

NEVADA STATE RAILROAD MUSEUM

# MOTOR CAR TRAINING HANDBOOK

Sponsored by the Friends of the Nevada State Railroad Museum  
Carson City, Nevada  
2024 Edition



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# PROGRAM INTRODUCTION

The Motor Car Training Program is sponsored by the Friends of the Nevada State Railroad Museum. The Program is designed to train you in the safety and operational procedures as they relate to the motor cars.

**The most important consideration is ALWAYS:**

**SAFETY FIRST**

**Developing good work habits is important:**

**Never take shortcuts.**

**Follow Safe Work Practices.**

**Avoid personal injury.**

Do not do anything with which you feel uncomfortable. If you are unsure of any operational activity, ask for assistance or directions. Also, if you notice anyone else using unsafe practices, please bring it to their attention or the attention of one of the instructors.

Please note that for a long-time railroading was a male dominated profession. Railroading's language and terminology reflect that fact. However, this no longer applies, so any references to 'he,' 'him,' 'man,' etc. in this document are not gender specific. Both men and women are welcomed and encouraged to become members of our train and motor car crews.

## MISSION STATEMENTS

Nevada State Railroad Museum

The Nevada State Railroad Museum is a cultural resource dedicated to educating visitors and the community about Nevada railroad history. This mission is accomplished through the collection, preservation, and interpretation of significant locomotives, rolling stock, artifacts, photographs, and memorabilia directly related to railroads and railroading in Nevada. In addition to static exhibits, select pieces of equipment in the collection are restored and operated throughout the year to demonstrate steam and early internal-combustion technology and provide visitors firsthand experience with railroad history through the sights, sounds, and sensations of a train ride.

Friends of the Nevada State Railroad Museum

The specific and primary purposes for which this corporation is organized and operated are to establish a perpetual trust fund to assist in the support of the Virginia & Truckee Railroad Museum or the Nevada State Railroad Museum as it may henceforth be known together with any other Nevada State Museum Railroad property, events, or activities reasonably related thereto, all within the purview of Section 501(C) (3) of the Internal Revenue Code of 1954 as it may be amended from time to time. *Articles of Incorporation, Section 2(a).*

The Friends of the Nevada State Railroad Museum is a non-profit organization that was established to support the Nevada State Railroad Museum (NSRM) in Carson City, both financially and by providing volunteers to aid in the operation of the museum's activities, events and programs. The Friends currently has about 1000 members of whom about 95 regularly volunteer at the museum in various capacities.

**The Nevada State Railroad Museum is an agency of the Division of Museums and History, of the Nevada Department of Tourism and Cultural Affairs.**



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# HANDBOOK FOR THE MOTOR CAR TRAINING PROGRAM

The NSRM has two motor cars. The Edwards Motor Car #401 was built in 1926 for the Tucson, Cornelia & Gila Bend Railroad. The McKeen Motor Car #22 was built in 1910 for the Virginia & Truckee Railroad. Both are in operation at the museum and run by NSRM Motor Car Crews. Crew training generally begins with certification for the Edwards Motor Car. Successful certification on the Edwards is required to move on to certification on the McKeen Motor Car.

This Handbook has been assembled to provide a guide for training volunteers in positions on the Nevada State Railroad Museum's Motor Car Crews. A motor car is operated with a crew of no less than two people. Motor Car positions include Motorman (the driver) and Conductor. The Handbook outlines the jobs and information that people in each position should know. It includes information about brake systems, track layout and switches, signals (hand, lantern, whistle, bell), and safety and emergency procedures. Also included are important reference check lists for pre-movement review, moving the cars, moving on and off the turntable, crossings, stopping, and end of day procedure for putting the motor car away.

There is a section on procedure for giving rides to the public on the Handcar. Additional information is included about the museum and its collections that should help make the volunteers more knowledgeable.

# MOTORMAN/CONDUCTOR DUTIES

## General Information

**Description:** The motor car is operated with a minimum of two crew persons: The Conductor and The Motorman.

**The Conductor** has overall responsibility for the motor car and its operation. All people on a motor car are subject to the Conductor's instructions. It is the Conductor's responsibility to provide a safe and pleasant experience for the passengers. This is accomplished by making sure that the environment is safe, that all operations are performed safely, that passengers behave in a safe manner, and that passengers are reasonably comfortable and informed. The Conductor shall be responsible for seeing that the motor car operates on schedule and that adequate and responsible personnel are on hand to carry out such operations. The Conductor will also be familiar with the history and background of the equipment in use, and the museum grounds and facilities in order to answer the public's questions.

### Conductor's duties include:

1. Following the instructions in this Handbook, *NSRM General Safety Rules and Rules and Regulations for the Operations of Railroad Equipment*, and the *NSRM Volunteer Policies & Procedures* manual.
2. Working in a safe manner.
3. Inspect both the interior and exterior of the Motor Car at the start of the day to check for anything that may cause an unsafe condition.
4. Directing the Motorman in moving the Motor Car.
5. Performing brake-tests.
6. Operating switches as needed.
7. Instructing Trainees.
8. Assisting in the boarding and detrainning of passengers.
9. Communicating to the Motorman where to make a stop using hand signals.
10. Communicating to the Motorman when the Motorcar is ready to depart after any stop.
11. Reporting any defects to the Shop Crew and/or the Motor Car Crew Chief.
12. Taking charge in any emergency - must know emergency procedures and take appropriate actions including calling emergency services if necessary.

**The Motorman** will operate the motor car and thus must be familiar with proper equipment operation. He/she will perform maintenance on the Motor Car as needed.

### Motorman duties include:

1. Following the instructions in this Handbook, *NSRM General Safety Rules and Rules and Regulations for the Operations of Railroad Equipment*, and the *NSRM Volunteer Policies & Procedures* manual.
2. Working in a safe manner.
3. Being responsible for the operation of the Motor Car.
4. Inspect both the interior and exterior of the Motor Car at the start of the day to check for anything that may cause an unsafe condition.
5. Execute instructions in response to hand signals from the Conductor.
6. Ensuring that the Motor Car is safe to operate throughout the day.
7. Operating the Motor Car in such a way as to provide the traveling public with a safe, comfortable and an enjoyable ride.
8. Before storing the Motor Car at the end of the day, ensuring that sufficient fuel is available for the next day's operation.

**Qualification Requirements for Motorman and Conductor:** Motorman Training, recommendation by the Crew Chief and successful completion of the Motorcar Qualification Test. This will include a practical demonstration with certification of competence by the crew chief and/or one of his designees. A Motorman/Conductor must be at least 18 years old and possess a valid driver's license.

**Additional Requirements:** Crew Member/Trainee has passed the NSRM Rule Book / Safety Test and will be required to retest every year. Yearly attendance at the annual Safety Meeting is required to maintain status as a Crew Member. See additional requirements listed in the *Policies and Procedures* manual

### **Code of Conduct and Appearance:**

Motorcrew should always wear their volunteer's name badge.

Motorcrew should always carry their NSRM Rulebook while on duty.

Appearance is important - Motormen must be neatly dressed and groomed:

- It is preferred, but not mandatory, that Motormen be dressed in dark pants, white shirt, tie, vest, conductor's cap, and jackets or coats when required by the weather.
- The Motorman may also be dressed in the typical NSRM uniform: a museum logo shirt, jeans or overalls, optional railroader's cap, and jackets or coats when required by the weather.
- Footwear is an important factor in safety. Wear work boots/shoes with soles and heels firmly attached and heels that are not excessively worn. Suitable footwear around shops, tracks, and moving equipment does NOT include high-heeled boots or shoes, sandals, low quarter slip-on shoes or tennis shoes. Steel toes are recommended but not required.

### **Detail of Motorman/Conductor Duties**

**PRIOR TO FIRST RUN:** It is the Crew's responsibility to ensure that the following items are accomplished at the beginning of the day:

- A) Check for any General Orders that may be in effect and be sure that all crew members are prepared to comply with them.
- B) Inspect motor car and fill out NSRMCC Daily Motorcar Inspection Report in the Motor Car. (See page 42)
- C) Grease the axle bearings (Edwards car).
- D) **All doors through which any portion of the Motor Car will pass must be fully open to the maximum of their travel and secured with a keeper.**
- E) The turntable must be aligned with the track occupied by the Motor Car.
- F) Once the Motor Car has been moved from the turntable, the turntable must be locked in place to keep unauthorized persons from moving it. (If the handcar is to be used the turntable must be aligned for the handcar track.)
- G) Direct the movement of the motor car as it is taken out of the annex for its first run of the day. Be certain that the portable step is available to aid riders in boarding and that the motor car is clear of the main sidewalk.
- H) Prepare the motor car for passengers.



## LOADING PASSENGERS

- A) Assist passengers onto the step and instruct them to hold the handrail as they climb the steps.
- B) If a passenger might have difficulty negotiating the steps, offer to assist them. If loading at the Depot, offer use of the wheelchair lift for loading.
- C) If needed, assist other crew members in loading passengers requiring the wheelchair lift.
- D) Observe what people are carrying. Food or drink, other than water, are not allowed on the motor car.
- E) Just before the motor car leaves, make sure that all passengers have received safety instruction and are properly seated.

## DURING THE RUN

The Conductor will determine that the passengers are safely aboard, and the motor car is ready to depart. He will announce a clear “All Aboard” and will give a high ball to the Motorman to permit the motor car to leave the station. At all times, he should be aware of the operation of the motor car and observe Crew Members in their duties (especially if there are trainees in any of the crew positions) and maintain communication with the Motorman.

