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LIONEL

Lionel 2-8-0 Consolidation Steam Locomotive Owner's Manual

Command Control and RailSounds Ready

Congratulations!

You have purchased a tough and durable locomotive—the Lionel Command Ready 2-8-0 Consolidation steam locomotive. From the crisp die-cast detail and the authentic decoration outside to the modern 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.

Features found on both locomotives

- **Powerful flywheel equipped DC motor**
- **Die-cast boiler and tender body**
- **Illuminated fire box glow**
- **SignalSounds whistle and bell**
- **Lionel electronic reversing unit**
- **Tire-Traction™**
- **Die-cast magnetic coupler (rear of tender)**
- **Smoke generator that produces clean, safe, and realistic smoke**
- **Brilliant headlight and rear back-up light on tender (constant)**
- **Illuminated marker lights on locomotive**

Features you will have after you 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™**
- **Brilliant headlight and rear back-up light on tender (directional)**

Follow the detailed instructions in the Upgrade section to add the Command Control and RailSounds features to your locomotive and tender.

Table of Contents

Transformer operations

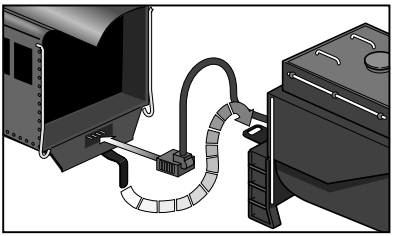
Running your steam locomotive with a Lionel transformer

1 Place your steam locomotive on Lionel or Lionel-compatible O-31 or larger track.

- **With track power OFF,** connect the locomotive tether between the locomotive and tender. The four-pin tender plug connects with the four-pin receptacle on the locomotive. Connect the drawbar between locomotive and tender.

Note!

- 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 8-18 volts alternating current.** Virtually all Lionel and Lionel-compatible alternating-current transformers are suitable.

Note!

- **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 locomotive the locomotive will remain in neutral, and when the power is removed and again applied, the locomotive will move forward. This condition holds true if the locomotive is being powered up for the first time or if the locomotive has been powered down longer than five seconds.

3 Move 'em out!

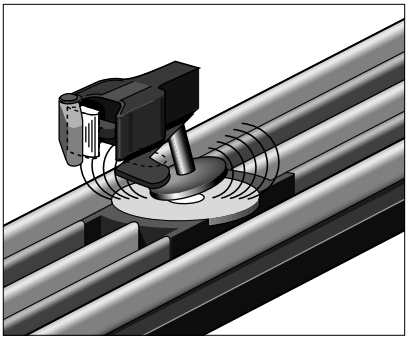
- **Get your locomotive moving.** Press the DIR button on your CAB-1 remote or Lionel transformer. This sequences the Lionel 104E reverse unit to the next operating state. The 104E unit alternates between three states: forward, neutral, and reverse.
- **Adjust track voltage** until your locomotive moves 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.**

Transformer operations

Using your locomotive's magnetic couplers

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).



Position your locomotive's trigger disc over the remote-control section, then press "uncouple." The coupler opens.

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.

Experiencing the range of your locomotive's SignalSounds system

With SignalSounds, you experience the sounds of real railroading like never before. Simply put, it delivers realistic and authentic sounds to your model railroad. Turn the volume control knob (located under the front water hatch on top of the tender) clockwise or counter clockwise to adjust sound output. See page 13 for diagram.

- **Steam Whistle.** Press whistle to produce an authentic steam whistle blast.
- **Mechanical bell.** Press BELL on your CAB-1 or transformer to begin the effect; again to discontinue. (If your transformer is not equipped with a bell button, refer to page 7.)

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.

