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Canadian Pacific 4-6-4 Empress Steam Locomotive Owner's Manual (2-Rail & 3-Rail models)

Thank you for purchasing this brass steam locomotive. Our 1/4" scale brass reproduction is highly detailed and designed for years of operation on your O Scale pike. Weaver steam locomotives are completely compatible with most other O Scale engines, rolling stock, and accessories. Refer to this manual for information about your 2-Rail and 3-Rail Weaver Canadian Pacific 4-6-4 Empress.

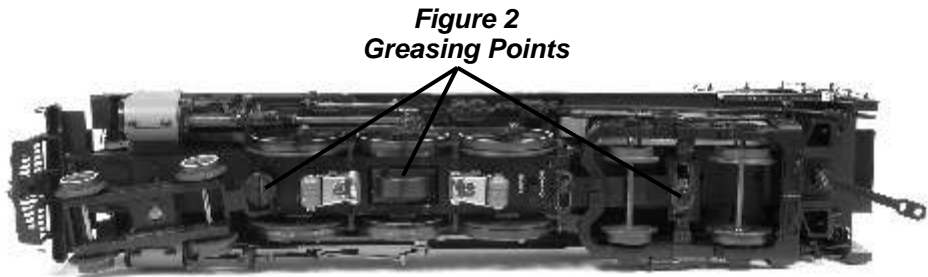
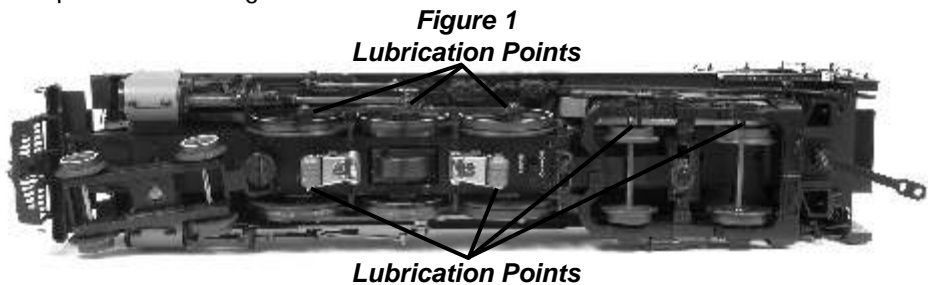
Traction Tires

Two of the drive wheels of this locomotive are equipped with traction tires. These traction tires provide for maximum pulling capability of your locomotive. An extra set of traction tires is included with your engine (3-Rail models only).

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Before You Use Your Engine

This brass steam locomotive is tested and greased before leaving the factory and is ready-to-run on your layout. However, it is recommended that all moving parts on this engine be lubricated lightly upon the first initial use and after a heavy or extended period of use, in order to enhance performance. For specific lubrication points please refer to Figure 1.



Maintaining Your Engine

As with all our Weaver steam engines, this locomotive is designed so that very little maintenance is required from the owner. It is recommended that all moving parts (side rod linkages and axles) be oiled after 25 hours of operation. On heavily used engines, bearing grease (or a similar lubricant) should be added to the gearbox. For specific greasing points, please refer to Figure 2.

Tether Instructions

Your brass locomotive is equipped with a flexible tether between the locomotive and tender. This tether is polarized and will only plug in, in one direction. You **MUST** plug the tether, from the tender, into the plug on the back of the locomotive for your locomotive to function properly.

2-Rail Without Sound Locomotive Instructions

2-Rail locomotives come ready to run and are designed so that very little maintenance is required by the owner. Each 2-Rail engine is made to only run on a conventional DC transformer and requires a 36 inch radius for your track. This locomotive is equipped with directional headlights. Please refer to the "Before You Use Your Engine" section of this manual for lubrication points on your locomotive. For maintenance information please refer to the "Maintaining Your Engine" section of this manual. Also, please be sure to carefully read the "Tether Instructions" above before you run your locomotive. For all repairs, please be sure to contact one of our technicians for service. Improper disassembly could void the warranty for this item. If you need any assistance with your 2-Rail without sound locomotive, our technicians are available Monday through Friday, 8:00 AM to 4:30 PM.

