Lionel 4-6-4 Hudson & 4-6-2 Pacific Steam Locomotive Owner’s Manual

Command Control and RailSounds Equipped
Congratulations!

You purchased a tough, durable and legendary locomotive—the Lionel Command Control and RailSounds equipped Hudson or Pacific steam locomotive. From the crisp die-cast detail and the authentic decoration outside to the advanced technology and brute power within the boiler, your steam locomotive is ready for duty on your model railroad. Experience the superiority of today’s Lionel.

Facts about this instruction sheet

Due to the similarity in components and features between Lionels new Hudson and Pacific engines, we have placed them together on one instruction sheet. The care and maintenance for both these engines is almost the same. Where there are any differences we will let you know with a note, enjoy.

Features found on both locomotives

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<th>• R2LC radio unit for use with the Lionel TrainMaster® Command™ model railroad control system</th>
<th>• Railsounds™ steam sound system—digital samples from a real steam locomotive</th>
<th>• Die-cast Electrocoupler™ (rear of tender)</th>
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<td>• Powerful flywheel equipped can motor</td>
<td>• Smoke generator that produces clean, safe, and realistic smoke</td>
<td>• CrewTalk™ and TowerCom™</td>
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<td>• Die-cast cab and tender body</td>
<td>• Brilliant headlight and rear light on tender (directional)</td>
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NOTE: The locomotive is equipped with a powerful can motor and traction tires. It is designed to safely pull up to 20 cars. While the engine will pull more cars, this will degrade performance and may damage the engine.
Transformer operations

Running your steam locomotive with a Lionel transformer

1 Place your steam locomotive on Lionel or Lionel-compatible O gauge track.
   • With track power OFF, connect the locomotive tether between the engine and tender. The four-pin tender plug connects with the four-pin receptacle on the locomotive. Connect the drawbar between locomotive and tender.
   • The engine tether receptacle is “keyed” to allow the harness to be plugged in only one way.

2 Power up your steam locomotive with your transformer.
   • Your locomotive is designed to operate on 10-16 volts alternating current. Virtually all Lionel and Lionel-compatible alternating-current transformers are suitable.
   • Do not power your locomotive with direct current (DC). Damage to sensitive electronic components may occur.
   • When you first power up your track, your locomotive’s headlights will illuminate. At this point, the locomotive is in neutral. When your train is first powered up, the default state will be neutral and the default direction is forward. This means whenever you power up your engine the engine will remain in neutral, and when the power is removed and again applied, the train will move forward. This condition holds true if the engine is being powered up for the first time or if the engine has been powered down longer than five seconds.

3 Move ‘em out!
   • Get your locomotive moving. Press the DIR button on your CAB-1 remote or Lionel transformer. This sequences the Lionel 103 E reverse unit to the next operating state. The 103 E unit alternates between three states: forward, neutral, and reverse.
   • Adjust track voltage until your locomotive moves at your desired speed. To increase speed, increase track voltage. To decrease speed, reduce voltage. To stop the locomotive, cut track power.
   • See table on page 6 for information on locking your locomotive in a single operating state
Tire-Traction™

Your locomotive is equipped with Tire-Traction. This means that two of the drive wheels are fitted with rubber traction tires to enhance tractive effort so your locomotive can pull many cars at once.

Lionel locomotives with Tire-Traction grip the track, enabling them to pull heavy loads at higher speeds. Lionel has provided an extra set of traction tires to replace the installed traction tires if they wear out. Simply unscrew the drive rod nut from the wheel and slip off the old traction tire and remove it from under the drive rod. Place the new one on the wheel in the reverse of this step and tighten the drive rod nut back up and your ready to pull that long freight back to the yard.
Your locomotive’s 103 E Reverse unit

The New E-Series Reversing Unit controls the direction of the engine. When the reversing unit senses an interruption in track power, it will cycle into the next direction in the sequence. The sequence is neutral, forward, neutral, reverse... Track power interruptions are created using the direction control on your transformer or Cab-1, or by turning the throttle to zero.

When power is first applied (or after a 5 second power interruption), the engine will power up in neutral, always before forward. A single press of the direction button will set your engine in forward motion. This will help eliminate unexpected start ups, derailments, and crashes. Listed in the table below is the direction sequence pattern that your 103E unit will follow under the given conditions.