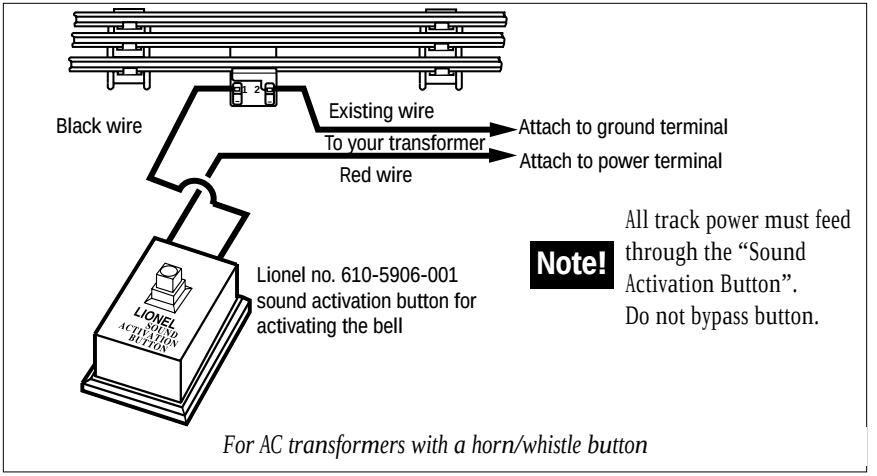
Lionel locomotives with Tire-Traction grip the track, enabling them to pull heavy loads at higher speeds.

Lionel has provided an extra set of traction tires to replace the installed traction tires if they wear out. Simply unscrew the drive rod screw from the wheel using a Phillips screwdriver. 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 screw back up and you're ready to pull that long freight back to the yard.

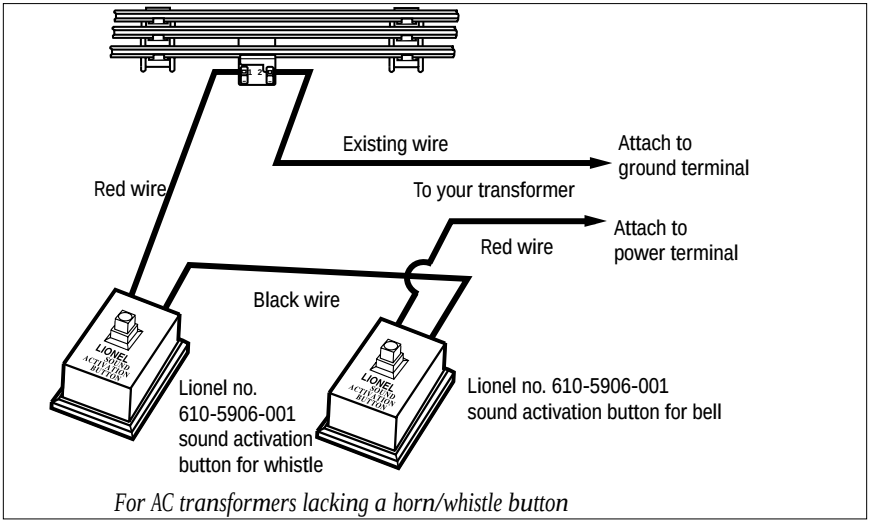
Transformer operations

Installing the Lionel sound activation button

To operate the bell and whistle sounds when operating your steam locomotive in 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

Note! *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.*

Transformer operations

Your locomotive's 104E Reverse unit

The New E-Series Reversing Unit controls the direction of the locomotive. 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.

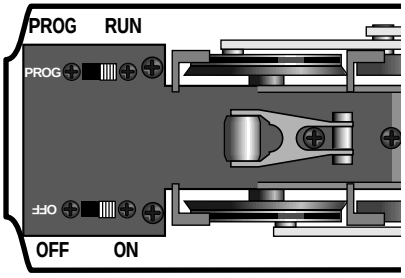
When power is first applied (or after a 5 second power interruption), the engine will power up in neutral, always before forward. A single press of the direction button will set your engine in forward motion. This will help eliminate unexpected start ups, derailments, and crashes. Listed in the table below is the direction sequence pattern that your 104E unit will follow under the given conditions.