- A) Make sure that the passengers keep their arms and heads inside the car.
- B) Make sure that passengers are seated whenever the motor car is moving.
- C) Punch tickets for each rider.
- D) **Talk to the passengers! Encourage everyone to visit the Interpretive Center and Annex.** Provide information about the history of the motor car, V&T, Museum, events, etc. as appropriate. If there are any questions you can't answer, see if you can find someone who can answer them.

## END OF THE RUN

When the motor car arrives at the depot or loading/unloading area by the Annex, the Conductor will signal the Motorman for a safe stop and then assist passengers as they detrain.

## END OF THE DAY

Before the last run the Conductor will ensure that the wheelchair lift is put away and that all doors and windows at the Wabuska Depot are securely fastened and locked before the motor car is returned to storage. Generally, Museum Staff will be the last to leave the depot and will close and lock the doors and windows, but a member of the Motorcar Crew must check that this has been done.

- A) Check and, as needed, refill the fuel tank. (Be certain that there is enough fuel for the next day's operation – at least half a tank). (Edwards car)

**☞ \*\*\* Please, do NOT leave this job for the next crew! \*\*\* ☜**

**B) Any door through which any portion of the Motor Car will pass must be fully open to the maximum of its travel and secured with a keeper.**

C) With signals from the Conductor, move the Motor Car into the annex building.

D) Do End of the Operating Day Motor car procedures:

1. Place the Hydraulic Lever in the Neutral Position.
2. Engage the Hand Brake.
3. Shut down the engine.
4. Store the keys on the hook (Edwards car).
5. Put the chain on the drive wheel closest to the Driver position. On the Edwards car this is the right-side rear wheel. On the McKeen car, this is the right-side drive wheel (front wheel).
6. Open the valve and drain the Condensate Tank (Edwards car).
7. Drain the air tanks (McKeen car).
8. Shut off the main power switch on the McKeen (on the wall behind the motorman).
9. Make sure the Motor Car is clean.
10. Complete and sign the log.
11. Record your volunteer hours for the museum's records.

# MOTOR CAR OPERATING DETAILS

## Edwards Motor Car Operating System

Edwards Motor Car Operating Controls:



Edwards Motor Car Hydraulic Drive lever:



Over the years the Edwards Motor Car has had several transmissions. The first was a four-speed truck transmission that required the operator to use a clutch pedal. (The pedal is still in its place and can be used as a footrest. However, don't rest your foot on the small flip-over lever – that will release all the air pressure for the bell, whistle, and air brake.) The museum replaced that transmission in 1999 with a hydraulic drive and it operated that way until 2013. This drive used a lockout lever and a shift lever. (Those levers are now locked in the fully forward position and are no longer used.) The present drive was installed in 2015. It is controlled with a single

hydraulic lever which is to the right and just forward of the Motorman's seat. [See the photos above.] This system drives only the rear truck wheels of the motor car.

## Edwards Motor Car Braking Systems

The 1926 Edwards Motor Car has air brakes as well as a hand brake (See Operating Controls photo above). Both serve to hold the motor car in position AFTER it has stopped, much as a parking brake does on an automobile. The brakes are not used to slow or stop the car, due to the modern fixed hydraulic drive system.

The Hand Brake has a mechanical wheel which is turned to apply/release the brake. If the air pressure is too low to be effective – use the Hand Brake.

The Air Brake works from an air pump mounted to the engine. The air pump charges two air tanks mounted under the frame at the rear of the motorcar. A pressure limiting valve between the two rear tanks prevents the pressure from rising above 75 psi. Several appliances operate from the stored air pressure: the Bell, the Whistle, and the Brake system.

The air brake system is called 'direct air.' This means that the brake controller takes air pressure directly from the air tanks to the brake cylinder. The more pressure the greater the amount of brake force.

The air brake system has a gauge with two hands on it (See photo below). The Red hand shows how much pressure is being applied to the brakes. The White hand shows how much pressure is available in the system. Maximum pressure is 90 psi, but there is likely to be less air pressure available after repeated brake use or the use of the bell and/or whistle.



Pressure gauge

Generally, the pressure used to apply brakes to hold the car in position is between 30-50 psi depending upon the degree of application that is needed under the circumstance. The brake is applied by moving the valve to the application position. Leave the brake handle in the Apply position when using it as a parking brake so that it will maintain a full set and mitigate the risk of the set bleeding off.

The brakes of the Edwards car work on the front truck wheels only. They will not stop the car if it is under power with the hydrostatic drive. Once the car has stopped, the air brakes are used to ensure that the car does not drift or roll from its original stopping position.

There are four positions on the air brake controller, as seen in the photo below:



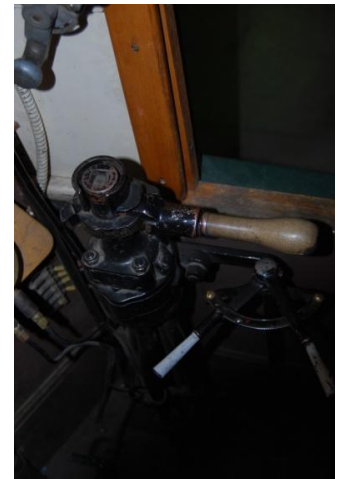
Release



Lap



Apply



Emergency

Release position (all the way forward) bleeds off the pressure in the brake cylinder and releases the brakes, as well as permitting the pump to recharge the reservoir.

Lap position (centered between *Apply* and *Release*) holds the application without adding or releasing pressure at the brake cylinder. **However**, the Edwards car does not have a self-lapping brake system and will not maintain a Set if there is a leak. Therefore the brake handle should be left in the *Apply* position when being used.

Apply position (toward the rear) allows air to flow from the reservoir to the brake cylinder and applies the brakes. This is not a brake to slow down the car. It is used as a Parking Brake as in a car, once the car has stopped.

Emergency position (all the way back) puts all the pressure available directly to the brake cylinder. This will usually lock up the wheels. The emergency position has been “locked out” on the 1926 Edwards Motor Car.

#### Using the air brakes:

- Move the hydraulic lever and throttle to the neutral position when you are coming to a complete stop.
- When stopped, pull the brake handle into the *Apply* position.

#### Driving the Edwards Motor Car:

- Turn on engine with the key.
- Build air pressure.
- Release the hand brake.
- Release the air brake.

-To go forward: Move the hydraulic lever to the left and gradually move it forward from the neutral position, while gradually pushing the throttle forward.

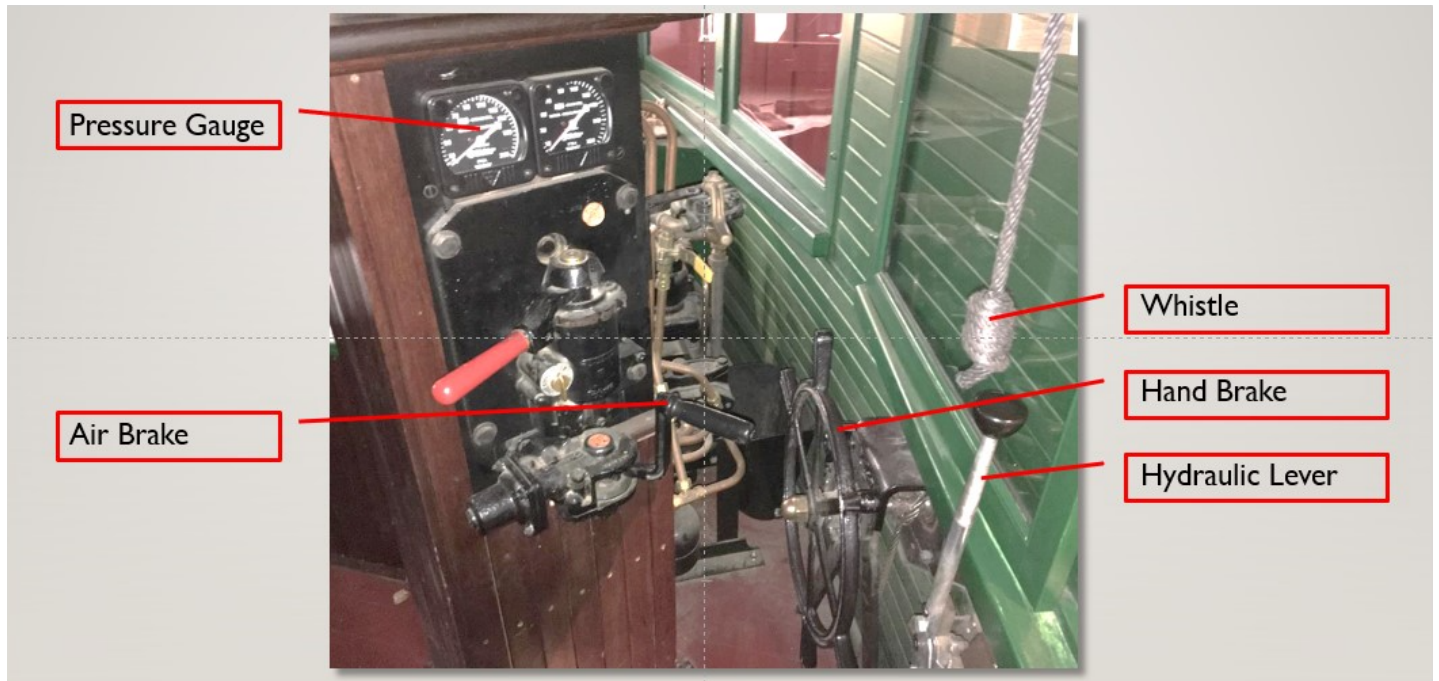
-To stop: Gradually return the hydraulic lever to the neutral position while moving the throttle back.

