Lionel 4-6-4 Hudson & 4-6-2 Pacific Steam Locomotive with Conventional RailSounds Owner’s Manual
Congratulations!

You purchased a tough, durable legendary locomotive—the Lionel Command Ready 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 Lionel’s 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.

Should you choose to upgrade your locomotive, the upgrade is accomplished the same way on both engines. Follow the detailed instructions in the upgrade section to add the Command Control and RailSounds features to your Hudson or Pacific, enjoy.

Features found on both locomotives

- Powerful flywheel equipped can motor
- Die-cast cab and tender body
- Illuminated fire box glow
- Conventional RailSounds
- Lionel electronic reversing unit
- Die-cast magnetic coupler (rear of tender)
- Smoke generator that produces clean, safe, and realistic smoke
- Brilliant headlight and rear light on tender

Features you will have after your upgrade (optional)

- R2LC radio unit for use with the Lionel TrainMaster® Command™ model railroad control system
- RailSounds™ steam sound system—digital samples from a real steam locomotive
- Die-cast ElectroCoupler™ (rear of tender)
- CrewTalk™ and TowerCom™

Note! This locomotive can be upgraded to Command Control, however conventional RailSounds must first be upgraded to RailSounds. Conventional RailSounds is not compatible with Command Control.
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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 8-16 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 headlight 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 104 E reverse unit to the next operating state. The 104 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 page 7 for information on locking your locomotive in a single operating state.
Transformer operations

Using your locomotive’s magnetic coupler

The rear of your Lionel locomotive’s tender is equipped with an operating magnetic knuckle coupler, a revolutionary design first introduced by Lionel in 1945.

Lionel magnetic couplers react to the magnetic field generated by a Lionel remote-control track section (available separately).

Place your locomotive’s coupler trigger disc over the central coil of a remote-control track section and press Uncouple on the controller. The magnetic field pulls the disc downward, and the knuckle opens.

One operating technique favored by Lionel railroaders is the “moving uncouple.” Press the Uncouple button as the locomotive passes over a remote-control section. The magnetic field will open the coupler; the consist remains behind as the locomotive moves on. But be careful—the speed of a newly uncoupled and moving locomotive can increase dramatically.
Transformer operations

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 when 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 you’re ready to pull that long freight back to the yard.
Transformer operations

Your locomotive's 104 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 on page 8 is the direction sequence that your 104 E unit will follow under the given conditions.

As always, a lockout switch is included to deactivate the 104 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 104 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.

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 shown on page 8. This solely depends on the tolerances of the installed electronics and is not affected or caused by your power supply.
Transformer operations

Your locomotive’s 104 E Reverse unit

With your 104 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.

**Summary Table of Engine Directions**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Direction Change Cycle</th>
</tr>
</thead>
<tbody>
<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, F, etc.</td>
</tr>
<tr>
<td>E unit on (switch in RUN position)</td>
<td>N, F, N, R, etc.</td>
</tr>
<tr>
<td>Case #2: Engine without power for less than 2.5 seconds</td>
<td>N, Last-Dir, N, Last-Dir, etc.</td>
</tr>
<tr>
<td>E unit off (switch in PROG position)</td>
<td>N, Last-Dir, N, Last-Dir, etc.</td>
</tr>
<tr>
<td>E unit on (switch in RUN position)</td>
<td>N, F, N, R, etc.</td>
</tr>
</tbody>
</table>
To operate the bell and whistle sounds when operating your steam locomotive with conventional transformers, you’ll need to install the Lionel no. 610-5906-001 sound activation button (available separately). Connect the button(s) as shown below.

Note! All track power must feed through “Sound Activation Button” Do not bypass button

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 Signalsounds.
Operating your Conventional RailSounds™

Experiencing the Conventional RailSounds system

With Conventional 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.

The following is available in Conventional RailSound versions

- **MultiWhistle™**. Different whistles every time—a conventional 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.
- **Variable chuff rate**. Your Locomotive’s speed determines the steam chuff rate.
- **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. Turn to page 11 for additional sounds available with Conventional RailSounds.