As always, a lockout switch is included to deactivate the 104E'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 locomotive by hand to turn off the reversing unit while the train is moving. Simply stop the engine, and throw the switch. The 104E 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 locomotive 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.

Program/run switch

Rear of locomotive



Smoke switch

With your 104E reversing unit, positioning the switch in the **PROG** position locks your locomotive into its last moving direction plus neutral. Positioning the switch in the **RUN** position resumes normal sequencing operation.

Summary Table of Engine Directions

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

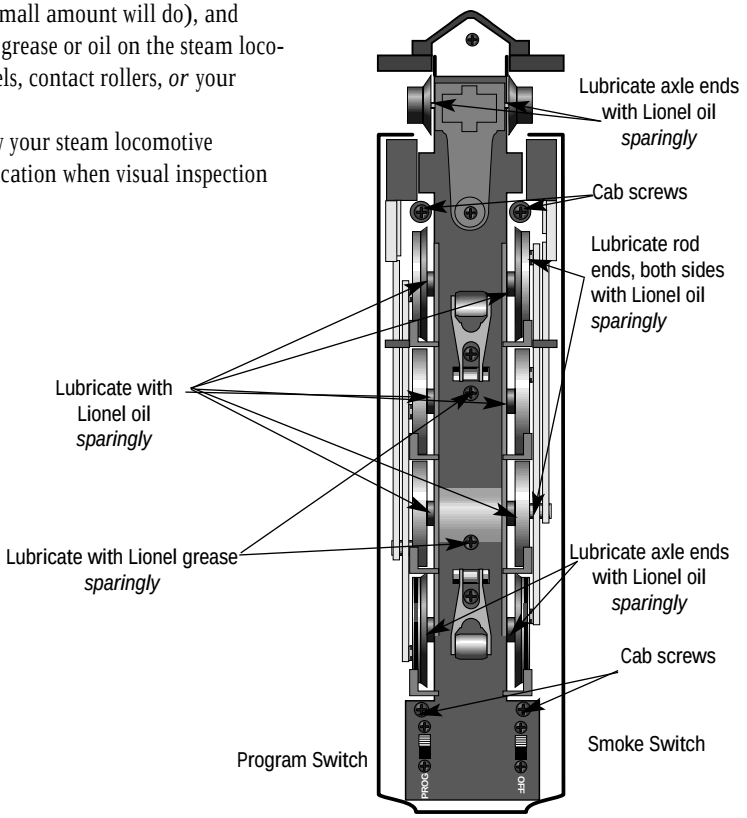
Maintaining your locomotive

Lubricating your steam locomotive

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* overlubricate (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 25 hours of operation.



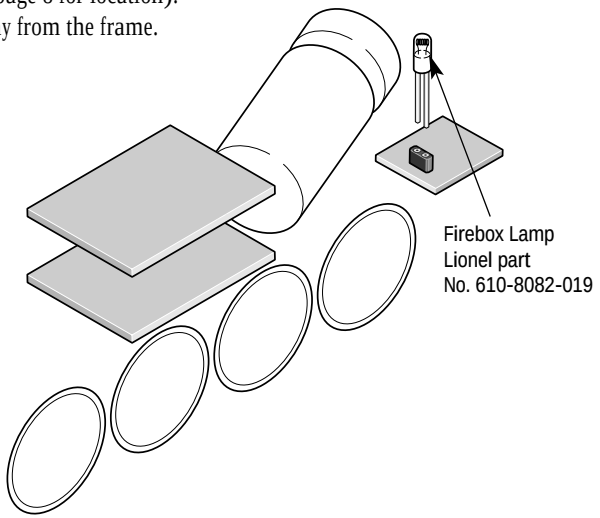
Do not lubricate your locomotive's electric motor. It has been pretested and all the necessary moving parts have been sufficiently lubricated for life at the factory and should run smoothly for many years to come. If you have any difficulty in the operation of your engine see the Warranty and service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

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. As the headlight bulb is integral to the front lighting board assembly and requires a soldering operation, you may wish to take your locomotive to your authorized Lionel Service Center for this bulb replacement. The Lionel part number for this bulb is 610-8049-300.