-To go in reverse: Move the hydraulic lever to the right and move it backward from the neutral position, while gradually pushing the throttle forward.

-Whenever the motorman leaves the driver seat, make sure the hand brake has been set.

## McKeen Motor Car Operating System

McKeen Motor Car Operating Controls:



As built, the McKeen car was powered by two 3-cylinder marine-type engines on a common frame fixed back-to-back. The drive was by chain out of the center of the engine set. There was an air-operated clutch driving a 2-speed transmission. There was no reverse gear. This was not required as the marine engines would operate in both directions. This was very unreliable and most McKeen cars were quickly converted to some other form of propulsion. The V&T never converted their car. As this drive train had been scrapped in 1946, our car was restored with a donated Caterpillar 3208 diesel engine with hydro-static drive. This is much more reliable and easier to operate.

The hydraulic lever is provided with an interlock that prevents moving the lever from forward to reverse without operating the interlock lever. The hydraulic lever must be moved slowly to prevent wheel-spin on acceleration and sliding the wheels and/or activating the safety valves on deceleration. (Sliding the drive wheel on the McKeen car should be avoided). The hand brake is operated by moving the wheel in a clockwise direction to apply the brakes. A pawl on the top of the ratchet gear prevents release once applied. The hand brake is released by releasing the pawl. The weight on the pawl is moved to the rear to keep the pawl against the ratchet gear when applying the brake. The weight is moved forward to release the pawl when the wheel is moved slightly clockwise. The air brakes are self-lapping. Self-lapping is the name given to a brake controller which is position sensitive, i.e., the amount of application depends on the position of the brake valve handle between full release and full application. The closer the brake handle is to full application, the greater the application achieved on the car. When applied, the pressure on the gauge should not exceed 30 PSI. Exceeding 30 PSI causes the brake cylinder to whistle and irritate people. Unlike the Edwards car, the black lever is pushed forward to apply the brakes.

The whistle is operated by simply pulling the cord.

**Do not operate any of the other valves as this will cause problems.**

### Driving the McKeen Motor Car:

- Turn the battery cutout switch to on (Red switch on the wall behind the driver seat).
  - Flip toggle switch to turn on engine, wait a few seconds and press the red Start Engine button. Release button once engine has started.
  - Build pressure.
  - Release hand brake.
  - Release air brake.
  - To go forward: Move interlock lever to forward then gradually move the hydraulic lever forward . Moving the hydraulic lever puts the car in motion.
  - To stop: Gradually move the hydraulic lever to the neutral position.
  - To go in reverse: Move the interlock lever to reverse then gradually move the hydraulic lever backward.
- Whenever the motorman leaves the seat, make sure the hand brake has been set.

# CHECKLISTS

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The following checklists are extensive. They cover most of the items you need to look at as you operate the Motor Cars

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## BEFORE YOU START THE ENGINE

1. Check for any General Orders that may be in effect. General orders are posted just inside the Restoration Shop door.
2. **Open the Annex Door all the way!!!!** *(Failure to do this has caused more damage to the Motor Car than any other single factor.)*
3. Check that Hydraulic lever is in neutral position.
4. Check the previous Daily Inspection Report entries to see if there is anything you should know.
5. Check engine oil and hydraulic oil.

## BEFORE YOU MOVE THE MOTOR CAR

1. Remove the chain from under the wheels.
2. Check under and on both sides of the Motor Car for obstructions, leaks, loose or hanging parts, etc.
3. Check that the Portable Step is in the Motor Car.
4. Check that the Annex Door is fully open!

## STARTING AND MOVING THE MOTOR CAR FROM ANNEX

1. **Check that the Annex Door is fully open!**  
*(It has happened that someone else lowered the door while the Motor Car crew was otherwise busy.)*
2. When the Conductor has verified the area around the car is clear and has loudly stated 'CLEAR', respond loudly with 'CLEAR' and start the engine.
3. Upon signal from the Conductor:
  - Release the hand brake and move the Motor Car out of the annex using the Hand Brake as needed



- Move the Motor Car beyond the sidewalk and STOP, apply brakes, leave the hydraulic lever in neutral, leave the car running to build up air pressure. (Pumping up the air reservoir outside the building helps to keep the air in the annex cleaner.)
4. Secure the Motor Car with Hand Brake and Chain.

## **OUTSIDE THE ANNEX / PREPARE FOR OPERATIONS**

1. Fill out information on the Daily Motorcar Inspection Report (See page 41).
2. Record the numbers on the Hour Meter (Edwards car).
3. Check coolant.
4. Close Air Tank Valves.
5. Check that the Conductor's Valve, and any other air valves are closed (i.e. condensate, bell, sand etc).
6. Check the fuel level (Add fuel if needed - Edwards car).
7. Check front and rear truck brake systems (Brake Check)(Rear brakes on Edwards are inactive).
8. Oil drive axle and check/service journal boxes (McKeen car).
9. Check all lights.
10. Clean interior, exterior and windows of the Motor Car if needed.
11. Build Air Pressure at least to 50psi.

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## **MOVING THE MOTOR CAR ONTO AND OFF THE TURNTABLE CHECKLIST**

Remember to use appropriate whistle signals for Stop, Forward and Back before all movements.

1. Align the Turntable with your track and set the Key.
2. Upon signal from the Conductor, Start the Engine.
3. Ensure that the Air Pressure is at least 50 psi.
4. Remove Chain.
5. Upon signal from Conductor, release Brakes and move the Motor Car towards the Turntable.
6. Upon signal from Conductor, make a full-stop Air Brake test ***BEFORE*** moving onto the Turntable.
7. For the McKeen Car – Conductor will ensure that Jacks are SET under the far end of the Turntable.
8. Upon signal from Conductor, move carefully onto the Turntable and stop when Conductor signals that the Turntable is balanced.
9. Turn off engine, apply the Hand Brake.
10. Upon request signal by Conductor, verify that the car is secure, and then give permission to remove the Key.
11. For the McKeen Car – Conductor will ensure that Jacks are REMOVED from the Turntable.
12. Align the Turntable with the correct track and Replace Key.
13. For the McKeen Car – Conductor will ensure that Jacks are SET under the far end of the Turntable.
14. Upon signal from Conductor, Motorman starts Engine.
15. Upon signal from Conductor, Move the Motor Car carefully from the Turntable.
16. Upon signal from Conductor, STOP.
17. If appropriate, align turntable for hand car use.
18. Lock the Turntable so that the public cannot rotate it.
19. Pick up Conductor and crew and proceed with operations.

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## PUTTING THE CAR INTO MOTION CHECKLIST

Remember to use appropriate whistle signals for Stop, Forward and Back before all movements.

1. Ensure the Handbrake is Engaged.
2. Ensure that the Air Brake is Applied.
3. Ensure the Hydraulic Lever is in neutral.
4. When the Conductor has verified the area around the car is clear and has loudly stated 'Clear', respond loudly with 'Clear' and Start the Engine.
5. On the McKeen car, flip the power switch up, and then push the start button to start the engine.
6. Ensure that the Air Pressure is at least 50 psi.
7. Release the Hand Brake.
8. Set the Light Switches to the Appropriate Position(s) (Edwards car)
9. Look for a signal from the Conductor.
10. Sound the appropriate Whistle Signal.
11. Release the Air Brake.
12. Operate the Bell if appropriate (Edwards car).
13. Gradually move the Hydraulic Lever in the appropriate direction in concert with the throttle.

Remember to use appropriate Whistle and Bell signals at all grade crossings.

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## **MOVING THROUGH A GRADE CROSSING CHECKLIST**

1. At Least 10 seconds before reaching the Crossing, start the Bell (Edwards car) and sound the Grade Crossing Whistle Signal (Both Motor Cars).
2. Check for any approaching road traffic, pedestrians, or anything potentially fowling the tracks.
3. Continue the Whistle Signal until the Motor Car has occupied the crossing.
4. Turn off the Bell (Edwards car).

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## **STOPPING THE CAR AT THE END OF A TRIP CHECKLIST**

1. Upon signal from Conductor, gradually move the Hydraulic lever in concert with the Throttle in the appropriate directions to slow and stop the car.
2. When stopped, ensure that the Hydraulic Lever is in the neutral position.
3. Apply the Air Brake.
4. Sound a “Stop” Whistle Signal.
5. Apply the Handbrake (McKeen and Edwards) and place the interlock lever in the neutral position (McKeen).
6. Turn off the Lights.
7. Ensure the engine is at idle.
8. Shut off the Engine.

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## END OF THE OPERATING DAY CHECKLIST

### BEFORE MOVING THE MOTOR CAR INTO THE ANNEX:

Check fuel level and if needed refill the Fuel Tank (Edwards car). Be certain that there is enough fuel for the next day's operation – at least half a tank.

☞ \* \* \* **Please, do NOT leave this job for the next crew!** \* \* \* ☜

Fuel is checked outside the Annex because if fuel needs to be added this should be done with the car outside in case of spills.

If the Diesel barrel is empty, please notify the shop staff, buildings and grounds staff, and/or the crew chief.

