Congratulations!

You own one of the finest and most sophisticated model trains ever built—the Lionel TrainMaster Command Control and Odyssey System-equipped NYC S1 Electric locomotive. From its many hand-applied scale details, to the advanced technology found inside, your locomotive is ready for duty on your model railroad layout. Experience the superiority of today’s Lionel.

Features of the S1 Electric locomotive

- Powerful maintenance-free motor with momentum flywheel
- Command reverse unit for use with the Lionel TrainMaster Command Control system
- Die-cast metal ElectroCouplers on front and rear of the locomotive
- Enhanced conventional mode operation
- Odyssey System for speed control with ON/OFF switch
- RailSounds digital sound system with CrewTalk communication and TowerCom announcements (in Command)
- Brilliant direction-controlled forward and reverse lighting with lighted number boards
- Tire-Traction

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Transformer operations

Running your locomotive with a Lionel transformer

1. **Place your locomotive on Lionel or Lionel-compatible 0-36 or larger track.**

2. **Power up your 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.

   **Caution!** Do not power your locomotive with direct current (DC). Damage to sensitive electronic components may occur.

   **Note!** When you first power up your track, the locomotive will wait between three and eight seconds as it “listens” for digital language from the TrainMaster Command Base (available separately). When the locomotive has determined that it’s on a conventional (non-Command) railroad, the locomotive’s headlight will illuminate and the RailSounds sound system will start. At this point, the locomotive is in neutral. (This occurs when placing the locomotive on your railroad for the first time. Thereafter, it will start in forward following every five-second power interruption.)

   To experience all of your locomotive’s features, we recommend using the TrainMaster Command Control system, available at your authorized Lionel dealer.

3. **Move ‘em out!**

   **Get your locomotive moving.** Press the DIRECTION button on your Lionel transformer. This sequences the Command reverse unit to the next operating state.

   **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, turn-off track power.

   **See page 5 for information on locking your locomotive in a single operational state.**
**Transformer operations**

Locking your locomotive into a single operational state

To select a single operational state for your Lionel locomotive (for example, forward only), you can deactivate the Command reverse unit’s sequencing function with the Command reverse unit (PROG/RUN) switch.

Get your locomotive moving in the desired direction, then *slow it down without stopping*. Set the Command reverse unit switch to PROG. Refer to Figure 1 for the location of the switch. The locomotive is now “locked” into your chosen direction.

When you no longer want single-direction operation, just slide the Command reverse unit switch back to RUN.

**Note!** Your locomotive’s reverse unit will “reset” to forward after any power interruption lasting five seconds or longer, regardless of the original locked-out direction.

![Figure 1. Switch locations](image-url)
Using your ElectroCouplers in the non-Command environment

To uncouple rolling stock from your locomotive’s ElectroCouplers in the non-Command environment, you must rely on a piece of rolling stock equipped with Lionel magnetic couplers coupled directly to your locomotive’s ElectroCouplers. The magnetic coupler on the rolling stock will then react to the magnetic field generated by a Lionel Remote-Control Track section (available separately, 6-65530 for O gauge; 6-65149 or 6-12746 for O-27 gauge; or 6-12020 for FasTrack layouts). Place your rolling stock’s coupler “trigger disc” over the central coil of a Remote-Control Track section and press UNCOUPLE on the controller. As illustrated in Figure 2, the magnetic field pulls the disc downward, and the coupler opens.

Note! Your locomotive’s ElectroCouplers will NOT open manually or by using a Remote-Control Track section.

Figure 2. Trigger disc operation
Transformer operations

Installing a Lionel Sound Activation Button

To activate the bell and whistle sounds when operating your locomotive set with conventional transformers, you may need to install Lionel no. 610-5906-001 Sound Activation Buttons (available separately) if your transformer is not equipped to activate these features. Connect the button(s) as shown below.

Note! All track power must feed through the Sound Activation Buttons. Do not bypass the buttons.