To replace the Firebox Glow lamp, remove the four cab screws (see page 8 for location). Carefully lift the cab away from the frame. Take care with the various wiring assemblies that are still connected to the cab. Find the assembly containing the expired lamp. The firebox lamp is replaced by pulling the bulb up out of the mounting sockets. R eplace 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 24 for more information. Reinstall the cab and secure with the four screws, taking care to not pinch any wires between the frame and cab during reassembly.



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

Since this bulb requires a soldering operation to replace, you may wish to take your locomotive to your Authorized Lionel Service Center to have this service performed. The Lionel part number for this bulb is 610-8049-300. The lamp is available from your Authorized Lionel Service Center or Lionel Service. See the Lionel Service section on page 24 for more information.

NOTE: On Command or Upgraded locomotives, press AUX2 to make sure the headlamp was not accidently turned off, before replacing the 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 locomotive under the cab marked SMOKE ON OFF (see page 6 for location). Move the switch to off and your locomotive will stop smoking.

If you have installed the Command Control upgrade, when the locomotive is first placed on the track and powered up, the smoke generator will be in a default "OFF" position. Using any function key on your CAB-1 remote will turn the smoke generator on. Turning off the sound (AUX1-5) or resetting the engine (AUX1-0) will return the smoke unit to the initial "OFF" position. *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 when running at higher voltages or when the locomotive is pulling a heavy load or long consist.

Note! Always keep smoke fluid in your locomotive's smoke generator. If not, turn it off when smoke is not desired by using the switch shown on page 6 or the AUX1-8 command if you are running in Command mode. Using Smoke Boost with depleted fluid can damage the generator's element.

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 to ***"do it yourself."*** Just follow these instructions we have included and you'll be ready to experience the fun that is today's Lionel.

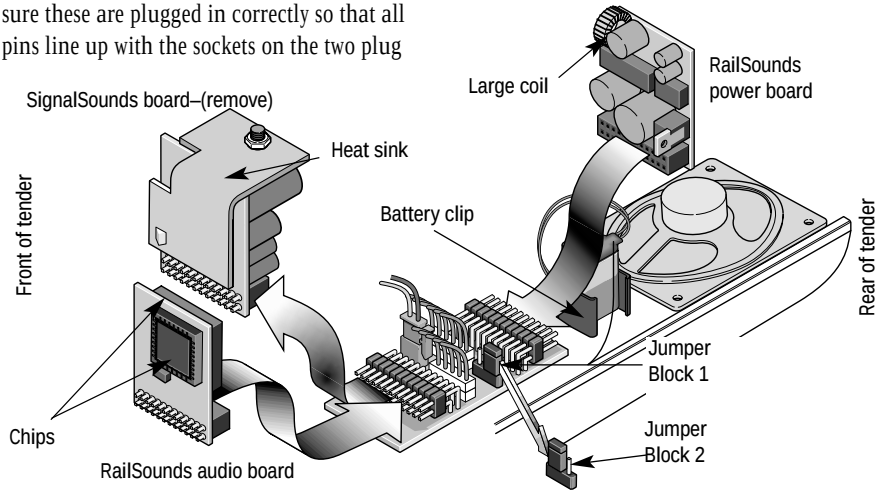
Upgrades to your locomotive

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 described on pages 12-13. Unscrew and then remove the battery clip, as this allows more room to work. Unplug the circuit board with the aluminum heat sink bracket and set it aside. (You will want to store this in the static resistant packaging from the upgrade kit.) Plug the RailSounds audio board into this connector. (The audio board can be identified by the large square chips/receptacle on both sides.) Plug in the power supply board into the other connector. (The power supply board has the large coil on top.) **NOTE:** Be sure these are plugged in correctly so that all pins line up with the sockets on the two plug boards. Make sure that no wires are pinched between the boards or the body and frame of the tender, or RailSounds will not function. Damage may occur if the engine is operated with these circuit boards in the wrong locations! Reinstall the battery clip.