### MOVING THE MOTOR CAR INTO THE ANNEX:

1. **Check that the Annex Door is fully open.**
2. With signals from the Conductor, use Lantern Signals to move the Motor Car into the annex and stop.
3. Place the Hydraulic lever into the Neutral position.
4. Apply Air Brake
5. Place the interlock lever in the neutral position on the McKeen car.
6. Engage the Hand Brake.
7. Shut down the engine.
8. Store the keys on the hook in the Shop (Edwards car).
9. Put the chain on the **drive wheel** closest to the Driver's position: (Edwards car: right, rear wheel; McKeen car: right-side drive wheel).
10. Open the valve to drain the condensate tank (Edwards car) / Drain the air tanks (McKeen car).
11. Make sure the Motor Car is clean of trash, leaves, etc.
12. Complete and sign the Daily Motorcar Inspection Report (See page 41).
13. Record your volunteer hours for the museum's records.

# APPENDIX

## Definitions

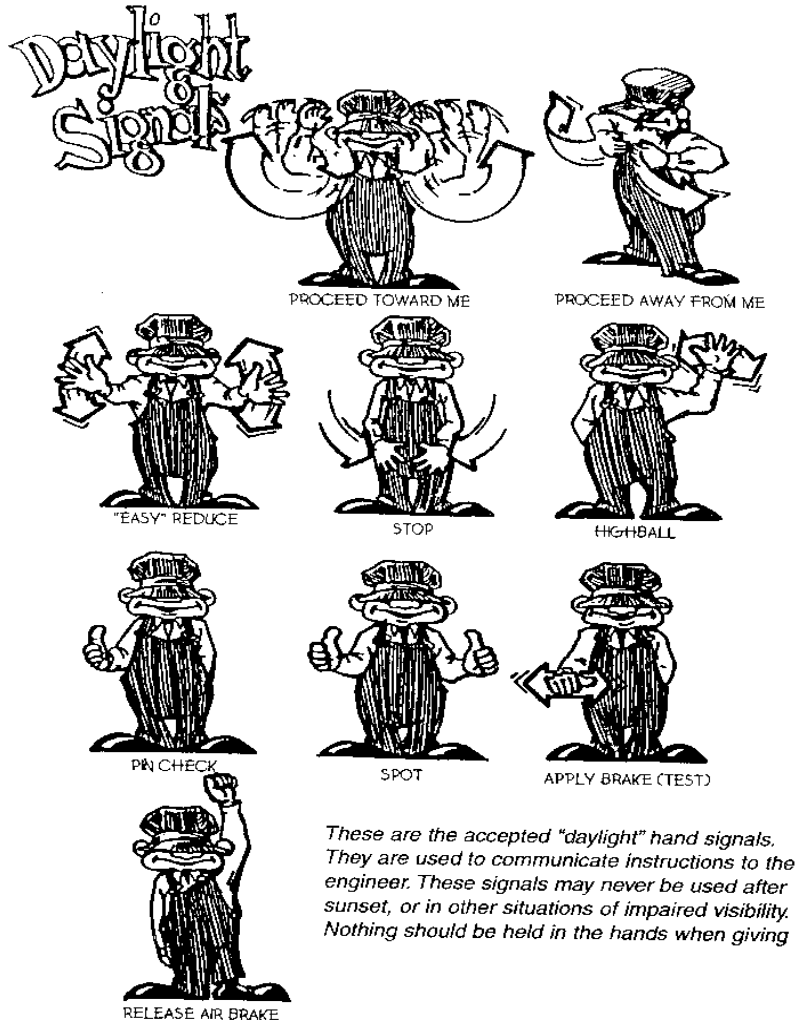
<b>Air Brake:</b>	A device, operated by compressed air, which retards or arrests the motion of a car.
<b>Blue Flag:</b>	A blue flag or lamp or signal that is placed on or near a car or locomotive when workers are around or under it. When a car or locomotive is blue flagged, then it must not be coupled to or moved in any manner. The only person allowed to remove a blue flag is the person who put it there in the first place.
<b>Brakeman:</b>	A person who assists with train and yard operations. His duties include throwing switches.
<b>Car Attendant:</b>	A person who assists the passengers onboard the train.
<b>Conductor:</b>	The employee in charge of the train and its crew.
<b>Conductor's Valve:</b>	A manually operated device for applying air brakes in an emergency.
<b>Derail:</b>	A protective device that guides engines, vehicles, or other on-track equipment off the rails.
<b>Employee:</b>	At NSRM: <ol style="list-style-type: none"><li>1. Employees of the Nevada State Railroad Museum.</li><li>2. Authorized volunteers of the <i>Friends of the Nevada State Railroad Museum</i>.</li></ol>
<b>Engine:</b>	A locomotive unit propelled by any form of energy or combination of such units operated from a single control, used in train or yard service.
<b>Extra Train:</b>	A train or motor car run not authorized by timetable schedule.
<b>Facing Point Switch:</b>	A switch in which the points face towards the direction of movement.
<b>Fixed Signal:</b>	A signal that is fixed to a location permanently and that indicates a condition affecting train movement. <i>Note: This definition covers such signals as slow boards, stop boards, yard limits, switch, train order, semaphore, disk, ball or other means for displaying indications that govern the movement of a train.</i>
<b>Fouling Point:</b>	The location in the vicinity of a switch marking safe passing clearance with another track.
<b>Fusee:</b>	A warning device consisting of a cardboard tube filled with a combustible mixture that burns brightly when ignited and remains burning for specific lengths of time.

<b>Grade:</b>	Grade (of track) is usually expressed as a percentage figure, which is the number of feet the track rises or falls in a longitudinal distance of 100 feet. Thus, for example, a 1% ascending grade means that the track raises 1 foot in elevation for every 100 feet of distance traversed along the track.
<b>Grade Crossing:</b>	The place where a railroad intersects a highway, road, or another railroad on the same level.
<b>Hand Signal:</b>	A signal given by an employee by hand or lamp affecting the operation of a train.
<b>Highball:</b>	A signal given to proceed as authorized.
<b>Hostler:</b>	A person who prepares the engine for operation.
<b>Main Track:</b>	A track, other than an auxiliary track, extending through yards and between stations upon which trains are operated.
<b>Marker:</b>	A red light or other prescribed signal affixed to the rear of equipment being operated as a train.
<b>Motor Car:</b>	A self-propelled passenger car propelled by any form of energy.
<b>Motorman:</b>	The operator of a motor car.
<b>NSRM:</b>	The Nevada State Railroad Museum.
<b>Proper Authority:</b>	The Administrator of the Dept. of Museums & History, or his designee.
<b>Pinch Point:</b>	Any place where an object may pinch the user.
<b>Siding:</b>	A track auxiliary to the main track for meeting or passing trains and run-arounds.
<b>Signal Indication:</b>	Information conveyed by the aspect of a signal.
<b>Single Track:</b>	A main track on which trains and motor cars operate in both directions.
<b>Special Instructions:</b>	Instructions issued to employees which change, add to or annul Operating Rules, or other instructions. Special instructions will replace any rule or regulation with which they conflict.
<b>Speeds:</b>	<p><u>Restricted speed:</u> A speed that will permit stopping short of another train, obstruction, stop signal, or switch not properly aligned, broken rail, inoperative grade crossing warning devices, or within one half the range of vision, not to exceed 10 miles per hour.</p> <p><u>Track Speed:</u> The highest speed authorized, observing all rules and restrictions, not exceeding the maximum allowed by timetable, special instructions or general order.</p>
<b>Station:</b>	A place designated by name, on the timetable and/or by station sign, at which a train may stop for traffic.

<b>Switch:</b>	A device to connect one track diverging from another.
<b>Timetable:</b>	A published schedule for the movement of trains subject to the rules. It may contain special instructions.
<b>Trailing Point Switch:</b>	A switch in which the points face away from the direction of movement.
<b>Train:</b>	An engine or motor car, or more than one engine or motor car coupled, with or without cars, displaying markers.
<b>Trainmen:</b>	The conductor and those who assist the conductor in train operations: brakemen, switchmen, and car attendants.
<b>Yard:</b>	A system of tracks within defined limits provided for the making up of trains, storing of cars and other purposes.
<b>Yard Limits:</b>	Limits specified in special instructions and/or indicated by “Yard Limit” signs. Within yard limits, trains and engines will operate at restricted speeds. At the NSRM, the entire track system is within Yard Limits.

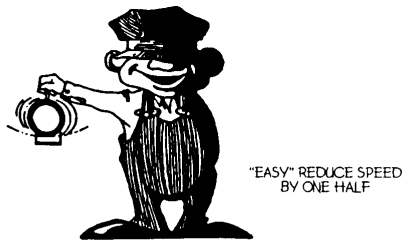
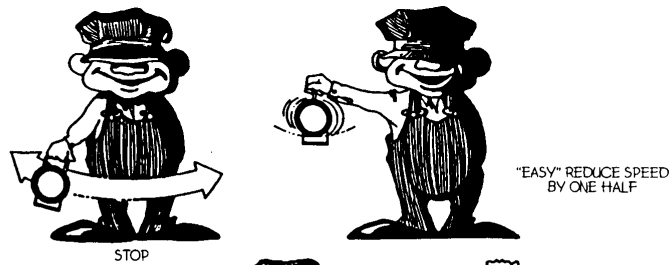


# Hand Signals



1. Use **BIG** hand signals. You will often be trying to communicate over the entire length of a train. If possible (and safe!), use both hands to signal.
2. 'Proceed toward me' uses a vertical motion.
3. 'Proceed away from me' uses a horizontal motion.
4. Each time you rock your arms in a 'Reduce' motion the engineer will reduce his speed by half.
5. Anyone can give a 'Stop' at any time.
6. Only the conductor can give a 'Highball.'
7. Nothing should be held in the hands when giving hand signals.
8. The 'Spot' signal is not used at NSRM.