Smoke Unit Instructions

This engine is equipped with a TAsudios fan driven Turbo Smoke unit and is wired with an ON/OFF switch located on the bottom of the locomotive, between the rear drive wheels. If you decide not to use the smoke unit, then the ON/OFF switch should be in the OFF position. While the smoke unit has an overheating protection circuit incorporated, we recommend turning the smoke unit off by the switch if you do not plan on using this feature. To add fluid, simply place about 10-20 drops of smoke fluid (provided with your locomotive) into the smoke stack. After adding the smoke fluid gently blow down the stack to remove any fluid blocking the stack. Apply power to your track (approximately 12-16 volts) and after several seconds the smoke unit will begin to smoke, then operate as usual. The smoke unit requires approximately 12 Volts on the track to generate a decent amount of smoke. Operation under 12 Volts will result in poor smoke unit performance. Never apply more than 10-20 drops of fluid to your smoke unit, as it will overfill the chamber and degrade the smoke unit's performance.

Lionel® RailSounds®

All of our sound equipped engines are equipped with the industry's premier operating control system; TrainMaster® Command Control and Railsounds 4.0™, the industry leader in sound system technology. This system will operate with a conventional AC transformer, but some sound features such as coupler sound, steam release sounds, volume control, TowerCom, and crew talk will not function without the Cab-1 remote and command base.

3-Rail With Sound (non-command operation)

This locomotive, running in a non-command mode, will have steam engine chuff sounds, and also steam whistle and bell. Virtually any alternating current (AC)

transformer is suitable to operate your locomotive. To access the whistle and bell features your transformer will need to have both a whistle and bell activation button.

NOTE: Do not power your locomotive with direct current (DC). Damage to electronic components will occur and may void your warranty.

A 9-volt battery is only necessary when the engine is to be used with a conventional transformer in a non-command mode such as the QW, TW, KW, etc. This will enable the locomotive to maintain uninterrupted sound when the voltage drops below 8 volts. To install the battery, remove the four tender body screws, one at each corner of the tender floor. Remove the four screws from the bottom of the floor and the body shell will then remove easily. You will find a 9 Volt battery connector end among the wires. Install the battery, place the installed battery in the bracket provided in the tender, place the shell back on the floor, and reinstall the screws.

When you first power up your track, the engine will wait 3 to 8 seconds as it "listens" for the digital language from the TrainMaster® Command Base (sold separately). When it's determined that it's on a conventional (non-command) railroad, the headlight will illuminate solidly and RailSounds® will fire up. At this point the engine is in neutral. (This occurs when placing the locomotive on your railroad for the first time. Thereafter, it starts in forward after every three-second power interrupt).

The e-unit in your locomotive alternates between three states: forward, neutral, and reverse. You may deactivate the operation of the e-unit by moving the "Program/Run" switch to the "Program" position. This will put your locomotive in a Forward lock out operating state. This will allow your engine to only run in one direction regardless of power interruptions.

TrainMaster® Command Operations

Lionel® TrainMaster® Command is the advanced model railroad control system from Lionel®. Your steam locomotive is equipped with the Lionel® Command Receiver (R2LC), EOB® Speed Control and Railsounds 4.0®. TrainMaster® Command gives you the power to operate multiple Command equipped locomotives on the same track, at the same time. To operate in Command mode, you need a Trainmaster® Command Base and a CAB-1 Remote Controller®. These can be purchased from your train retailer as Lionel part number 6-12969.

Place your engine on the track. Make sure track power is OFF before placing the engine on the track. Make sure your Lionel® Command Base is ON and its communications wire is connected to the COMMON post on your transformer. Once positioned on the track, increase track voltage to FULL (approximately 18 VAC).

Address your steam engine using the CAB-1 Remote Controller®. Press ENG and 1 on the numeric keypad of your CAB-1 Remote®. This command is sent by the CAB-1 Remote® to the Command Base, which then translates your command into a digital code. That code is sent around your railroad's outside rails in the form of a digital "halo". All command equipped engines listen to this digital communication, but they do not respond until they hear their individual ID number - in this case, 1. The digital language of TrainMaster® Command - and not track power - controls the actions of command equipped engines.

All command equipped engines come factory programmed with an ID# of 1. See page 6 for information on changing this ID#.

Throttle up or press any command button on the CAB-1 Remote®. Your engine will respond to every command. CAB-1 Remote Controller® Commands

CAB-1 Remote® Control Commands

Press AUX1 to activate numeric keypad



Press AUX2 to turn headlight on and off



Couple F/R buttons will release coupler and produce coupler release sounds.



Press HALT to shut down all Powermaster® electrical outlets on your railroad. Stops all Command equipped engines in operation.



Turn the THROTTLE to the right to accelerate, left to decelerate.



Press WSTL/HRN to activate whistle. Release it to discontinue.



Press BELL once to activate the bell, again to discontinue.