Step 2: There is a jumper block in the center of the circuit board marked "SS-RS". Move the black jumper block from 'SS' to 'RS'. A small pair of tweezers or needle nose pliers will make this operation easier.

NOTE: Do this only if the Command Control upgrade is also to be added. Moving the jumper without doing the Command Control upgrade will result in loss of the "chuff" sound.



To experience the RailSounds shutdown sequence, install a 9-volt battery in the tender at this time. If no other upgrades are to be made, reroute the wires over top of the RailSounds audio board so that they lay in the center of the tender body where there is the most clearance. Recab the tender reversing the cab removal steps. Your tender will now have RailSounds including whistle and bell which respond to your sound activation button or transformer, and locomotive 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). Detailed instructions for this upgrade start on page 15.

Upgrades to your locomotive

Your locomotive's RailSounds system—the basics

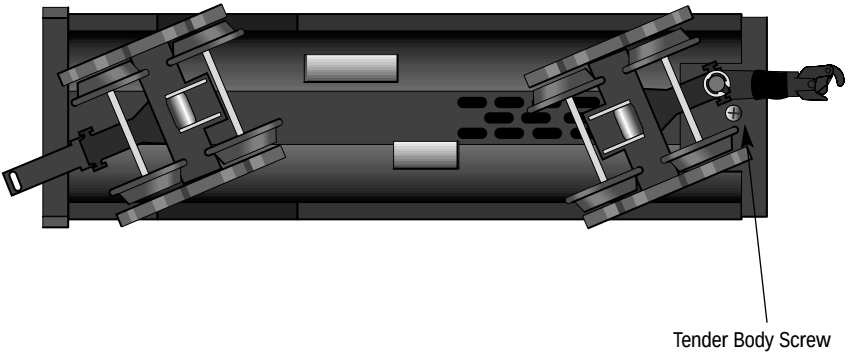
Lionel RailSounds is the most realistic model railroad sound system in the world. Your locomotive RailSounds features digital samples for the ultimate in realism.

Begin by installing a 9-volt alkaline battery in your tender. This ensures interruption free operation of RailSounds. Access to the battery holder in the tender is achieved as follows:

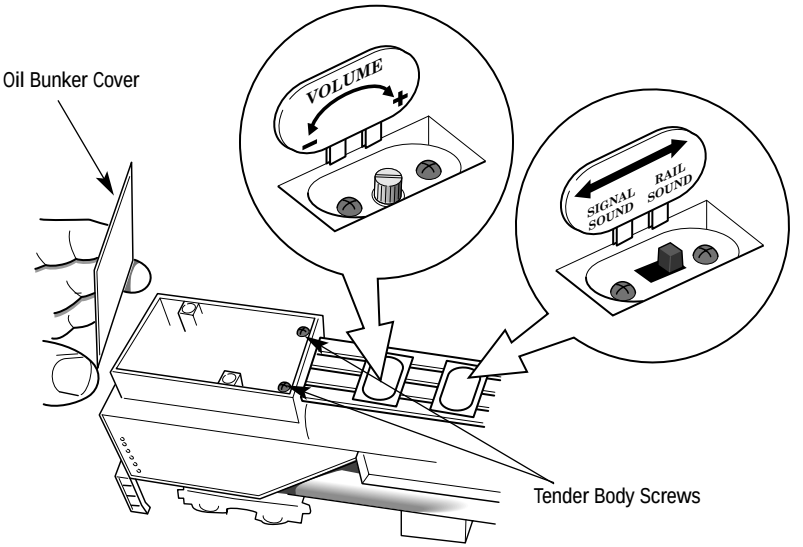
- Remove the Oil Bunker cover by lifting up on the center oil hatch. The Cover is held in place on the tender body with magnets. See page 13 for diagram.
- Remove the two screws that are now exposed. See page 13 for diagram.
- Turn the tender over onto a soft surface to avoid any damage to the finish.
- Remove the screw that is located under the tender's coupler. See illustration below.
- Turn the tender back over onto it's trucks and lift off the rear portion of the tender body being careful of the still-connected wiring assemblies.
- Connect the 9-volt alkaline battery to the battery clip and place the battery into the holder inside of the tender.
- Carefully reassemble the tender in the opposite order of above, being careful not to pinch any wires between the tender top and bottom.