**NOTE:** Battery must be installed for shutdown sequence. See below:

- **Enhanced TowerCom**. Receive and respond to messages from the yard master.
- **Automatic Crewtalk**. Listen to random call and response messages.
- **Train Brakes**. Authentic brake sounds during quick stops.
- **Wheel Flange Squeal**. Authentic wheel flange squeal when passing through tight curves.

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Install a 9V battery by removing the four screws shown then lifting off the tender shell. Be careful not be pull the wires to the rear light. Connect the battery to the 9V battery connector then slide it into the holder. Replace the tender shell and screws being careful not be pinch any wires.
Operating your Conventional RailSounds™

Enhanced TowerCom™

Enhanced “TowerCom” is a two part message involving a “stand-by” or “clear for departure” announcement from the dispatcher followed by an acknowledgement from the engineer. There are several messages and each time TowerCom is triggered, a random call/response will be played.

The TowerCom™ message, selected randomly for play-back, is triggered by a short horn blast only when the train is stopped. A long horn blast will not trigger the effect, and it is disabled when the engine is in motion.

If the trigger (i.e., short horn blast) occurs within 15 seconds of the train stopping, a “stand by” message is played; if the trigger occurs more than 15 seconds after the train has stopped, a “clear for departure” message is played. The 15-second interval is marked by the first instance of crewtalk after the engine stops.

Example

- User brings the engine to a stop and sounds a short horn blast.
- TowerCom message says, “Please stand by”
- User waits until first crewtalk plays, user sounds another short horn blast.
- TowerCom message says “You are clear for departure”

Automatic CrewTalk™

There are “call” messages and “response” messages that are selected randomly for playback. The crewtalk messages are triggered at random intervals, from 30 seconds to 3 minutes, only when the train is stopped.

Train Brakes

For the ultimate in realism, the sound of squealing train brakes can be played during heavy stops. The engine must be moving at a medium speed then slowed quickly to trigger the sounds. With practice, you will be able to control the sound at any time.

Wheel Flange Squeal

The brake sounds may also be used to simulate the sound of wheel flange squeal when traveling through tight curves. Depending on your track layout, this sound may occasionally play when entering a curve. You may also trigger this sound by quickly moving the power supply control knob toward off, then quickly moving it back to its original setting. Do not move it completely to off or the engine’s E-unit will shift to neutral.

Steam Chuff

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

**NOTE:** Trailing truck from Pacific locomotive

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.
Maintaining your locomotive

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 12 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 unscrewing the lamp from the base. Replace it with Lionel part No. 600-2314-300. 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 28 for more information. Reinstall the cab and the four screws taking care to not pinch any wires during reassembly.
Maintaining your locomotive

Replacing your steam tender's lamps

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. 610-8082-019. The lamp is available from your Authorized Lionel Service Center or Lionel Service. See the Lionel Service section on page 28 for more information. Reinstall the tender body and the four screws taking care to not pinch any wires during reassembly.

Note! If you have upgraded your locomotive to Command Control, make sure the headlight was not turned off by pressing AUX2 before replacing bulb.
Maintaining your locomotive

Adding fluid to your Locomotive’s smoke generator

Your Locomotive is equipped with a smoke generator that produces safe, clean white smoke during operation.

The smoke generator requires the periodic addition of Lionel smoke fluid in order to function. Pierce the tube end with a pin, then add four to eight drops of fluid directly into the Locomotive’s stack. Smoke production will commence momentarily, faster if you run your Locomotive at speed. When smoke production wanes, add more fluid (four to eight drops).

If you prefer to have a smoke free locomotive, there is a switch located on the bottom of the engine under the cab marked SMOKE ON OFF (see page 8 for location). Move the switch to off and your locomotive will stop smoking.

When the smoke unit is on *Always* keep a small amount of smoke fluid in the Locomotive’s smoke generator; the generator’s element can become damaged if operated without fluid. Smoke production is greater at higher voltages and when the Locomotive is pulling a heavy load or long consist.