# Lantern Signals



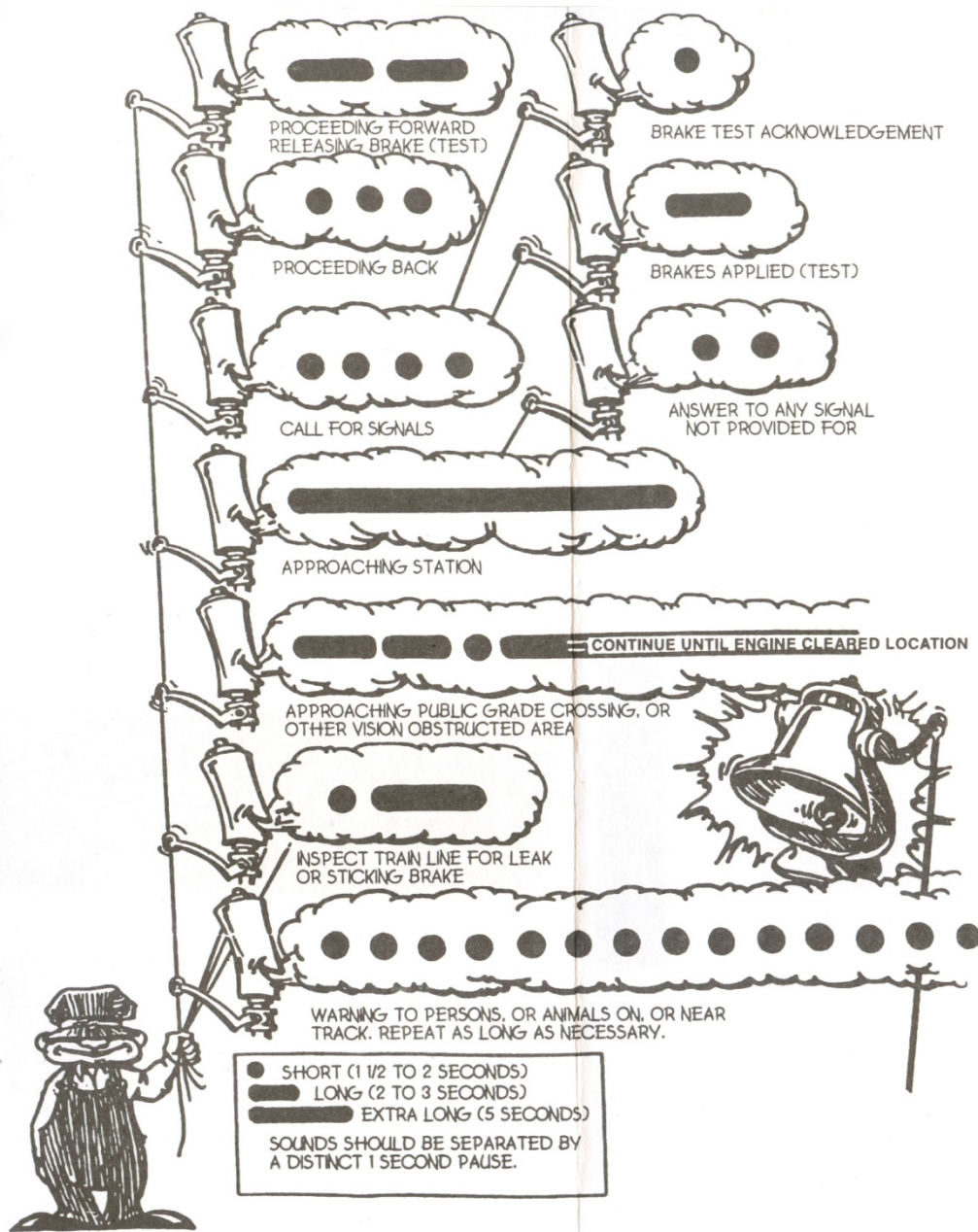
*For the purposes of these signals, the front of a train, (for determining forward/backward direction) will be designated as the end of the train to which the engine is coupled, regardless of the orientation of the engine in the consist.*



1. When working after Sunset, or putting the Motor Car into the Annex (because it is always dark in the Annex) you must use a lantern to signal.
2. Lantern signals also must be used when day signals cannot be plainly seen.
3. When giving signals you must locate yourself so that signals can be clearly seen and understood.
4. Electric lanterns may display only white light.
5. A lantern swung below the waist at right angles to the track is 'Stop.'
6. A lantern raised and lowered vertically is 'Proceed Forward.'
7. A lantern swung vertically in a circle at right angles to the track is 'Back.'
8. A lantern swung in a slight arc overhead is "Easy / Slow."

When you are using lantern signals, the front of the motor car determines the 'Forward' or 'Back' direction.

# Whistle Signals

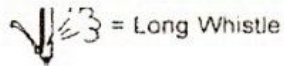


**All Brake Test signals are given softly to distinguish them from the ordinary train operation signals.**

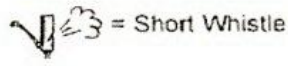
**A single short indicates the movement has stopped and it is safe to detrain.**

# Another Whistle Signal Diagram

This diagram is from the Nevada Northern Railway in Ely, Nevada.



= Long Whistle



= Short Whistle



A.

**(Repeated)** To be used when an emergency exists, alarm for persons or livestock on the track. When this signal is heard by crews on other train or engine, movement must be stopped until it has been determined that it is safe to proceed.



B.

Acknowledgment of signal to initiate air test.



C.

When standing, air brakes are applied and pressure equalized. When running, approaching closest mile post to depot or making an unscheduled stop.



D.

Release brakes and proceed.



E.

Acknowledgment of any signal not otherwise provided for.



F.

When standing, Back up. This signal is used in switching and shoving moves and is in accordance to the direction of the train and locomotive. This signal is to be used when departing the East Ely Depot with a train.



G.

Call for signals/ Call to Conductor. Conductor must contact the engineer by radio or by visual contact at once. If not reachable by radio, it must be assumed that the radio is out of service and the conductor must proceed to the car nearest the locomotive and contact the engineer by verbal means.



H.

Approaching public crossing at grade, to be commenced sufficiently in advance to afford warning not less than 500 feet before reaching a crossing. This signal must also be used to warn employees when view is restricted.



I.

Inspect brake system for leaks.



J.

Approaching meeting and or waiting point.

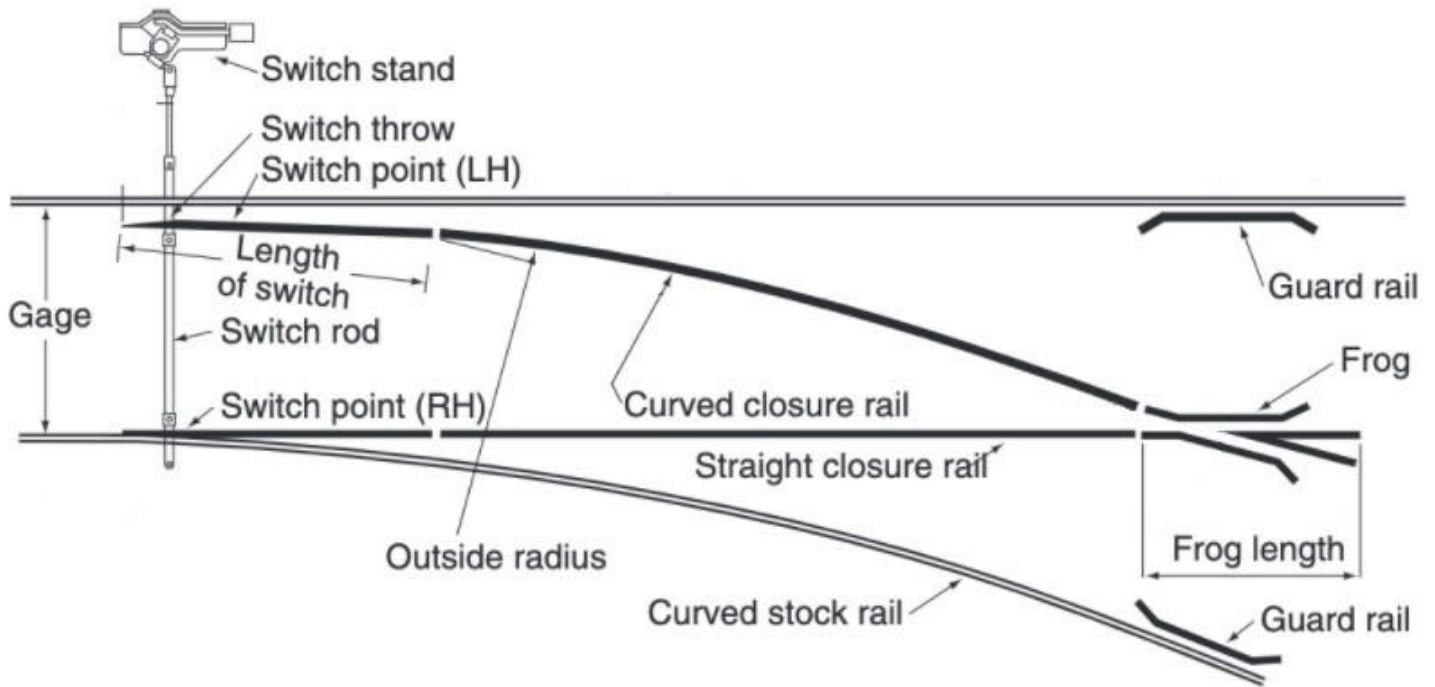


K.