As always, a lockout switch is included to deactivate the 103 E’s sequencing function. (for switch location see illustration below) A new feature is that now you will have a neutral available even when the reversing unit is “off”. In addition, you no longer have to slow the engine by hand to turn off the reversing unit while the train is moving. Simply stop the engine, and throw the switch. The 103 E unit will be locked into its last moving direction, plus neutral. Even simpler, just put the switch in the “PROG” position and keep power off for 5 seconds. When you start, you will be locked in neutral/forward. Otherwise, your “reverse” lock will become a “forward” lock after any 5 second power off.

NOTE: Due to limitations of the electronic components, it is hard to predict how each engine will function when power is interrupted between 2.5 seconds and 5 seconds. Engines will function either as in case #1 or case #2. This solely depends on the tolerances of the installed electronics and is not affected or caused by your power supply.

Summary Table of Engine Directions

<table>
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<th>Condition</th>
<th>Direction Change Cycle</th>
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<tr>
<td>Case #1: First power up or without power longer than 5 sec.</td>
<td>N, F, N, F, etc.</td>
</tr>
<tr>
<td>E unit off (switch in PROG position)</td>
<td>N, F, N, R, etc.</td>
</tr>
<tr>
<td>E unit on (switch in RUN position)</td>
<td></td>
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</table>

Case #2: Engine without power for less than 2.5 seconds

| E unit off (switch in PROG position) | N, Last-Dir, N, Last-Dir, etc. |
| E unit on (switch in RUN position)   | N, F, N, R, etc.               |

With your 103 E reversing unit, positioning the switch in the PROG position locks your engine into its last moving direction plus neutral. Positioning the switch in the RUN position resumes normal sequencing operation.
**Your locomotive’s Railsounds system— the basics**

Lionel Railsounds is the most realistic model railroad sound system in the world. Your locomotive Railsounds features digital samples for the ultimate in realism.

Begin by installing a 9-volt alkaline battery in your tender. This ensures interruption free operation of Railsounds. Remove the tender body as described on page 15. Connect the 9-volt alkaline battery to the battery clip (remove the protective cover from the battery clip), and place the battery in the holder inside the tender.

Although Railsounds is powered by track voltage, the battery is required for uninterrupted operation and shutdown sequences. Use only alkaline batteries.

When you first apply track power, the locomotive’s Railsounds system delivers an authentic start-up sequence, followed by the sounds of the locomotive at idle. As the locomotive’s speed increases, the chuff rate will increase too.

To silence the steam chuff (horn and bell remain unaffected), slide the Railsounds switch, located underneath the tender, to the SIGNALSOUND position before powering up the locomotive. The switch is located on the side of the tender frame in the middle of the tender.

### Note!

Discontinue locomotive power for 10 seconds before changing the Railsounds/Signalsounds ON/OFF switch position.

If Railsounds “drops out” during track power interrupts (direction change), replace the battery.

### Note!

If Railsounds “drops out” during track power interrupts (including locomotive derailments) cause Railsounds to shut down after about 7 seconds.

### Notes on Railsounds

- The volume control is located on the side of the tender frame in the middle and marked with a + and -. Turn the volume set screw clockwise or counter clockwise to adjust the volume.
- Listen for incidental locomotive sounds during Railsounds operation. They’re automatic and, of course, authentic.
- The 9-volt alkaline battery you installed ensures continuous steam locomotive sounds.
- Longer track-power interruptions (including locomotive derailments) cause Railsounds to shut down after about 7 seconds.
- For even more authentic Railsounds effects, operate in the TrainMaster Command environment.
With Railsounds, you experience the sounds of real railroading like never before. Simply put, it’s the most sophisticated, authentic model railroad sound system in the world.

- **Variable chuff rate.** Your Locomotive’s speed determines the steam chuff rate.
- **MultiWhistle™.** Different whistles every time—a Railsounds exclusive.
- **Authentic bell.** Press BELL on your CAB-1 or transformer to begin the effect, again to discontinue. Even the final “hit” is muted like the real thing.
- **Reverse unit reset sound.** Power down your track, wait for 3-5 seconds, and listen for the air-release sound—that’s the Locomotive telling you its Liontech Command reverse unit has just reset to forward operation.
- **Shutdown sequence.** No other model railroad sound system shuts down like Railsounds. Turn off track power, and after the air-release reset sound, you have two seconds to restart your Locomotive. If you’re done with operations, Railsounds will commence with an authentic steam locomotive shutdown sequence about two seconds after the air-release reset occurs.

