



**USRA Light Pacific  
4-6-2  
Steam Locomotive  
Owner's Manual  
(2-Rail & 3-Rail Models)**



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Thank you for purchasing this Weaver USRA Light Pacific Steamer. Our 1/4" scale die cast 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 USRA Light Pacific Steamer.

Please note this instruction sheet is for a variety of engines that may include different features. Read this instruction manual thoroughly for important tips on operating and maintaining your locomotive. When properly cared for, it will last a lifetime.

### **Traction Tires**

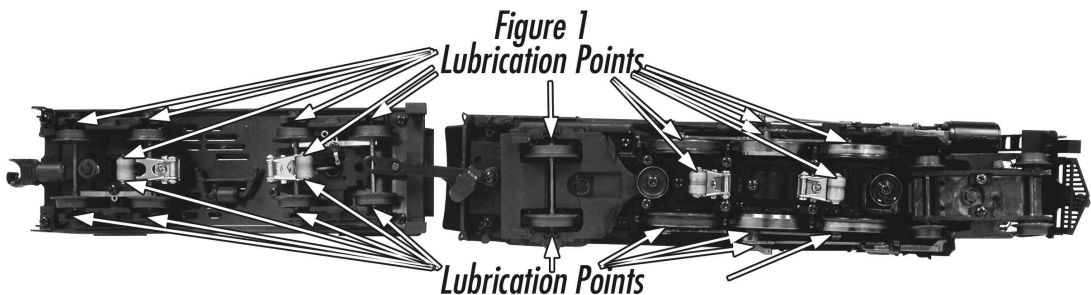
Two of the drive wheels of this locomotive are equipped with traction tires. These traction tires provide for maximum pulling capability of your locomotive. An extra set of traction tires is included with your engine (3-Rail models only).

### **Before You Use Your Engine:**

This 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 are 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 the diagram in 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.



### 3-Rail Without Sound (non command mode)

All 3-Rail non sound steam engines contain an electronic reversing unit (e-unit). The operation of the e-unit is as follows: Each time the power to the locomotive is interrupted, the e-unit changes states. This can be done by moving the transformer control to the off position, or pushing the direction button on your transformer (if the transformer is equipped with a direction button). The sequence of operation is neutral-forward-neutral-reverse. All 3-Rail without sound engines can be upgraded to RailSounds® and TrainMaster® Command Control. Weaver Models also offers Rail Waves as a sound option which includes a steam whistle and bell sound. Contact us today to upgrade your engine. Rail Waves is your simple sounds solution for your steam locomotive needs.

### Lionel® RailSounds®

All our 3-Rail with sound engines are equipped with RailSounds®, the finest model train sound system available today, and the industry's premier digital operating control system, TrainMaster® Command Control. This system will operate with a non command control transformer, but the additional sound features which include coupler sound, steam release sounds, volume control, tower command, and crew talk will not function without the remote control and command base.

### 3-Rail With Sound (non command mode)

This engine is equipped with RailSounds® and is also TrainMaster® Command Control ready. This steam engine features digital samples from authentic steam locomotives for the ultimate in realism. An engine running in a non command mode will have steam engine chuff sounds, and also steam whistle and bell. Also, listen for incidental locomotive sounds during RailSounds® operation, as they are automatic and authentic. For even more authentic RailSounds® effects, operate in a TrainMaster® Command Control environment. This engine will operate on 7-18 volts alternating current. Virtually any alternating current transformer is suitable to operate your locomotive as well as the Lionel® TrainMaster® Command Control system.

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

A 9-volt battery is only necessary when the engine is to be used with a conventional transformer 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, there are 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 reinstalling the screws, be sure to place each screw's washer between the head of the screw and the tender floor.

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 headlights will illuminate 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 "Full - Signal" switch to the "Signal" position. This will put your locomotive in a Forward lock out operating state. This will allow your engine to only run in the Forward position.

### TrainMaster® Command Operations

Lionel® TrainMaster® Command is the advanced model railroad control system from Lionel®. Your steam locomotive is equipped with the Lionel® Command reverse unit and an LCRX for digital RailSounds® control. 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 Command Base and a CAB-1® Remote Controller. These can be purchased from your train retailer.

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 or the U on any of your installed Powermaster®. Once positioned on the track, increase track voltage to FULL (on Powermaster®, slide the CMD/CONV switch to CMD).

Address your steam engine using the CAB-1® Remote Controller. Press ENG and 1 on the numeric keypad of your CAB-1® Remote Controller. This command is sent by the CAB-1® Remote Controller to the Command Base, which then translates your command into 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 pages 4& 5 for information on changing this ID#.

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

## TrainMaster® Command Operations (Continued)

command equipped engine comes factory programmed with an ID# of 1. To get your locomotive in action, set Powermaster® to CMD or set all power supplies on full. Press ENG and 1 on CAB-1® Remote Controller. Turn the throttle or press any command button; your engine is ready for command operations.

### CAB-1® Remote Controller 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 Controller 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. Whistle blows. Headlight flickers.