Approaching a bridge, cut, in giving distant warning or arriving at depot or station.

# SWITCHES

## STANDARD COMPLETE TRACK SWITCH DIAGRAM



### Definitions:

**FACING POINT MOVE:** To proceed through a switch from the point end toward one of the connecting tracks.

**TRAILING POINT MOVE:** To proceed through a switch from the frog end toward the points of the switch.

**PICK A POINT:** To have a wheel flange run into a switch point when making a facing point move.

**RUN THROUGH A SWITCH:** To make a trailing point move when the switch is thrown for the other track route.

A train approaching from the *left* side of this diagram is making a ‘facing point’ move over this switch. A train coming from either of the *right*-side approaches is making a ‘trailing point’ move over this switch.

If the switch is thrown for the curve and a gap is present between the switch point on the outside of the curve and the straight stock rail, the flange of an engine or car wheel can ‘pick the point’ of the switch as the train approaches the switch from the facing point. A metal casting can be applied to the rail in front of the switch point in an attempt to prevent the picking of the switch point. Switch Point Protectors increase the service life of switch points by absorbing the impact of passing car wheels. The protector momentarily deflects the wheel flange, so it misses the tip of the switch point. The protector is bolted to the inside of the straight stock rail leading into the switch. At NSRM, Switches # 1 and Switch # 8 are good examples of this in practice.

If the switch is thrown to permit a train to pass through from one of the two trailing point directions and the train approaches from the other of those directions it will ‘run through’ the switch. In the illustration above, with the switch thrown as is indicated, a train approaching from the curved (lower) leg of the switch would ‘run through’ the switch. Often running through a switch will result in the derailment of all or part of the train. It may also damage the Switch Stand.

*Under NO circumstances should a switch be thrown while a train is passing over it.*

**As the motor car approaches any switch, always be certain that you know which way it is thrown.**

### **NSRM Track Nomenclature**

(See the maps on the next pages.)

1. The track between Switch #1 and Switch #4 is 'The Curry Street Line.'
2. The track between Switch #4 and the End of Track is "The Hole."
3. The circle of track from Switch #1 past Switch #8 and on to Switch #1 is 'The Loop.'
4. The track between Switch #2 and the back of the Annex is the 'B Line.'
5. The track between Switch #3 and the Turntable is the 'A line.'
6. The track between Switch #4 and Switch #8 is the 'Depot (or Station) Track.'
7. The track starting at Switch #6, going around the outside of the property, and ending at Switch #4 is 'The Main Line.'

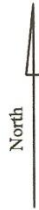
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### **NSRM Switch Numbers and Names**

1. Switch #1 is the 'Curry Street Switch.'
2. Switch #2 is the 'B Line Switch.'
3. Switch #3 is the 'A Line Switch.'
4. Switch #4 is the 'Politician Switch.'
5. Switches #5 & #6 are the 'Passing Siding Switches.'
6. Switch #7 is the 'Station Siding Switch.'
7. Switch #8 is the 'Loop Switch.'
8. Switch #9 is a 'Stub Switch' and uses a 'Harp Switch Stand.' It joins the two tracks leading into the Interpretive Center. At this switch you really are "Bending the Iron."
9. Switch #10 leads to the 'A Line Siding' and is seldom used.
10. Switch #11 is a narrow-gauge switch and leads into the narrow-gauge storage area. Watch this switch, if it is thrown the wrong way, it will put any standard gauge equipment on the ground. **(This is NOT a good thing.)**

# Nevada State Railroad Museum Carson City Nevada

Numerals in circles are switch numbers







# HISTORY OF THE NSRM MOTOR CAR EQUIPMENT

## Edwards Motor Car: Tucson, Cornelia & Gila Bend Railroad Motor Car No. 401



Built in 1926 by the Edwards Railway Motor Car Company  
Sanford, North Carolina  
Edwards # 168  
T.C. & G.B. #401  
Original Cost: \$10,465.00  
Weight: 23,000 lbs.

The Tucson, Cornelia, and Gila Bend Railroad (TC&GB) served the community of Ajo, Arizona, home of the Cornelia copper mine. The car was constructed by the Edwards Railway Motor Car Company of Sanford, North Carolina.

The No. 401 was typical of the doodlebugs that operated on many short line railroads and on branch lines of larger companies. These motorcars were a part of everyday life, but with the increase in personal automobiles and paved highways, the little motorcars have mostly been retired.

Car No. 401 operated between the Phelps Dodge copper mine at Ajo and the Southern Pacific connection at Gila Bend in southern Arizona. In 1943, the railroad replaced the original four-cylinder Continental gas engine with a larger six-cylinder White gas engine, moving the radiator forward in the process. After traveling over 780,000 miles, Edwards No. 401 was taken out of regular service on December 31, 1947. In the early 1950s, the TC&GB donated the car to Travel Town in Los Angeles for preservation. Short Line Enterprises eventually acquired it in the early 1970s.

In 1976, the car was lettered Virginia & Truckee No. 50 – “Washoe Zephyr” for a brief operating session on the V & T tourist railroad in Virginia City. The car was acquired by the Nevada State Railroad Museum in 1988 and operated with its White engine through 1996. The original wicker seat coverings were replaced with vinyl, prior to the car being put into operation at the museum. A more efficient diesel engine was installed prior to operations in 1997 and a hydraulic drive replaced the 4-speed stick shift in 1999.

The name Washoe Zephyr would stay on the car until 1999. Prior to participating in Railfair '99 at the California State Railroad Museum, volunteers repainted and re-lettered the car as TC&GB No. 401. Most commonly referred to as Edwards No. 401, it operates from May through September on various weekends when the steam train is not running, and when scheduled for school tours.

## McKeen Motor Car: Virginia & Truckee Railroad Motor Car No. 22



Built in 1910 by the McKeen Motor Car Company  
Omaha, Nebraska  
McKeen # 70  
V & T # 22  
Original Cost: \$22,000  
Weight: 68,000 lbs.

The Virginia and Truckee Railroad (V&T) introduced its express passenger train between Virginia City and Reno in 1872. Caboose, which carried passengers on freight trains, provided accommodation at other times during the day. In 1906, the new branch line to Minden was completed. Passenger service was provided by a mixed passenger and freight train from Carson City.

It soon became apparent that additional passenger service was desirable. However, the addition of a steam train for exclusive passenger service was too expensive. As a result, in 1910 the V&T purchased a 70-foot gas powered McKeen motor car. This provided additional passenger service twice each day between Minden and Carson City. Passenger service was soon extended to Reno.

The McKeen Motor Car Company of Omaha, Nebraska was one of the most successful of the early motor car manufacturers. It was organized under the sponsorship of E. H. Harriman of the Union Pacific Railroad. The motor cars featured ultra-modern stressed-steel construction, dustproof porthole windows, and the distinctive knife-nosed wind-splitter front. They were available in standard 55 or 70-foot lengths.

The McKeen car was rebuilt in the company's shops in 1932, to create expanded mail and express space reflecting the reduction of passenger service on the line. The car was then placed in service between Reno and Minden and made one round trip daily. The car made its last run in September 1945.

In 1946, the body was sold and used as a diner. Al's Plumbing Supply in Carson City later acquired it for use as office space. In 1996, the McKeen motor car was donated by Al Bernhard of Al's Plumbing Supply to the Nevada State Railroad Museum where it has been restored to operating condition.

After 65 years the McKeen Motor Car returned to passenger service on May 9, 2010, one hundred years to the day after it first came to the V&T.

# HISTORY OF THE NSRM COLLECTIONS

The core of the Nevada State Railroad Museum's collection of historic locomotives and rolling stock exists because of western Nevada's economic boom-and-bust cycles and its geographic isolation. Flushed with high traffic and revenue from the Comstock in the 1870s and 1880s, the Virginia & Truckee Railroad bought state-of-the-art equipment. A second period of increased traffic following the Tonopah boom and the completion of a branch to Minden resulted in the purchase of more new equipment early in the 20<sup>th</sup> century.

Little modernization occurred in the lean years that followed. Meanwhile the large Carson City shop building protected the equipment from the elements. The company, which always needed cash, sold many old pieces to logging or industrial railroads. Enough remained, however, to attract movie scouts looking for authentic props when Hollywood entered its boom years in the 1930s.

In 1943 the State of Nevada acquired the first of its present collection of historic locomotives when Miss Hope Bliss gave the Carson & Tahoe Lumber & Fluming Company's *Glenbrook* to the Nevada State Museum. Restoration of the *Glenbrook* was completed in the Spring of 2015 and was publicly unveiled on May 23<sup>rd</sup>, 2015.

Just as Hollywood studios began to dispose of their props, the Golden Spike Centennial of 1969 provided new roles for V&T No. 18, the *Dayton*, and No. 22, the *Inyo*. These 1870s locomotives portrayed Union Pacific **No. 119** and the Central Pacific's *Jupiter* – the locomotives that had been present when the gold spike was driven at Promontory Summit, and which were no longer extant. Paramount Pictures owned these V&T locomotives, which they loaned to the Union Pacific Railroad for the Centennial. Paramount subsequently agreed to loan the locomotives to the National Park Service for exhibit at Golden Spike National Historic Site until replicas of *Jupiter* and **No. 119** could be built.

A nationwide wave of interest in the past had followed passage of the National Historic Preservation Act of 1966 and crested with the American Revolution Bicentennial. In Nevada, the State sought acquisition of former V&T equipment during the late 1960s and early 1970s through the Nevada State Heritage Association and later through the Nevada State Museum. Out-of-state sales of the V&T *Reno* in 1968 and *Tahoe* in 1970 gave impetus to these efforts.