**Note!** Battery must be installed for shutdown sequence
Installing the Lionel sound activation button

To operate the bell and whistle sounds when operating your steam locomotive with conventional mode, you’ll need to install the Lionel no. 610-5906-001 sound activation button (available separately). Connect the button(s) as shown below.

For AC transformers with a horn/whistle button

For AC transformers lacking a horn/whistle button

The no. 610-5906-001 button works with any Lionel AC transformer except no. 6-4690 Type MW. Transformers made by other manufacturers may not be compatible with Railsounds.
TrainMaster Command operations

Your steam locomotive in the TrainMaster Command environment

Lionel TrainMaster Command is the fun and sophisticated model railroad control system from Lionel. Your steam locomotive features the Liontech Command reverse unit, which acts as both a conventional reverse unit as well as the key to unlocking many extra features when you operate in Command mode.

TrainMaster Command gives you the power to operate multiple Command-equipped locomotives on the same track, at the same time. It’s the most fun you can have with electric trains, and it’s incredibly easy too! Just follow the directions below and you’ll be on your way.

To operate in Command, you need a Command Base and a CAB-1 remote. Find them both at your authorized Lionel retailer.

1. Place your steam locomotive and tender on Lionel or Lionel compatible O gauge track.
   - Make sure track power is OFF before placing it on track.
   - Make sure your Lionel Command Base is ON and its communications wire is connected to the COMMON post on your Lionel transformer or the U on any of your installed PowerMasters.
   - Once positioned on the track, increase track voltage to FULL (on PowerMaster, slide the CMD/CONV switch to CMD).

2. Address your steam locomotive with CAB-1.
   - Press ENG and 1 on the numeric keypad of your CAB-1 remote. This command is sent by CAB-1 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 Lionels listen to this digital communication, but they do not respond until they hear their own ID number.
   - The digital language of TrainMaster Command—and not track power—controls the actions of Command-equipped Lionels. Track power is simply like gasoline in the tank of your car—it gives you the power to go places, but it doesn’t tell you where to go or how fast to get there.
   - All locomotives come factory-programmed with an ID# of “1.” To change your steam locomotive’s ID#, see page 13.

3. Move ‘em out!
   - Throttle up or press any command button on CAB-1. Your steam locomotive will respond to your every command. Read on. The fun is just beginning!
TrainMaster Command operations

Running your steam locomotive in the TrainMaster Command environment

Your Command Control steam locomotive comes programmed with an ID# of “1.” To get your steam locomotive in action, set PowerMasters to CMD or set all power supplies on full. Press ENG and “1” on CAB-1. Turn the throttle or press any command button; Railsounds starts up. Your steam locomotive is ready for Command operations.

Cab-1 commands for your steam locomotive

Example

address Locomotive #1

PowerMasters set to CMD or traditional power supplies ON FULL

Press ENG

Press 1 (the ID#)

Throttle up/press any command button

CAB-1 commands for your steam locomotive

Press WSTL/HRN to activate the steam locomotive’s whistle, release to discontinue. Multi-whistle steam whistle sound.

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

Press DIR—the locomotive decelerates to a complete stop; turn the throttle up, and the locomotive moves in the opposite direction. There is no neutral. Steam AIR-RELEASE SOUND.

Press and hold BOOST for extra power. Release BOOST and return to the steam locomotive’s previous speed.

Press and hold BRAKE to slow down or stop. Release BRAKE and return to the previous speed. Squealing brake sounds.

NOTE: To stop the engine press AUX1-0
**Railsounds in the Command environment**

Your steam locomotive’s Railsounds system gives you even *more* in the TrainMaster Command environment.

- **Bonus sounds** like squealing brakes with the CAB-1 BRAKE command.
- **Incidental sounds** you control with CAB-1 numeric keypad commands, like steam letoff and steam release effects.

**CAB-1 numeric keypad commands for your steam locomotive**

When you press AUX1 on CAB-1, you turn the numeric keypad into 10 command buttons. The keypad “stays open” and gives you access to extra command features until you press any top-row button (SW, ACC, RTE, TR, or ENG). The CAB-1 keypad overlay included with your steam locomotive is designed to help you learn the auxiliary features specific to this classic locomotive.