**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. Just like the real thing, your steam locomotive must be at idle for shutdown to occur. Steam shutdown commences. Remember, the whistle and bell will not sound until you restart RailSounds®.

**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.

## Tuning Your Locomotive's Performance Momentum

TrainMaster® Command's momentum feature simulates the labored performance of a locomotive pulling a heavy load. Press L,M, or H (located under the CAB-1® Remote Controller's removable panel) for light, medium, or heavy momentum. The LCRU2 remembers the setting until you change it. For delayed response, use H. For quick response use L.

## 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.

## Stall

Make your locomotive feel more responsive by setting a stall voltage. Get your locomotive moving, then press SET; the engine will stop. Turn the throttle clockwise to get the locomotive moving, then decrease the speed until the locomotive just stops. Then press SET again; the LCRU2 remembers the stall setting until you change it. To clear stall, press SET twice, holding it for one second each time.

## Cruise Control

This engine is equipped with K-LINE Cruise Control, an innovative feature that continually measures the speed of the engine and adjusts the motor power to compensate for changes in grade. With the Cruise Control active, the engine will maintain a nearly constant speed up and down hills, through switches and around curves.

When operating with conventional transformer control, the locomotive will speed up as the track voltage is increased, but not all the track power is sent directly to the motors. A portion is reserved and used only when more power is needed, as when climbing a hill. Simply set the transformer throttle so the train is moving the desired speed, and the Cruise Control will maintain that speed. You will notice that the engine will require more voltage to start moving. This is normal.

Operating Consists: When running a Cruise Control equipped engine in a consist with other engines, it may be desirable to turn off the Cruise Control feature. In conventional transformer control, the Cruise Control feature can be disabled by moving the "Cruise ON/OFF" switch, located under the engine, to the "OFF" position. The feature can be turned back on by placing the switch in the "ON" position. The switch should only be moved when track power is off.

When operating with TrainMaster® Command Control, simply set the desired speed using the CAB-1® remote, and the locomotive will maintain that speed. For best results, the track voltage should be set to around 18 volts. There are some special commands that are used to make the unique Cruise Control features function with the Trainmaster® system. The number of speed steps can be adjusted by pressing the following sequence on the CAB-1®: DIR, BELL, AUX1, then either 1, 2 or 3. Each button should be held for one full second. This sets the number of steps between stopped and full speed. Press the Bell button again to turn off the bell.

### Setting Speed Steps

**32 Steps:** DIR, BELL, AUX1, 1 (factory setting)

**128 Steps:** DIR, BELL, AUX1, 2

**256 Steps:** DIR, BELL, AUX1, 3

The 32 step setting is best for doubleheading with other TMCC® engines. The 128 setting is best for normal operation, and the 256 setting is used for ultra precise speed setting. Note that when rotated slowly, each revolution of the CAB-1® throttle is equivalent to 30 speed steps, so changing the speed step setting will change the number of times the throttle has to be rotated to get full speed.

In the TMCC® Mode, while the Cruise Control feature is disabled, the "stall speed" can be set by getting the engine moving, slowing the engine until it just stops, then pressing F, AUX1, F, AUX1. To remove the stall setting, press DIR, then press F, AUX1, F, AUX1. Setting the stall speed of all engines in a consist will make them all start at the same time. Cruise Control Equipped engines cannot be programmed from the CAB-1® to run reversed in a consist.

## Smoke

For the first fill with smoke fluid, use between 10 to 15 drops of smoke fluid. Use about 5 drops in subsequent uses. Add directly to the smoke stack. Be sure the fluid goes down the chimney tube.

It is very important to keep the heater element wet with some fluid. If the aroma changes from smoke to a slight burning smell, this is a sign the smoke fluid is running low. This could cause failure of the heater element.

Turn the smoke unit on and off using the slide switch under the engine. Switch to the off position if the locomotive is run at lower voltage and the smoke output will be low. To increase the smoke output, add more cars to the train, thereby increasing the voltage needed to run the train.

## Assigning Your Locomotive A New ID#

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

### Assigning Your Locomotive A New ID# (Continued)

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: Turn the Command Base ON and set the engine on the track.

Step 2: Power up, then slide the PROGRAM / RUN switch to PROGRAM.

Step 3: Turn track power on (Powermaster®).

Step 4: Press BOOST.

Step 5: Press ENG and new ID#.

Step 6: Press SET located under the removable cover.

Step 7: See the headlight flash and hear the horn blow; that's your signal that programming has been accepted.

Step 8: Set the PROGRAM / RUN switch to RUN.

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

### 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.

### Notes on RailSounds®

Insert a screwdriver into the volume control knob on the underside of the tender or under the water hatch and turn slowly to adjust sound output. Do NOT force.

Listen for incidental locomotive sound during RailSounds® operation. They're automatic and authentic. The 9-volt alkaline battery you installed ensures continuous engine sounds, even during short track-power interrupts. Longer track-power interruptions (including derailments) cause RailSounds® to shut down after 7 seconds. For even more authentic RailSounds® effects, operate in TrainMaster® Command environment.

### 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. Any package arriving without a RA# clearly displayed on the outside of the package will be refused by Weaver Models.**

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