For AC transformers lacking a bell button

For AC transformers lacking bell and horn/whistle buttons

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 the RailSounds sound system.
The Lionel RailSounds sound system is the most realistic model railroad sound system in the world. Your locomotive features digital samples from real-life locomotives for the ultimate in realism.

Begin by installing a nine-volt alkaline battery in the locomotive as illustrated in Figure 3 on page 9. This ensures interruption-free operation of the RailSounds sound system. The battery harness is located inside the locomotive. To access the battery harness, you must first remove the body screws from the bottom of the locomotive and then lift off the body. Refer to the Figure 4 on page 20 for the location of the body screws. Snap the battery harness onto the battery terminals, then slide the battery into the holder and replace the locomotive body, securing it with the body screws.

When you first apply track power, the locomotive’s RailSounds sound system will produce the sounds of the locomotive at rest. As the locomotive moves, the RPM sounds increase with the locomotive’s speed.

To silence the motor sounds (whistle/bell are unaffected), slide the RailSounds sound system switch, located under the panel on the cab roof (see Figure 3 on page 9 for the location), to the SIGNALSOUNDS position before powering up the locomotive. The whistle and bell are activated by using the lever or button on your transformer or CAB-1 Remote Controller. The volume control knob is also located under the panel on the cab roof (see Figure 3 on page 9).

**Note!** Please remove the protective cover from the battery harness before installing the battery.

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

**Note!** Discontinue locomotive power for ten seconds before changing the RailSounds switch position.

**Note!** If the RailSounds sound system “drops out” during track power interruptions (during direction changes, switches, crossings, etc.), replace the battery.
Figure 3. RailSounds sound system controls and battery installation
**Notes on the RailSounds sound system**

- Use the volume control knob to adjust sound output. Refer to Figure 3 on page 9. Use a flat-blade screwdriver to adjust the volume level.

  **Note!** Do not force the volume control knob past the point where it will easily turn, or damage to the volume control will result.

- Listen for incidental locomotive sounds during the operation of the RailSounds sound system. They’re automatic and, of course, authentic.
- The nine-volt alkaline battery you installed ensures *continuous* sounds, even during short track-power interruptions. The battery must be installed for the shutdown sequence.
- Longer track-power interruptions (including locomotive derailments) cause the RailSounds sound system to shut down after about seven seconds.
- For even *more* authentic RailSounds sound system effects, operate your locomotive in the TrainMaster Command Control environment. See pages 13-16 for details.
Odyssy System operations

The Odyssey System

The Odyssey System is a “cruise control” for your locomotive. Once the speed is set (see below), your locomotive will maintain a constant speed, no matter what loads the locomotive pulls or what grades you have on your layout. This digitally-controlled system also allows for extremely slow movement that will amaze any “scale” enthusiast.

Odyssy System conventional (transformer) operation

The Odyssey System is automatically operational when you operate your locomotive in conventional (non-Command Control) mode, as long as the Odyssey switch is in the ON position (see Figure 1 on page 5). This means that your locomotive will maintain a constant speed, compensating for grades, loads, and turns. Simply use your transformer’s throttle to adjust the speed of your locomotive. If you would like to deactivate the speed control feature, slide the Odyssey switch to the OFF position while the locomotive is not in motion.

Caution! In conventional operation, the lights in the locomotive are connected directly to track power. Do not exceed 14-16 volts for extended periods. Doing so will reduce the life of your lamps.

Note! Because of the way that speed control operates in conventional mode, you will notice a slight delay between adjusting your transformer throttle and the change in the speed of your locomotive. If you desire instantaneous response to throttle changes, turn off the Odyssey System.
**Odyssey System operations**

**Odyssey System Command operation**

Use your CAB-1 Remote Controller to turn the Odyssey System speed control on or off. The position of the Odyssey switch (see Figure 1 on page 5) is the Odyssey System default setting when you power up the locomotive. You may override the default with the following commands. The override settings will be cleared and the default settings will be restored when the locomotive is powered down.