Press DIR - the locomotive decelerates to a complete stop; turn the throttle up, and the locomotive will accelerate in the new, opposite direction. There is no neutral state.



Press and hold BOOST for extra power. Release BOOST and return to the engine's previous speed.



Press and hold BRAKE to slow down or stop. Release BRAKE and return to previous speed.

CAB-1 Remote® Numeric Keypad Commands

When you press the AUX1 on CAB-1 Remote Controller®, you turn the numeric keypad into 10 command buttons. The keypad lets you control extra command features (until you press any top row button).

- 0 Stops and resets the steam locomotive to forward.
- 1 Raises the volume of RailSounds®.
- 2 CrewTalk™ is the sound of inaudible walkie talkie communication.
- 3 Starts up RailSounds®. Startup sequence commences. Steam blowoff sound.
- 4 Lowers the volume of RailSounds®.
- 5 Activates the RailSounds® shutdown sequence. Remember, the whistle and bell will not sound until you restart RailSounds® (AUX1 + 3).
- 6 Steam release sound.
- 7 TowerCom™ is an audible announcement from the tower.
- 8 Turns the smoke unit off.
- 9 Turns the smoke unit on.

Braking and Boosting

There's more to starting and stopping than just turning the CAB-1 Remote Controller® throttle. Use the BOOST and BRAKE command buttons - they give you incremental control of speed and are the superior way to handle grades, gradual stops-and-starts and more. Plus, using BRAKE in the Command environment gives you a bonus RailSounds® effect - the realistic sound of squealing brakes.

Assigning Your Locomotive A New ID#

As your fleet of command-equipped engines grows, new engines require a different ID#. Choose from any number between 2 and 99. Remember, all command equipped engines ship as ID#1.

We recommend that you choose an easy to remember ID# for your engine. Some possibilities are part of the engine road number, your age, or any two-digit number that is not used by another engine. If you like, write the number on a small piece of tape and put this on the bottom of the engine chassis to aid in remembering.

Step 1: Slide the PROGRAM / RUN switch to PROGRAM.

Step 2: Turn the Command Base ON and set the engine on the track. Power up the track power to 18 VAC.

Step 3: Press ENG and new ID#.

Step 4: Press SET located under the removable cover.

Step 5: See the headlight flash and hear the horn blow; that's your signal that programming has been accepted.

Step 6: Now press AUX1 and 8. (This sets the smoke unit output on the receiver.)

Step 7: Set the PROGRAM / RUN switch to RUN.

Your engine remembers its ID# forever, change it any time with these steps.

EOB Speed Control Operating Instructions

Your locomotive is equipped with TrainAmerica Studios EOB® Speed Control to provide the best in operating realism. EOB is a constant speed control system designed to maintain a constant speed regardless of track conditions, load or grade. EOB offers 3 different modes of operation when using the Trainmaster® Command operating system. These modes are 32 speed steps, cruise on (programmed in this mode from the factory), 128 speed steps, cruise on and 32 speed steps, cruise off. In addition to these different speed steps you can also change the chuff rate of your locomotive on the fly! EOB uses its own set of Cab-1 Remote® keys to change these settings. Please see the instructions below for detailed information.

32 Speed step mode, Cruise On

This mode is used to perform lashups with Lionel® Odyssey® equipped locomotives. It provides 32 speed steps from a dead stop to full speed. All commands from the Cab-1® work the same as any other command equipped locomotive. To access the 32 speed step feature you can use the following key sequence on the Cab-1® remote.

ENG + ID Number + DIR + AUX1 + AUX1 + AUX1 + 1

The whistle will blow after the 3rd AUX1 and again after 1. These whistles are to verify the locomotive took the commands you sent. Your locomotive is programmed in the 32 speed step mode, cruise on from the factory.

128 Speed step mode, Cruise On

This mode is used to provide finer control of your locomotive's speed and for lashups with other EOB equipped locomotives. It provides 128 speed steps from a dead stop to full speed. The keys on the Cab-1® remote will work slightly different from what you may be accustomed to. The Boost key increases the speed steps one at a time. The Brake key decreases the speed steps one at a time (holding the Brake key down in the 128 mode will NOT yield the squealing brake sounds). Turning the red thumbwheel on the Cab-1® clockwise will increase the speed steps two at a time, counter-clockwise will decrease the steps four at a time. These new keys may take some time to get used to, but will prove to be very effect in operating your locomotive. To access the 128 speed step feature you can use the following sequence on the Cab-1® remote.