The V&T *Dayton* and *Inyo* were listed in the National Register of Historic Places on December 18, 1973. Four months later they were acquired by the State of Nevada, but they remained on exhibit at Golden Spike National Historic Site until November 9, 1978.

The State legislature transferred management responsibility for Nevada's V&T collection to the Nevada State Park System on April 20, 1973. Nevada State Parks contracted in 1974 for an investigation into the feasibility of restoring the V&T equipment collection and in 1979 for a study to develop a plan for a state railroad museum. The latter year also saw the legislature create a Department of Museums and History to consolidate the State-operated museums and the Nevada Historical Society, and to create the Virginia & Truckee Railroad Museum.

On May 31, 1980—the 30<sup>th</sup> anniversary of the last run of the Virginia and Truckee—the new railroad museum was opened to the public at its present location on South Carson Street. The *Glenbrook* was transferred to it from the Nevada State Museum in 1981. On May 1 of that year, the *Glenbrook* was also listed on the National Register.

During the early 1980s several of the pieces were restored by Short Line Enterprises operating under contract with the State. Locomotive No. 25 was under steam for Nevada Day 1980; flat car No. 162 and box car No. 1013 were completed in 1982; coach No. 9, box car No. 1005, and locomotive No. 22 *Inyo* were completed in 1983, the same year that the Wabuska depot was moved to the museum site and restored. On August 30, 1984, the depot was listed on the National Register. Coach No. 4 was restored in 1985.

Also in 1985, The Virginia & Truckee Railroad Museum was renamed the Nevada State Railroad Museum. Short Line Enterprises restoration and maintenance contracts concluded in 1987. Additional former V&T rolling stock was purchased from Short Line Enterprises in 1988.

In 1993 Locomotive No. 27 was brought to the Museum from Gold Hill. It was listed on the National Register on October 27, 2004. The Dayton, Sutro & Carson Valley Railroad locomotive *Joe. Douglass* was purchased in 1994 with a grant from Meadowood Mall of Reno. In 1996 the Bernhard Family Trust donated V&T No. 22, a McKeen self-propelled passenger car, to the museum. The car was listed on the National Register on September 6, 2005.

### WABUSKA DEPOT

Along with the U. S. Post Office, the two-story clapboard Commercial Hotel and J. M. Feeny's general merchandise store, the Southern Pacific station at Wabuska served as the hub of the modest settlement, located at the upper end of Mason Valley. Erected in 1906 by a crew of S. P. carpenters, the twenty-four by eighty-foot freight and passenger station replaced an earlier and smaller depot built by the Carson & Colorado Railroad. The single-story wood frame building served the predominantly agricultural and mining region until Sept. 1, 1979, when the railroad closed the station.

Though not endowed with rich soils, Mason Valley was productive enough to prompt H. M. Yerington, President of the Carson & Colorado Railroad, to order a small freight and passenger station be constructed near the narrow-gauge railroad's "first crossing of the Walker River" in 1880. Deposits of bluestone (copper sulfate) discovered and only partially developed by John Ludwig in 1870 didn't exactly prompt an immediate rush to the region until after 1900 when those ore bodies were more actively worked.

The mining boom brought about by the discovery of gold and silver at Tonopah and Goldfield immediately after 1900 did much to expand shipments of such indigenous agricultural products as hay, grain and potatoes from Mason Valley. The tremendous increase of freight out of Wabuska influenced the S.P. to replace the original C&C depot with a larger station in 1906. They also added a freight shed. This agricultural boom coupled with the highly active development of the bluestone deposits by the Nevada Douglas, Mason Valley and Bluestone mining companies soon led to the construction of several ore processing facilities. To economically transport the ore from the mines located in both Smith and Mason valleys, the Nevada Douglas Copper Co., the area's principal developer, surveyed and then contracted for the construction of a standard gauge railroad, starting at Wabuska, in 1909. The S. P., now the owner of the old C&C, in the meantime had broad gauged its line in 1906. Resembling a gigantic letter "J," the route of the Nevada Copper Belt Railway was completed to Ludwig three years and 37.8 miles later.

Soon after the NCB began service in 1912, the railroad's first three engines and cars were kept active hauling up to 750 tons of ore per day. Wabuska was indeed a bustling place as many freight teams arrived and departed daily to and from the smaller mining camps of Ramsey, Buckskin, and others. Copper was *KING* – for a while – along with gold and silver. Then, as most mining booms seem to do repeatedly, in face of declining prices of metal, the economy hit the skids. The region suffered since the three major companies, i.e., Nevada Douglas, Mason Valley and the Bluestone mines constituted the principal sources of traffic for the NCB. There was a brief flurry of activity in the late 1910s and again in the 1920s.

According to historian David F. Myrick: "Passenger service on the NCB was both transient and ephemeral ..." except between Wabuska and Thompson (site of the Mason Valley Mill Co.'s huge smelter) where service could be considered normal. In addition to what little revenue was earned from hauling freight, the company's cash book recorded an occasional picnic excursion from Ludwig as well as from the other end of the line at Wabuska and Yerington. The destination was Wilson's Canyon. The two Hall-Scott gasoline-powered motor cars often provided this service and, on some occasions, hauled "as many as three or four freight cars in addition to their human cargo."

Revenues continued to dip, prompting the owners of the Nevada Copper Belt to petition for abandonment. March 24, 1947, was the last day of operation. Apparently, business at Wabuska depot continued sufficiently until shortly before Sept. 1, 1979, when the Southern Pacific closed the seventy-three-year-old structure. Following its gift to the Nevada State Museum in 1982, the eighty-foot-long depot was moved intact to the Railroad Museum at Carson City in 1983. During the next four years, depending on time and funds, the depot underwent a complete renewal to reflect its appearance of the 1910s. Notwithstanding the addition of several

mandatory safety features as well as a telephone and an electronic cash register, the Wabuska depot is back in business – serving as a busy railroad station once again.

Wabuska Depot at Wabuska



(in Wabuska) Steve VanDenburgh 1978

Wabuska Depot at NSRM



(at NSRM in Carson City) Russ Tanner 2006

# NEVADA STATE RAILROAD MUSEUM

## Southern Pacific Standard "A" Frame Gallows Turntable



The turntable constructed by the Nevada State Railroad Museum is built to Southern Pacific plans. This basic "A" frame design was first used by the Central Pacific during its construction years in the 1860s, and similar turntables were built by the Virginia & Truckee, the Carson & Colorado, and the Carson & Tahoe Lumber and Fluming Co. in the 1870s and 1880s.

The specific design version built by NSRM with the lower center kingpost in the center of the "A" frame is based on standard Southern Pacific drawings dating from 1906, and first introduced by SP in the late 1880s as an improvement of earlier designs. A similar SP turntable still survives today at the Laws Railroad Museum on the old Carson & Colorado line near Bishop, California. New turntables have been built in Folsom, Placerville, and at the Orange Empire Railway Museum, all using NSRM patterns.

The NSRM turntable is used to turn locomotives and cars and provides access to the Museum shop and storage building, functions that turntables have traditionally provided. It is a fitting 19th century design, appropriate for a museum such as NSRM with a large collection of equipment from the last century.

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# HAND CAR OPERATION

The Nevada State Railroad Museum's Hand Car is one of two designed and built for Hand Car Races. The yellow hand car has since been modified to go more slowly so that the public can have a gentler, more pleasant experience.

Only Qualified Operators are to offer handcar rides to the public.

Every time we take members of the public on the hand car, we repeat the rules necessary for safety.

The rules are:

1. Always face in the direction the hand car will be moving.
2. Always keep your hands on the metal bar.
3. Keep your feet flat on the deck.
4. Do not allow your knees to get under the bar.
5. Have a good time.

Generally, we restrict the number of riders to four (two at the rear of the hand car and two at the front). However, smaller children can stand holding onto the handrails at the side of the hand car so that they will not be in the way of the moving bars. Riders should not be carrying anything in their hands (purses, cameras, etc.). Riders should not have any items hanging from their neck as these could be caught by the handrails.

Maintain a safe speed. A safe speed is one that allows you to control the brakes to stop safely before getting to the turntable or the sidewalk.

It is mandatory to align the turntable with the track upon which you are giving hand car rides. This provides a measure of safety should you inadvertently go too far. You should never take the hand car onto the turntable or across the sidewalk in front of the Annex Building while you have members of the public on board.

As always, when moving any kind of equipment through a doorway, the door must be fully open to the maximum of its travel and secured with a keeper. The handcar is to be pushed on and off the turntable, not ridden. Similarly, it is to be pushed through the doorway, not ridden.

The handcar must be secured with a lock and chain when un-attended.



# RECORDING VOLUNTEER AND TRAINEE HOURS

<u>NEVADA STATE RAILROAD MUSEUM</u>			
VOLUNTEER TRAIN CREW TIME SLIP			
NAME: _____		DATE: _____	
Safety Meeting:	_____	Hours	
<u>STEAM TRAIN</u>			
Car Attendant:	_____	Hours	Training: _____ Hours
Brakeman:	_____	Hours	Training: _____ Hours
Conductor:	_____	Hours	Training: _____ Hours
Fireman:	_____	Hours	Training: _____ Hours
Engineer:	_____	Hours	Training: _____ Hours
Hostler Helper:	_____	Hours	Training: _____ Hours
Hostler:	_____	Hours	Training: _____ Hours
Other:	_____	Hours	Explain: _____
<u>MOTOR CAR</u>			
Motorman/Conductor:	_____	Hours	Training: _____ Hours
Other:	_____	Hours	Explain: _____
		TOTAL HOURS: _____	

© NSRM 2009

There are two ways to record Volunteer hours. One is the Time Slip (above), the other is the Sign In sheet in the Museum. Record hours in one or the other, *not both*.