- **Turns off Odyssey System speed control.**

  ![Button Sequence](image)

  **Note!** When you press 7, you will activate a TowerCom announcement. This has no impact on the Odyssey System function.

- **Turns on Odyssey System speed control.**

  ![Button Sequence](image)

  **Note!** When you press 9, you will activate the steam blow-off sound. This has no impact on the Odyssey System.

Do not wait longer than two or three seconds between pushing the buttons in each sequence. If the command is not accepted, repeat the sequence.

**Note!** The locomotive must not be in motion while enabling or disabling the Odyssey System speed control.
TrainMaster Command operations

The TrainMaster Command Control environment

TrainMaster Command Control is the advanced model railroad control system from Lionel. TrainMaster Command Control gives you the power to operate multiple Command-equipped locomotives on the same track, at the same time.

To operate in Command mode, you need a Command Base (6-12911) and a CAB-1 Remote Controller (6-12868). Find them both at your authorized Lionel retailer.

1 Place your locomotive on Lionel or Lionel-compatible O-36 or larger track.

- Make sure track power is OFF before placing on the track.
- Make sure your Lionel Command Base is plugged-in and its communications wire is connected to the COMMON post on your Lionel transformer or the U terminal on any of your installed PowerMasters.
- Once positioned on the track, increase track voltage to FULL (no more than 19 volts). On PowerMasters, slide the CMD/CONV switch to CMD.

2 Address your locomotive using your CAB-1 Remote Controller.

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

Note! All Command locomotives come factory-programmed with an ID# of “1.” To change the ID# of your locomotive, see page 17.

3 Move ‘em out!

- Throttle up or press any command button on the CAB-1 Remote Controller. Your locomotive will respond to your every command.
TrainMaster Command operations

Running your locomotive in the TrainMaster Command Control environment

Your Command-equipped locomotive comes factory-programmed with an ID# of “1.” To get your locomotive in action, set PowerMasters to CMD or set all power supplies on full (no more than 19 volts). Press ENG and 1 on your CAB-1 Remote Controller. Turn the throttle or press any command button, and your locomotive is ready for Command operations.

Address Locomotive #1

Set PowerMaster to CMD or traditional power supplies to full throttle (no more than 19 volts)

Press ENG

Press 1 (the ID#)

Throttle up/press any command button

CAB-1 Remote Controller commands for your locomotive

RailSounds sound system effects are in bold italic.

Front coupler releases. Coupler release sounds.

Rear coupler releases. Coupler release sounds.

Press AUX1 to activate the numeric keypad.

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

Turn the THROTTLE to the right to accelerate, left to decelerate. Speed-dependent variable motor RPM sounds.

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

Note! Use HALT only in emergency situations.

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

Press BELL once to activate the bell, again to discontinue. 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. Air-release sound.

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

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

CAB-1 Remote Controller numeric keypad commands for your locomotive

When you press AUX1 on your CAB-1 Remote Controller, you turn the numeric keypad into ten command buttons. The keypad lets you control extra command features (until you press any top-row button like SW, ACC, RTE, TR, or ENG). RailSounds sound system effects in bold italic.

0 Stops and resets the locomotive. Resets the locomotive’s direction to FORWARD. Resets the RailSounds sound system to automatic RPM operation. Horn blows. RPM’s return to automatic.

1 Raises the volume of the RailSounds sound system. Sound volume increases.

2 CrewTalk communication is the sound of unintelligible walkie-talkie communication.

3 Raises the RailSounds sound system RPM level. Starts up the RailSounds sound system. RPM’s increase. Start-up sequence commences.

4 Lowers the volume of the RailSounds sound system. Sound volume decreases.

5 Activates the RailSounds sound system shutdown sequence. Just like the real thing, your locomotive’s RPM’s must be at idle for shutdown to occur. Press 6 repeatedly to lower the RPM’s until they won’t descend further. Your locomotive is now at idle. Press 5 to initiate the shutdown sequence and listen for the CrewTalk communication sound. CrewTalk communication sounds, locomotive shutdown commences. Remember, the horn, bell, and RPM’s will not sound until you restart the RailSounds sound system by pressing 3.