**STEAM LOCOMOTIVE RAILSOUNDS EFFECTS IN BOLD ITALIC.**

### CAB-1 keypad overlay included with your steam locomotive

**AUX1**

- **0** Stops and resets the steam locomotive to FORWARD. **WHISTLE BLOWS. HEA**
  
- **1** Raises the volume of Railsounds. **SOUND VOLUME INCREASES.**
  
- **2** CrewTalk™ is the sound of unintelligible walkie-talkie communication.
  
- **3** Starts up Railsounds. **STARTUP SEQUENCE COMMENCES. STEAM BLOWOFF SOUND.**
  
- **4** Lowers the volume of Railsounds. **SOUND VOLUME DECREASES.**
  
- **5** Activates the Railsounds steam shutdown sequence. Just like the real thing, your steam locomotive must be 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 that includes that engine’s road number and/or name. There is a four second delay in this function.**
  
- **8** **TURNS OFF THE SMOKE GENERATOR.**
  
- **9** **TURNS ON THE SMOKE GENERATOR.** Press and hold 9 (10 seconds maximum) to initiate Smoke Boost™—it superheats the smoke generator and enhances smoke output when you start running your steam locomotive. See notes on filling or turning off the smoke generator on page 10.

### Note!

AUX1-9 only works if the smoke unit switch is in the on position.
Tuning your steam locomotive’s performance

**Boosting and Braking**

Use the BOOST and BRAKE command buttons for incremental control of speed and a superior method for handling grades, stops-and-starts, and more. Plus, using BRAKE in the Command environment gives you a bonus Railsounds effect—the ultrarealistic sound of squealing brakes.

**High Voltage Setting**

Press SET, headlight will flash. Get your locomotive moving to the maximum speed you want it to run, press BOOST. Use this to keep your locomotive from excess-speed derailing. Turn off the high voltage setting by pressing SET, then BOOST, holding each for one second.

**Sound Quality**

To achieve your preferred Rail-sounds master volume level, use the volume control dial located on the bottom of the tender. Turn the dial left or right to adjust the volume to your liking.

For quick remote-control of volume below the master setting—like muting—use the CAB-1 numeric keypad’s volume control. Pressing AUX1 and then 4 on the numeric keypad lowers overall Railsounds output.

**Note!**
The high voltage setting will be lost when you assign a new engine ID#s.

Reprogramming R2LC circuit boards to restore features

Due to the inevitable derailments, static, and the negative nature of electricity, it is possible that your R2LC could someday lose its setup program. The symptoms of this condition would be unresponsiveness in command mode. This can be easily remedied by “reprogramming” your R2LC 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’s ID#. Press “SET”

**STEP 5:** Press “ENG”, then the ID#, “AUX1”, then press 43 for your locomotive.

**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 track.

**STEP 9:** Press “ENG” and ID#, then operate as normal.
Assigning your locomotive a new ID#

Example Assign a new ID# to your Command-upgraded locomotive

Command Base ON
Place the locomotive on track
PowerMasters set to CMD or traditional power supplies ON FULL
Set the locomotive reverse unit control switch to PROGRAM

Turn track power on (PowerMasters):

    Press BOOST

Program the locomotive with a new ID#:

    Press ENG
    Press a number you choose (the ID#)
    Press SET

Set the reverse unit control switch to RUN

Your locomotive remembers its ID# forever; change it any time with these steps

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

As your fleet of Command-equipped Lions grows, you’ll want to give your locomotive a more individualized number. Choose from any between 1 and 99. To make things easy, use a portion of your locomotive’s cab number.

Turn the Command Base ON and place the locomotive on track. Power up, then set the locomotive’s reverse unit control switch to PROGRAM (see the illustration). Using CAB-1, press ENG, the locomotive ID# (you select: ?), then press the SET button located under CAB-1’s removable panel. Hear the whistle blow (or see the headlight flash if Railsounds is off); that’s the R2LC confirming the new ID#. Set the reverse unit control switch to RUN. Your locomotive is ready for operations with its all-new ID#.

Set the locomotive’s reverse unit program switch to PROGRAM. When you’ve finished programming the ID#, set the switch to RUN.
Help your Lionel steam locomotive lead a long and productive life on your railroad by maintaining it properly.

We recommend you purchase a Lionel Lubrication and Maintenance Kit (no. 6-62927), available from your Lionel dealer. Two basic rules to keep in mind: never over-lubricate (a small amount will do), and avoid getting grease or oil on the steam locomotive’s wheels, contact rollers, or your track.