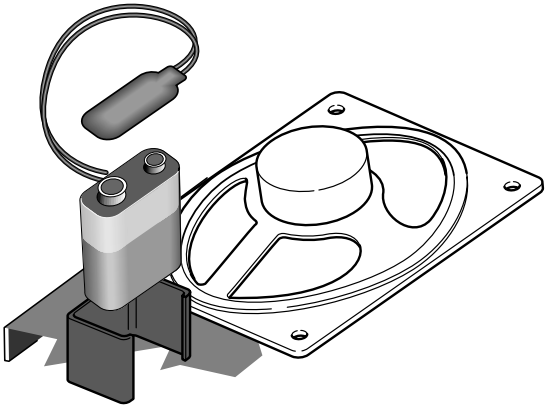
When you first apply track power, the RailSounds system produces sounds of the locomotive at rest. As the locomotive starts to move, chuffing begins and increases with the locomotive's speed.

To silence the steam chuff (whistle and bell remain unaffected), slide the RailSounds switch, located underneath the rear water hatch on top of the tender body to the SIGNALSOUND position before powering up the locomotive. See illustration on page 13. The whistle is activated by using the whistle lever or button on your transformer or CAB-1. The volume control knob to raise or lower the level of sound is located underneath the front water hatch on top of the tender.



Upgrades to your locomotive





Notes!

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.

Upgrades to your locomotive

Notes on RailSounds

- 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.

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 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.*

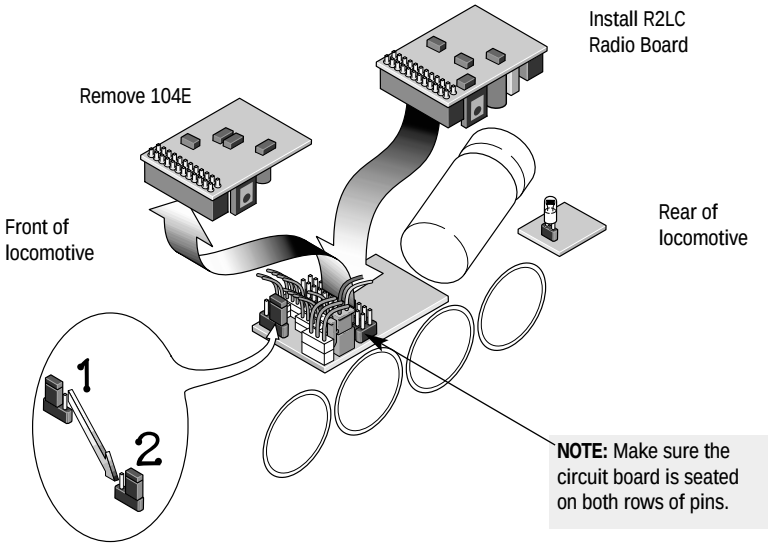
Note! *Allow the locomotive and tender to sit on the track until the shutdown sequence is complete. Removing the tender before shutdown is complete may cause the sound to "loop" and not shut off. If this happens, place engine and tender back on the track with the tender connected and wait for the shutdown sequence to complete, then remove from track if desired.*

Upgrades to your locomotive

Command Control Upgrade

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 9. Remove the 104E board, pulling straight up and off the connector pins. Store this circuit board safely away for possible later use. Locate the jumper block. Note that the jumper is installed on the two pins to the outside of the locomotive. Using needle nose pliers or tweezers, remove the jumper block by pulling it straight up. Reinstall the jumper block on the two pins toward the center of the locomotive. Take the R2LC circuit board that came with your Command upgrade kit and carefully press it into place on the connector pins. Reinstall cab as described on page 9. You are now ready to enjoy TrainMaster Command control operation. See page 17 for programming and operating instructions.