ENG + ID Number + DIR + AUX1 + AUX1 + AUX1 + 2

The whistle will blow after the 3rd AUX1 and again after 2. These whistles are to verify the locomotive took the commands you sent.

32 Speed step mode, cruise off

This mode is used to provide lashup compatibility with non cruise equipped locomotives. For example, command equipped locomotives without cruise control such as AC motored locomotives or pre-cruise control command engines. By turning cruise off the locomotive will NOT maintain a constant speed on tight curves, grades, etc. To access the cruise off mode you can use the following sequence on the Cab-1® remote.

ENG + ID Number + DIR + AUX1 + AUX1 + AUX1 + 3

The whistle will blow after the 3rd AUX1 and again after 3. These whistles are to verify the locomotive took the commands you sent.

Changing the Chuff Rate of your locomotive

Another cool feature of EOB is that you can change the exhaust chuff sound on your locomotive. Real locomotives have a total of four exhaust chuffs per revolution of the drivers. EOB allows you to change this rate while the locomotive is at idle or on the fly. Your locomotive is shipped from the factory with 4 chuffs per revolution. If this is too many chuffs per revolution you can change it by simply pressing the following sequence on the Cab-1® remote.

ENG + ID Number + AUX1 + AUX1 + 5

The locomotive will echo the number of chuffs per revolution in the whistle. For instance, one whistle equals one chuff per revolution, two whistles equals two chuffs and four whistles equals four chuffs pre revolution. The cycle is endless, if you do not like the chuff rate simply press the sequence above to change the rate of chuff until you achieve the affect you like.

Lashing up EOB equipped locomotives

EOB or Engineer On Board was designed to operate in a lashup. The technology inside EOB is such that it automatically adapts to the speed of whatever locomotive it is coupled to. The most important thing to remember is that an EOB equipped locomotive must be set in the same speed step mode as whatever locomotive you are coupling it to. For instance, if you plan to lashup an EOB

locomotive with a non-cruise equipped locomotive you must switch EOB to the 32 speed step mode, cruise off. If you plan to lashup with a Lionel® Odyssey® equipped locomotive you must set EOB to the 32 speed step mode, cruise on, etc. The speed steps in EOB must match the speed steps in the locomotive you are coupling it to. The performance is unbelievable! Give it a try.

EOB Momentum

EOB is designed with a built in momentum. This momentum is to avoid EOB from jerking cars off the track at start up. If it seems like your locomotive is taking its time to get moving, that's because it is. Do not panic! This feature is embedded in EOB.

Reprogramming LCRU Circuit Boards To Restore Features

Due to the inevitable derailments, static and the nature of electricity, it is possible that your LCRU could someday lose its setup program. The symptoms of this condition would be unresponsiveness in command mode. This can easily be remedied by "reprogramming" your LCRU using the following steps.

Step 1: Move switch on locomotive from RUN to PROGRAM.

Step 2: Turn on Command Base.

Step 3: Place locomotive on track, then turn on power to track.

Step 4: Press ENG, then input locomotive ID#. Press SET.

Step 5: Press ENG, then the ID#, AUX1 then press 43.

Step 6: Turn off power to track, wait ten seconds.

Step 7: Remove locomotive from track, move switch from PROGRAM to RUN.

Step 8: Place locomotive back on track, turn power on to the track.

Step 9: Press ENG and ID#, then operate normally.

Service And Warranty Information

This item is warranted for one year from the date of purchase. We will repair or replace (at our option) the defective part without charge for parts or labor, if the item is returned in the manner listed below within one year of the original date of purchase. This warranty does not cover items that have been abused or damaged by careless handling. Transportation costs incurred by the customer are not covered under this warranty.

For warranty repair, DO NOT return your product to the place of purchase. Instead, follow the instructions below to obtain warranty service as our dealer network is not prepared to service the product under the terms of this warranty.

1. First: WRITE, CALL or FAX Weaver Models, PO Box 231, 315 Point

Township Drive, Northumberland, PA 17857, 570-473-9434 (FAX #570-473-3293), requesting a Return Authorization Number and stating when the unit was purchased and a description of the problem.

2. CAUTION: Make sure the product is packed in its original factory packaging including its foam and plastic wrapping material so as to prevent damage during shipping. The shipment must be prepaid and we recommend that it be insured. A cover letter, including you name, address, daytime phone number and a full description of the problem MUST be included to facilitate the repairs. Please include the description regardless of whether you discussed the problem with one of our service technicians when contacting Weaver Models.

3. Please make sure you have followed the instructions carefully before returning any merchandise for service.