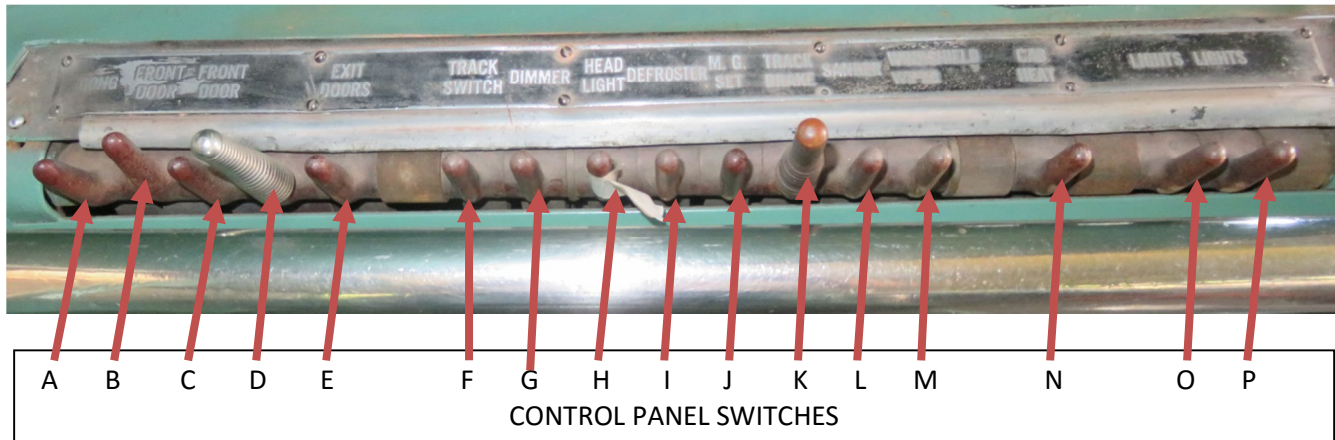
Battery Compartment with Both
Doors Open. Battery Switch on
Left Side of Compartment



Battery Switch/Breaker
On Left Side of Battery
Compartment

Control Panel Switches

CONTROL PANEL - The **CONTROL PANEL** is located in front of the operator at rib height. It contains 16 switches that are used in the operation of the streetcar.



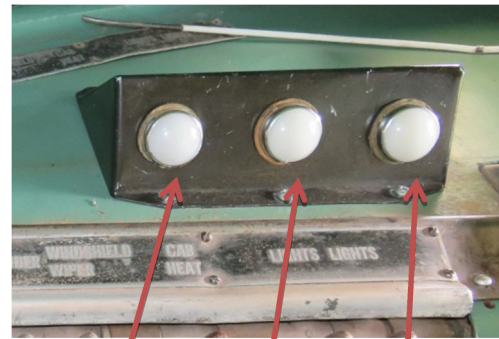
- A. Gong Switch(Momentary) - This switch is spring loaded in the back or off position. The gong will sound each time the lever is pushed forward.
- B. # 1 Front Door Switch - Pushing this switch forward will open the #1 front door. Moving the switch backward will close the door.
- C. # 2 Front Door Switch - Same as #1 front door switch except for front door # 2.
- D. Spare - This switch is not used.
- E. Exit (Rear) Door Switch - Same as # 1 door switch except for the Exit (Rear) doors.
- F. Track Switch - This switch is not used.
- G. Headlight Dimmer Switch - This switch is not used.
- H. Headlight Switch - Pushing this switch forward will turn on the headlight. Moving the switch backward will turn off the headlight.
- I. Defroster Switch - This switch is not functional.
- J. Motor/Generator Set Switch - Pushing this switch forward will energize the motor generator set on the streetcar which charges the onboard batteries. Moving the switch backwards de-energizes the motor/generator set.
- K. Track Brake Switch - Pushing this switch forward activates the Track Brakes on the streetcar. Moving the switch backwards releases the Track Brakes.
- L. Sander Switch - This switch is not functional.
- M. Windshield Wiper Switch - Pushing this switch forward will turn on the windshield wipers. Moving the switch backward turns off the windshield wipers.
- N. Cab Heat Switch - This switch has not functional.
- O. Left Light Switch - Pushing this switch forward will turn on the interior lights on the left side of the streetcar. Moving the switch backward will turn off the left side interior lights. This switch will also turn on half of the head sign lights.
- P. Right Lights Switch - Pushing this switch forward will turn on the interior lights on the right side of the streetcar. Moving the switch backward will turn off the right side interior lights. This switch will also turn on half of the head sign lights.