Copies of the NSRM Volunteer Train Crew Time Slips are located just inside the restoration shop door in a box by the bulletin board. Use one Time Slip per day. Be sure to put your name on the Time Slip. Put your hours down as a Motorman/Conductor whenever you operate the Motor Car. When completed, the Time Slip should be placed in the box provided. Note that there is a separate column for recording Training Hours.

The Volunteer's Hours sign in sheet is on a clipboard in the Museum by the Front Desk. Please sign in when you arrive, and record your hours served when leaving.

**It is important to the museum that it has a record of the hours volunteered and also ensures that you are covered by the state's worker's compensation insurance while on duty at the museum. Additionally, you are recognized for your contribution to the State of Nevada and this museum.**



# N.S.R.M.C.C. Daily Motorcar Inspection Report

Motorcar: \_\_\_\_\_ Date: \_\_\_\_\_

All equipment must be inspected daily, prior to entering service. When condition is called for, enter **Good** (no defects, functions optimally), **Fair** (functions less than optimally but suitable for service), **Poor** (not functional).

Enter **N/A** when not applicable.

## **Inspection List:**

- Was the drive train and suspension inspected for defects? **Y/N**
- Were wheel bearings greased? (401) **Y/N**
- Were all Journals inspected and oiled if needed? (22) **Y/N**
- Were interior and exterior lights inspected and in working order? **Y/N**
- Condition of brake rigging and shoes: \_\_\_\_\_
- Condition of oil level on dipstick:  
\_\_\_\_\_
- Condition of radiator coolant level:  
\_\_\_\_\_
- Condition of Hydraulic Oil Level:  
\_\_\_\_\_
- Brake cylinder piston travel: \_\_\_\_\_ in.  
Main Res. Pressure: \_\_\_\_\_ psi.
- Exterior Appearance: \_\_\_\_\_ Interior Appearance: \_\_\_\_\_
- Fuel Level Start: \_\_\_\_\_ Finish: \_\_\_\_\_ Added: \_\_\_\_\_
- Hour Meter Reading Start: \_\_\_\_\_ Finish: \_\_\_\_\_ (401)

## **End of Day Check List**

- Hand Brake Set: \_\_\_\_\_
- Chain Properly set: \_\_\_\_\_ (401)
- Air Tank Drained: \_\_\_\_\_
- Power switch shut off \_\_\_\_\_ (McKeen)

Person Filing Report: \_\_\_\_\_

Motorman: \_\_\_\_\_

Conductor: \_\_\_\_\_

# ADDITIONAL INFORMATION FOR MOTORMAN/CONDUCTOR

## ELECTRONIC DEVICES

The Federal Railroad Administration has issued Emergency Order #26 regarding the use of electronic devices by train operating crews while on duty. Though our operation is not governed under rules of the FRA, adoption of this rule enhances safety of crews and passengers and as such is made part of our operating rules. This is 49 CFR Part 220.305, Use of Personal Electronic Devices.

- A) These rules are effective when on a moving train, when duty requires any crewmember to be on the ground, when a crewmember is riding rolling equipment during a switching operation and when any other employee of the railroad is assisting with the preparation of the train.
- B) Hearing aids and digital watches are permitted.
- C) Personal electronic/electrical devices must be **turned off** with any earpiece removed from the ear. This includes, but is not limited to, cell phones, audio players and video players.
- D) Exceptions:
  - 1. In the event of an emergency or other problem the Conductor or his designee may use a cell phone to contact Emergency Services or museum staff. This cell phone should remain on but is to be for duty use only.
  - 2. These devices may be used while on a designated lunch break.
  - 3. If it does not interfere with the performance of their other duties crew members may take pictures using a digital camera.
  - 4. These devices may be used if all crew members have been notified that operations have been suspended.
- E) The Nevada State Railroad Museum does not supply any electronic/electrical devices for use during train operations.

## BUILDING SECURITY

All buildings on the NSRM property must be secure at the end of each day.

- A) It is the responsibility of Museum Staff to lock the doors on the public restrooms as well as to close and lock the doors and activate the alarm at the Interpretive Center.
- B) Before the last run the Conductor will ensure that the wheelchair lift is put away and that all doors and windows at the Wabuska Depot are securely fastened and locked. Generally, Museum Staff will be the last to leave the depot and will lock the doors and windows, but a member of the Motorcar Crew must check that this has been done.
- C) The Conductor will ensure that the Annex Building is secure.

1. The Turntable must be secured and padlocked when switching moves are complete.
2. All overhead doors must be closed and the chain which operates each door secured with a keeper.
3. The gate inside the building that separates the public area from the non-public area is to be closed, and if possible, latched.
4. Check that the doors to the Archive Office area are closed and locked.

## **STANDARD CLOCK**

The Standard Clock is in the Restoration Shop. This railroad runs at Pacific Time. The Standard Clock is set automatically via radio signal several times a day. You should adjust your watch to be within one minute of the Standard Clock. Conductors and Motormen should check their watches with one another as well as with the Standard Clock. Use of a digital watch is permitted.

## **OPERATING THE WHEELCHAIR LIFT**

- A) The wheelchair lift is stored behind the door at the top of the ramp on the south end of the Wabuska Depot. The door will need to be unlocked.
- B) When the lift is needed, roll it down the ramp and position it opposite the side door of the Motorcar.
- C) Follow the directions printed on the lift itself. Be sure that the lift is located as closely as possible to the center of the opening on the car.
- D) Call on other crew members to aid the passenger safely onto and off the lift. Remember that the lift will be used to help the passenger to detrain as well.
- E) During the operating day, the wheelchair lift may be stored on the depot platform.

## **EMERGENCIES**

**For all emergencies, it is the responsibility of the Conductor to determine the nature and severity of the emergency, to determine whether to call 9-1-1, to direct train crew actions, and to contact and coordinate with the Nevada State Railroad Museum staff and Emergency Services as needed.**

## **PROCEDURES**

A current copy of the Emergency Response Procedures should be always available. These procedures are intended to be strong guidelines but be sure that common sense is used to interpret the intent of these procedures.

To aid in the interpretations, keep in mind that the order of priorities is:

- 1) Safety of Passengers and Crew first;
- 2) Equipment and railroad property second.

**Emergency Responses** are divided into six general categories:

- 1) Medical emergencies
- 2) Fire (smoke)
- 3) Uncooperative passengers

- 4) Obstruction problems
- 5) Mechanical problems
- 6) Observed (from the train) problems

**Know where a Fire Extinguisher is at all times.**

**Know where a First Aid Kit is at all times.**

There should be a Fire Extinguisher and a First Aid Kit in the Motorcar and in the Freight House area of the depot as well as in the Annex. Check for them each day.

**CONTACTING EMERGENCY SERVICES**

Prior to the first run, the Conductor must determine the location of a telephone to be used for emergency calls. If the Conductor does not have a cell phone, it may be necessary to borrow one from a crew member if he needs to contact Emergency Services.

**EXCEPTIONS**

All the above describe the regular activities of an ordinary day's operation. **There is never an ordinary day's operation.** Be prepared for changes in your work necessitated by safety concerns, a different routine (such as Santa Train, McKean Car or night operation), differing equipment or the needs of the museum.

**BE FLEXIBLE**  
**BE SAFE**

**FREQUENTLY ASKED QUESTIONS**

- Q. Where are the restrooms?  
A. The restrooms are in the yellow building next to the parking lot and just south of the grade crossing. More restrooms are available in the Museum Interpretive Center.
- Q. Where do you get tickets?  
A. Tickets are available at the window in the Waiting Room at the north end of the Wabuska Depot or at the front desk of the Museum.
- Q. Did the V & T Railroad go to Truckee, California?  
A. The Virginia and Truckee Railroad went from Virginia City (home of the Comstock Lode) to Carson City and north to the Truckee River (where Reno is located) and there connected to the Transcontinental Railroad. It did not go to Truckee, California. The V & T did have a branch that went to Minden to tap into the agricultural riches of the Carson Valley. That branch was built early in the Twentieth Century.
- Q. Is this the train to Virginia City?  
A. NO!

## REFERENCES FOR FURTHER INFORMATION

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## CONTACT NUMBERS

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Museum Store	– (775) 687-6953 Ext.-237	
Restoration Shop, NSRM	– (775) 687-6953 Ext.-225	
Steve Schlaifer, Motor Car Crew Chief	– (626) 497-8547	– <a href="mailto:motorchiefnsrm@gmail.com">motorchiefnsrm@gmail.com</a>
Kevin Owens, Restoration Specialist		– <a href="mailto:kaowens@nevadaculture.org">kaowens@nevadaculture.org</a>
Rick Kohler, Steam Train Crew Chief	– (775) 721-3564	– <a href="mailto:choochookohler@gmail.com">choochookohler@gmail.com</a>

Friend’s website – [www.nsrn-friends.org](http://www.nsrn-friends.org)

## CREDITS

The “Motorcar Training Program” was developed by members of the *Friends of the Nevada State Railroad Museum*.

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(Carson City)

The Nevada State Railroad Museum is an agency of the Division of Museums and History, of the Nevada Department of Tourism and Cultural Affairs.



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