You’ll know your steam locomotive requires lubrication when visual inspection reveals dryness on the parts indicated in the illustration. Remove accumulated dirt and dust before lubricating, and always lubricate any locomotive emerging from prolonged storage. Also, lightly lubricate the steam locomotive’s side rods after each 10 hours of operation.

Do not lubricate your locomotive’s electric motor. It has been pretested and all the necessary moving parts have been sufficiently lubricated for life at the factory and should run smoothly for many years to come. If you have any difficulty in the operation of your engine see the Warranty and service section at the end of the instruction sheet for more information.
Replacing your steam locomotive’s lamps

Your steam locomotive is illuminated by two lamps, one is located directly behind the boilerface, the other is behind the motor for the firebox glow. During the course of normal operation, the lamps may require replacement.

Carefully remove the four cab screws (see page 14 for location). Carefully lift the shell away from the frame. Take care with the various wiring assemblies connected to the shell. Find the assembly containing the expired lamp. The front lamp is removed by twisting, then pulling up. Replace it with Lionel part No. 610-8082-009. The firebox lamp is replaced by lifting the bulb up out of the mounting sockets, replace it with Lionel part No. 610-8082-019. Both lamps are available from your Authorized Lionel Service Center or Lionel Service. See the Lionel Service section on page 16 for more information. Reinstall the cab and the four screws taking care to not pinch any wires during reassembly.

Your steam tender is illuminated by one lamp located in the rear of the tender body. During the course of normal operation, the lamp may require replacement.

Carefully remove the four body screws located on the four corners of the frame. Carefully lift the shell away from the frame. Take care with the various wiring assemblies connected to the shell. Find the assembly containing the expired lamp. Remove the bulb and replace it with Lionel part No. 610-8082-029. The lamp is available from your Authorized Lionel Service Center or Lionel Service. See the Lionel Service section on page 16 for more information. Reinstall the tender body and the four screws taking care to not pinch any wires during reassembly.

Note! Press Aux2 to make sure headlamp was not accidently turned off, before replacing bulb
Limited Warranty/Lionel Service

This Lionel product including all mechanical and electrical components, moving parts, motors and structural components, except for light bulbs, is warranted to the original consumer-purchaser, for 1 year against original defects in materials or workmanship when purchased through an authorized Lionel merchant.

This warranty does NOT cover normal wear and tear, light bulbs, defects appearing in the course of commercial use, or damage resulting from abuse or misuse of the product by the purchaser. Transfer of this product by the original consumer-purchaser to another person voids this warranty. Modification of this product voids this warranty.

Any warranted product which is defective in original materials or workmanship and is delivered by the original consumer-purchaser to Lionel L.L.C. or an authorized Lionel L.L.C. service center, together with proof of original purchase, will at the option of Lionel L.L.C. be repaired or replaced, without charge for parts or labor. In the event the defective product cannot be repaired, and a replacement is not available, a refund of the original purchase price will be granted. Any products on which warranty service is sought must be sent freight or postage prepaid, as transportation and shipping charges are not covered by the warranty.

IN NO EVENT SHALL LIONEL L.L.C. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state.

INSTRUCTIONS FOR OBTAINING SERVICE

If service for this Lionel L.L.C. product is required, bring the item, along with your dated sales receipt and completed warranty information to the nearest Authorized Lionel Service Center. Your nearest Lionel Service Center can be found by calling 1-800-4-Lionel, or by contacting our Website @ www.Lionel.com

If you prefer to send it back to Lionel L.L.C. for factory repair, you must first call 810-949-4100 or FAX 810-949-5429 or write to Customer Service, P.O. Box 748 New Baltimore, MI 48047-0748 stating what the item is, when it was purchased and what seems to be the problem. You will be sent a return authorization letter and label to assure your merchandise will be properly handled upon receipt.

Once you have received your return authorization and label, make sure that the item is packed to prevent damage during shipping and handling. We suggest that you use the products original packaging. This shipment must be prepaid and we recommend that it be insured. Please make sure you have followed all of the above instructions carefully before returning any merchandise for service.

You may choose to have your product repaired by one of our Authorized Lionel Service Centers after its warranty has expired. A reasonable service fee will be charged.

WARRANTY INFORMATION

Please complete the information below and keep it, along with your dated sales receipt. You must present this and your dated sales receipt when requesting warranty service.

NAME

ADDRESS

PLACE OF PURCHASE

DATE OF PURCHASE

PRODUCT NUMBER

PRODUCT DESCRIPTION