Indicator Light Panel

INDICATOR LIGHT PANEL – The **INDICATOR LIGHT PANEL** is located just above the right end of the Control Panel Switches shown above.

- A. Left Side Light – When illuminated, this light indicates that the Shaft Brake is **ON** for the front truck.
- B. Center Light – When illuminated, this light indicates that the Track Brake is **ON** for both trucks.
- C. Right Side Light – When illuminated, this light indicates that the Shaft Brake is **ON** for the rear truck.

NOTE: When any of the above lights are lit it indicates that the brakes are still **ON**. All the lights should be **OFF** when the car is accelerating and **ON** when braking. If the lights are **ON** when the car is accelerating the brakes are still applied. The car should be parked and a log book entry entered and maintenance notified.

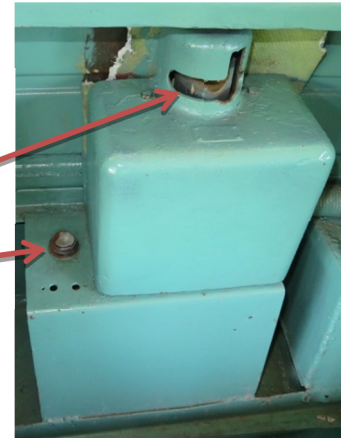


A B C
Indicator Light Panel

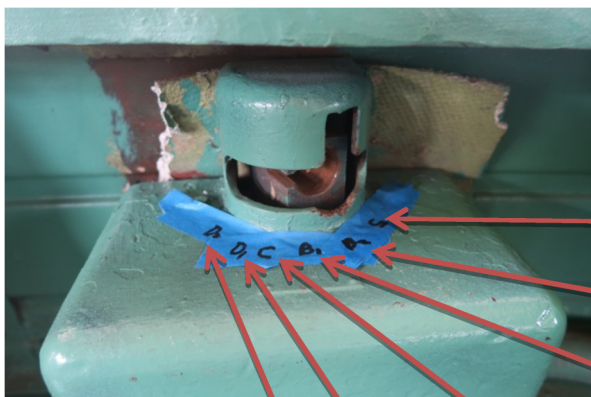
Backup Controller

BACKUP CONTROLLER – The **BACKUP CONTROLLER** is located at the rear of the streetcar. It is accessed by removing the right center back cushion by pulling the top of the cushion out and lifting the cushion up. Place the cushion to your left on the rear seat. The Shift Lever is used to operate the Backup Controller.

Backup Controller
Accelerate/Brake Control
Deadman Switch



1



Right Brake/Park Position "a"

Brake Position "b" & Shift
Handle Insertion/
Removal Position

Left Brake Position "c"

Coast Position

Right Drive/Accelerate Position "d"

Left Drive/Accelerate Position "e"

- A. **Deadman Switch** – This pushbutton to the left of and below the Backup Controller must be fully depressed and held down to enable the streetcar to operate in reverse.
- B. **Backup Controller** – This is the power and brake controller for use when the streetcar is operated in reverse. The controller has 5 detent positions. From right to left, they are:
 - a) **Brake/Park** – Applies the streetcar brakes.
 - b) **Brake** – Applies the street car brakes. This is also the position where the Shift Lever is inserted to operate the backup controller and where the Shift Lever can be removed from the backup controller.
 - c) **Brake** - Applies the streetcar brakes.
 - d) **Drive or Accelerate** – Applies power to the motors and moves the streetcar in reverse. If you move the lever just barely to the right of this Accelerate detent, there is a “Coast” position. There is no detent for “Coast.” In this position the car is not accelerating nor braking; it will roll along until you accelerate again or brake.
 - e) **Drive or Accelerate** – Applies power to the motors and moves the streetcar in reverse.

Operating the PCC Car No. 1743

Energizing the Streetcar

1. Unlock the #1 front door.
2. Enter the car and remove and store barricades from the #2 front door and the exit (rear) doors.



#2 Front Door Barricade



Exit (Rear) Door Barricade

3. Verify all switches on Control Panel are “OFF”.
4. Place the Shift Lever in the reverse position and remove it and take it with you.
5. Exit car and perform your walk-around on the outside of the car.
 - a) Verify all truck brake levers are in the “operate” or in position.
 - b) Remove and stow onboard all wheel chocks.
6. Open battery compartment door using the square bottom of the Shift Lever to un-screw the upper door fastener, pull open the right door, pull open the left door and turn battery switch “ON”. Then close and secure the battery compartment doors using the Shift Lever.
7. Raise the appropriate power pole (trailing pole). Verify the other power pole is secure in its roof hook.
8. Re-enter the streetcar and turn “ON” the Motor/Generator switch.
9. Sit in the Operator’s seat, insert the Shift lever back into the control box and move it to the “Park” position.