Note: Your Command upgrade kit includes an antenna and connector assembly but that is not required for use on this steam locomotive.



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.

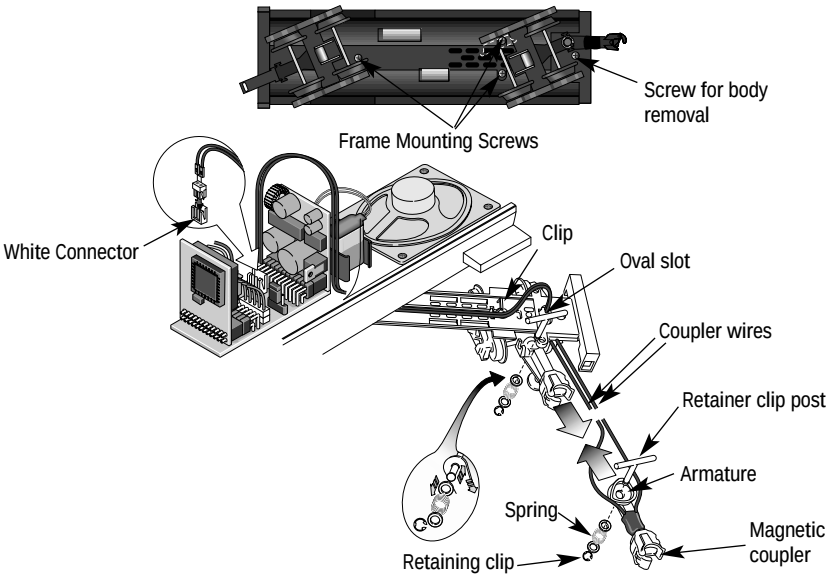
If your steam locomotive is experiencing difficulty receiving base communications, check for foreign metal objects between the handrail and cab. The antenna for your Command Control upgrade is pre-installed and connected at the factory.

Upgrades to your locomotive

Installing the tender ElectroCoupler

Note! We recommend wearing safety glasses

Begin the rear tender ElectroCoupler upgrade (Lionel part No. 6-22959) installation by disassembling the tender body as described on page 12. Next, turn the tender body over and remove the three screws holding the frame to the lower part of the tender body. Then, being careful of the attached wires, remove the screw holding the rear tender truck. Turn the truck so you can see the retaining clip that holds the coupler arm to the truck. Remove the old magnetic coupler by compressing the spring under the retaining clip, then remove the clip with needle nose pliers or a small flat blade screwdriver. Carefully release pressure on the spring to avoid launching parts airborne, causing possible eye injury. Remove the retaining post from the truck along with the old coupler and armature. 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. Route the leads from the ElectroCoupler up through the oval slot in the frame. Remove the two plastic retaining clips that are securing the one wire from the rear truck. Lay the wires into the channel in the frame. Route these two wires from the coil coupler up through the large square hole in the lower frame. 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 opening on the circuit board. Finally, reassemble everything in reverse order, rear truck to frame, frame to lower body, upper body to lower body and oil bunker top to the upper body, making sure that all wires are inside and do not get pinched.



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 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 mode, 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-31 or larger track.

- **Make sure track power is OFF before placing locomotive 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 post 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 Upgrade kits come factory-programmed with an ID# of "1."** To change your steam locomotive's ID#, see page 21.

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

ENG ***Press ENG***

1 ***Press 1 (the ID#)***

Throttle up/press any command button

Your Command Control-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.

CAB-1 commands for your steam locomotive

Steam locomotive RailSounds effects in bold italic.

COUPLER Tender rear coupler releases. ***Coupler release sounds.***

AUX 2 Press AUX2 to turn your steam locomotive's headlight on and off.