Available RailSounds and Command Control Upgrades

To experience the most from your locomotive several upgrade options are available, including RailSounds, Command Control, and ElectroCoupler. With these you can enjoy the full spectrum of digitally recorded real steam locomotive sounds and the ability to control your locomotive from anywhere. As with all upgrades you may choose to have this done at an authorized Lionel Service Center for a fee, or you can choose “do it yourself”. Just follow these instructions we have included and you’ll be ready to experience the fun that is today’s Lionel.
Upgrades to your locomotive

RailSounds Upgrade

Using Lionel upgrade kit 6-22963, which includes two plug-in circuit boards, installation is as follows: **Step 1:** Remove the tender body from the chassis as shown on page 10. Unplug the circuit with the square chips and set it aside. (You will want to store this in the static resistant packaging from the upgrade kit). Plug the RailSounds sound card into the slot marked “RS4”. (The sound card can be identified by the large square chips/receptacle on both sides). You do not need the power supply card that comes with the upgrade kit. (The power supply card has the large coil on top.) **NOTE:** Be sure these are plugged in correctly, or RailSounds will not function. Damage may occur if the engine is operated with these circuits in the wrong locations! **Step 2:** Be sure the jumper marked RS/SS JP1 is in the RS position, see illustration.

To experience the RailSounds shutdown sequence, a 9 volt battery in the tender (see page 10). If no other upgrades are to be made, recab the tender reversing the cab removal steps. Your tender will now have RailSounds including horn and bell which respond to your sound activation button, and engine sounds which respond to the speed of the locomotive and to track voltage. Other random realistic sounds will occur, listen for these. For even more sounds and command control of your engine, install the command upgrade kit 6-22960 (sold separately). Page 19 includes detailed instructions for this upgrade.
Upgrades to your locomotive

Your locomotive’s RailSounds system— the basics

 Lionel RailSounds is the most realistic model railroad sound system in the world. Your locomotive RailSounds upgrade features digital samples for the ultimate in realism. 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 SIGNAL SOUND position before powering up the locomotive. The switch is located on the side of the tender frame in the middle of the tender.

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

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.

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.
Upgrades to your locomotive

Experiencing the range of your locomotive’s RailSounds system

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.
If you wish to upgrade to Command Control, you must first upgrade Conventional RailSounds to RailSounds using upgrade kit 6-22963. (See page 16 for details.) Conventional RailSounds does not operate in Command Control.

This upgrade is made using kit 6-22960, which includes a radio circuit board. Begin by removing the die-cast locomotive cab as described on page 13. First, unplug the 104E unit circuit board and set it aside. Pull straight back from its mounting pins to remove it. Next plug in the circuit board (R2LC) into the slot marked “Radio” (same slot as the 104E unit used).

Finally, locate the jumper marked JP1. Move the shunt from the conventional location to the command location. (See page 20 for exact location.)

Note: The antenna included in the upgrade is not needed. Your locomotive is already wired to use the handrails as an antenna.
Your steam locomotive’s digital communication antenna

Your steam locomotive’s handrail is more than scale detailing, it’s the R2LC’s antenna for receiving Command Base digital communications.

If your steam locomotive is experiencing difficulty receiving base communications, check for foreign metal objects between the handrail and cab.
Begin the rear tender ElectroCoupler upgrade (Lionel part No. 602-2957-000) installation by removing the four screws that secure the tender body to the frame (see page 10). At the rear of the tender, mounted on the chassis is the speaker for RailSounds and SignalSounds. For easier access to the speaker mounting screws, unplug the RailSound circuit board as shown below. Unscrew the four screws that mount the speaker to the chassis. There is a depression in the chassis right below the speaker location that has a screw that holds the rear truck to the chassis. Remove this screw and rest the truck on the table. Remove the old magnetic coupler by compressing the spring under the retaining clip, then remove the clip with a needle nose pliers or a flat blade screwdriver. Carefully release pressure on the spring to avoid launching parts airborne, causing possible eye injury. The retaining clip post will drop off the truck. Then remove the old coupler from the truck. Install the new ElectroCoupler by sliding the ElectroCoupler under the mounting boss. Push the retaining clip post up and install the spring. Compress the spring, then insert the retaining clip. Be careful when doing this so the parts do not become airborne causing possible eye injury. Next replace the truck mounting screw and reinstall the speaker. Take the two ElectroCoupler wires and feed them through the slot at the back of the tender (see illustration below). Take the white electrical connector that comes with the coupler upgrade kit. Plug the two leads from the ElectroCoupler into the connector. (It doesn’t matter which lead goes into which opening in the connector). Plug the connector into the white 2 pin socket opening on the circuit board. Reinstall the RailSound circuit board making sure that both rows of pins line up with the socket. Finally, replace the body of the tender back on the frame taking care to make sure that all wires are inside and do not get pinched.