Forward Operation

1. Verify the rear power pole is up and the front power pole is down and secured in the roof hook.
2. Depress the heel of your left foot on the Deadman Switch on Power Pedal (left pedal) and hold down.
3. Release the Parking Brake on the Brake Pedal (right pedal) by pressing your right heel down on the Parking Brake portion of the Brake Pedal. After releasing the parking brake, remove your foot from the brake pedal. **DO NOT PUT YOUR FOOT ON THE BRAKE PEDAL UNTIL YOU NEED TO SLOW THE CAR!** Leaving your foot on the brake pedal will activate the brakes and is called “riding the brakes”, and causes the brakes to be applied while you are trying to move the car which causes excessive wear of the brakes.
4. Move Shift Lever to the “Forward” position.
5. Sound gong twice.
6. Apply power to move the streetcar forward (depress power (left) pedal) and perform a brake test (on initial movement of the car.)
 - a. **If brakes do not function, park the streetcar and use another streetcar.**
 - b. **Make note in log book and notify maintenance.**
7. Whenever you leave the Operator’s seat, the Deadman switch should be up, the Parking Brake set, and place the Shift Lever in Park.

Reverse Operation

1. Verify the Deadman Switch is depressed and the Parking Brake is released.
2. Change the power poles – raise the front power pole.
3. Using the hook stick to reach the trolley pole rope, lower the rear power pole and secure it in its roof hook.
4. Move the Shift Lever to the REVERSE position and remove the lever.
5. Proceed to the rear of the streetcar.
6. Remove right center seat back by pulling out and up and set the cushion to the side.
7. Insert the Shift Lever into the Backup Controller – see pictures under Backup Controller.
8. Depress the Deadman Button to the bottom of its travel and hold it there.
9. Move the Shift Lever to the left to the 1st Accelerate position to move the streetcar backwards, move the Shift Lever to the right to a brake position to stop the streetcar. If the Shift Lever is moved to the right a small amount from the 1st Accelerate position, the car will coast – neither accelerate or brake.
10. When the reverse operation is completed, remove the Shift Lever from the Backup Controller, replace the seat cushion, proceed to the front operator position, insert the Shift Lever in to the control stand and move it to the Park position.
11. Change the power poles – raise the front power pole and lower the rear power pole (use the hook stick to reach the retriever rope) and secure it in its roof hook. **PLEASE use the hook stick to guide the retriever rope back into the Catcher SLOWLY and from the left side of the car to avoid damaging or entangling the rope in the Catcher.**

Parking and De-Energizing the Streetcar

1. **Temporary Parking** – (When the streetcar is to be shut down for a short time (e.g. a lunch break))
 - a) Park the streetcar in a suitable location.
 - b) The operator must verify the Deadman Switch is up and set the Parking Brake.
 - c) Move the Shift Lever to the Reverse position and remove the shift lever.
 - d) Turn off all control panel switches.
 - e) The wheel chocks must be set.
 - f) The operator must then disengage the trolley pole from the overhead wire and store it in its rooftop retainer.

- g) Use the Shift Lever to open the Battery Compartment, turn off the battery switch and re-close and secure the Battery Compartment.
- h) Place the Shift Lever on the floor just behind the control stand.
- i) The doors will be closed and barricaded or locked.

2. **Parking in the Abbot Building**

- a) Verify Abbot Building power is on.
- b) The streetcar must be driven to the point where the mainline overhead wire parallels the Abbott Bldg. wire. The trolley pole must be transferred to the Abbott Bldg. wire and the streetcar moved to its parking space in the Abbott Bldg. NOTE: If the car is to be stored on the north track, the pole must be changed twice.
- c) Turn off the control panel switches.
- d) The trolley pole should be disengaged from the trolley wire and placed in the retainer on the streetcar's roof.
- e) The battery switch in the streetcar's battery compartment must be placed in the de-energized (down) position.
- f) Place the wheel chocks at the front and rear wheels of the front truck on the right side of the car. All dash switches should be moved to the off position (back).
- g) Close and secure the operator's window. Close the rear doors and barricade them. Close the rear front door and barricade it. Close the forward front door and secure with a streetcar lock. Make sure that all windows in the streetcar are closed.