Turn the THROTTLE to the right to accelerate, left to decelerate. ***Speed-dependent Chuff. DynaChuff dynamic chuffing effect.***

Press HALT to shut down all PowerMaster electrical output on your railroad. Stops all Command-equipped Lionels in operation.

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

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

DIR 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.***

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

Note! The above descriptions assume that you have added all three upgrade kits: ElectroCoupler, Command Control, and RailSounds. Less features will be available dependent on which kits were not installed.

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

TrainMaster Command operations

RailSounds in the Command environment

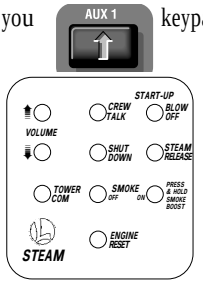
Your steam locomotive's RailSounds system gives you even more in the TrainMaster Command environment.

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

CAB-1 numeric keypad commands for your steam locomotive

AUX1

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.

0 Stops and resets the steam locomotive to FORWARD. ***Headlight flickers.***

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. *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.

TrainMaster Command operations

Tuning your steam locomotive's performance

MOMENTUM

Simulate the labored performance of a locomotive pulling a heavy load with momentum. Press L, M, or H (located under CAB-1's removable panel) for light, medium, or heavy momentum. The R2LC remembers the setting until you change it. For delayed response, use H. For quick 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.

STALL

Make your locomotive feel more responsive by setting a "stall" voltage. Get your locomotive moving, then press SET; the locomotive will stop. The headlight will flash, indicating it's in the SET mode. Turn the throttle clockwise to get the engine 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.

HIGH VOLTAGE SETTING

Press ENG, the locomotive ID#, then press SET; the headlight will flash. Get your locomotive moving to the maximum speed you want it to run, then press BOOST. Use this to keep your locomotive from accidentally being derailed at high speed.

Note! To clear setting, press ENG, the ID#, then immediately press BOOST.

SOUND QUALITY

To achieve your preferred RailSounds master volume level, use the volume control dial located under the hatch on top 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 4 on the keypad lowers overall RailSounds output.

Note! These settings will be lost when you assign a new engine ID number.

TrainMaster Command operations

Assigning your locomotive a new ID#

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

Set the locomotive PROGRAM/RUN switch to PROGRAM (See Illustration)

Command Base ON

Place the locomotive on track

PowerMasters set to CMD or traditional power supplies ON FULL

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 PROGRAM/RUN switch to RUN

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

As your fleet of Command-equipped Lionels grows, give your locomotive its own ID#. Choose from any between 1 and 99. Slide the locomotive's PROGRAM/RUN switch to PROGRAM. Plug-in the Command Base and place the locomotive on track. Then, power up.

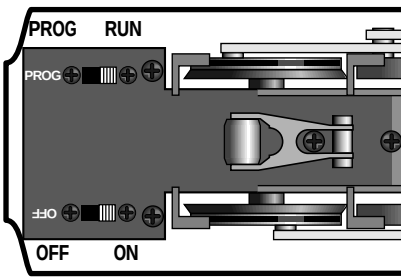
Using CAB-1, press ENG, the locomotive ID#, then press the SET button located under CAB-1's removable panel. See the locomotive's headlight flash; that's your signal that the programming has been accepted. Now slide the switch to RUN.

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

Set the locomotive's reverse unit program switch to PROGRAM. When you've finished programming the ID#, set the switch to RUN.

Rear of locomotive

Program/run switch



Smoke switch

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 See page 6 or 21 for switch location

Step 2: Plug-in 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 4 for this locomotive.

Step 6: Turn off power to track and 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.

Notes

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 dealer.

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 Station, 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 Station. Your nearest Lionel Service Station can be found by calling 1-800-4-Lionel, or by accessing our Website at www.lionel.com.

If you prefer to send your product 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 ensure 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 product's 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 _____

_ _____