Note! We recommend wearing safety glasses
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 on Lionel or Lionel compatible O gauge track.

- Make sure track power is OFF before placing it on the 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, if you are using a conventional transformer, increase track voltage to 18 volts (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 Upgrade kits come factory-programmed with an ID# of “1.” To change your steam locomotive’s ID#, see page 26.

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

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

Steam locomotive RailSounds effects in bold italic

Rear coupler releases. Coupler release sounds.*

Press AUX2 to turn your steam locomotive’s headlight on and off.

Turn the THROT- TLE to the right to accelerate, left to decelerate. Speed-dependent Chuff.*

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

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

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.*

Your Command-upgraded 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.

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

*RailSounds upgrade required
TrainMaster Command operations

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.** (RailSounds upgrade required.)

<table>
<thead>
<tr>
<th>AUX1 Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Stops and resets the steam locomotive to FORWARD. <strong>Whistle blows. Headlight flickers.</strong></td>
</tr>
<tr>
<td>1</td>
<td>Raises the volume of RailSounds. <strong>Sound volume increases.</strong></td>
</tr>
<tr>
<td>2</td>
<td>CrewTalk™ is the sound of unintelligible walkie-talkie communication.</td>
</tr>
<tr>
<td>3</td>
<td>Starts up RailSounds. <strong>Startup sequence commences. steam blowoff sound.</strong></td>
</tr>
<tr>
<td>4</td>
<td>Lowers the volume of RailSounds. <strong>Sound volume decreases.</strong></td>
</tr>
<tr>
<td>5</td>
<td>Activates the RailSounds steam shutdown sequence. Just like the real thing, your steam locomotive must be idle for shutdown to occur. <strong>Steam shutdown commences.</strong> Remember, the whistle and bell will not sound until you restart RailSounds.</td>
</tr>
<tr>
<td>6</td>
<td><strong>Steam release sound.</strong></td>
</tr>
<tr>
<td>7</td>
<td>TowerCom™ is an audible announcement that includes that engine’s road number and/or name. There is a four second delay in this function.</td>
</tr>
<tr>
<td>8</td>
<td>Turns off the smoke generator.</td>
</tr>
<tr>
<td>9</td>
<td>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 15.</td>
</tr>
</tbody>
</table>

**NOTE:** AUX1-9 only works if the smoke unit switch is in the on position.
TrainMaster Command operations

Tuning your steam 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 CAB-1’s removable panel) for light, medium, or heavy momentum. The locomotive’s R2LC remembers this setting until you change it. For quick locomotive response, choose L.

**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 ultra-realistic sound of squealing brakes.

**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.

**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.

**STALL**
Make your locomotive feel more responsive by setting a “stall” voltage. Get your locomotive moving, then press SET; the locomotive will stop. Turn the throttle clockwise to get the locomotive moving, then decrease speed until the locomotive just stops. Then press SET again; the R2LC remembers the stall setting until you change it. To clear stall, press SET twice, holding it for one second each time.

>Note! These settings will be lost when you assign a new engine ID#s.
TrainMaster Command operations

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 FORWARD/RUN

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

As your fleet of Command-equipped Lionels 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 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#.

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.

Set the locomotive’s reverse unit program switch to PROG. When you’ve finished programming the ID#, set the switch to RUN.
TrainMaster Command operations

Reprogramming R2LC circuit boards to restore features

Due to the inevitable derailments, static, and the 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.
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 one 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.

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 ____________________

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