6 Lowers the RailSounds sound system RPM level. RPM’s decrease.

7 TowerCom announcements are an audible two-part announcement that includes that engine’s road number and/or name. Pressing 7 the first time triggers a “hold for clearance” announcement. Press 7 again, and a “clear for departure” message plays. There is a four second delay in this function.

8 Air-release sounds.

9 Air-release sounds.
TrainMaster Command operations

Tuning your locomotive’s performance

**MOMENTUM**
TrainMaster Command Control’s momentum feature simulates the labored performance of a locomotive pulling a heavy load. Press L, M, or H (located under the CAB-1 Remote Controller’s removable panel) for light, medium, or heavy momentum. The locomotive’s Command reverse unit remembers this setting until you change it. For quick locomotive response, choose L.

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

**SOUND QUALITY**
To set your maximum volume level, use the volume control knob (see Figure 4 on page 9). Turn the knob 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 Remote Controller numeric keypad’s volume control. Press AUX1, 4 on the keypad to lower overall RailSounds sound system output.

**HIGH VOLTAGE SETTING**
Press **SET**, and 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 derailing at excessive speeds. 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. Press **SET** again; the Command reverse unit remembers the stall setting until you change it. To clear the stall setting, press **SET** twice, holding it for one second each time.

**Note!** These settings will be lost when you assign a new engine ID number.
Assigning your locomotive a new ID#

**TrainMaster Command operations**

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**Example**

Assign a new ID# to your Command-equipped locomotive

1. Set the Command reverse unit switch to PROG
2. Command Base plugged in
3. Place the locomotive on track
4. PowerMasters set to CMD or traditional power supplies ON FULL (no more than 19 volts)

**Turn track power on (PowerMasters):**

- Press TR
- Enter the PowerMaster’s ID#
- Press BOOST

**Program the locomotive with a new ID#:**

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

**Set the Command reverse unit switch to RUN**

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

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As your fleet of Command-equipped Lionel locomotives 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.

Set the locomotive’s Command reverse unit switch to PROG (see Figure 2 on page 5). Plug in the Command Base and place the locomotive on track, then power up. Using your CAB-1 Remote Controller, press ENG, the locomotive ID# that you select, and then press the SET button located under your CAB-1 Remote Controller’s removable panel. Hear the whistle blow (or see the headlight flash if the RailSounds sound system is off); that’s the Command reverse unit confirming the new ID#. Set the Command reverse unit 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, or 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 frame to aid in remembering.
TrainMaster Command operations
Reprogramming the Command reverse unit to restore features

Due to the inevitable derailments and static, it is possible that your Command reverse unit could someday lose its setup program. The symptom of this condition would be unresponsiveness in Command mode. This can be easily remedied by “reprogramming” your Command reverse unit using the following steps.

**STEP 1:** Move the switch on your locomotive from RUN to PROG.

**STEP 2:** Plug in your Command Base.

**STEP 3:** Place the locomotive on track, then turn on power to your track.

**STEP 4:** Press ENG then input the locomotive’s ID#. Press SET.

**STEP 5:** Press ENG, the ID#, AUX1, then press 5 for this particular locomotive.

**STEP 6:** Turn off power to your track and wait ten seconds.

**STEP 7:** Remove the locomotive from your track, and move the switch from PROG to RUN.

**STEP 8:** Place the locomotive back on track, then turn power on to the track.

**STEP 9:** Press ENG and the ID#, then operate as normal.
Maintaining and servicing your locomotive

Maintaining your locomotive’s handrail antenna

Your locomotive handrails are more than just a prototypically accurate detail—they’re the Command reverse unit’s antenna for receiving Command Base digital communications. Please handle the locomotive carefully to avoid handrail damage. To ensure optimum reception, both handrails are insulated from the die-cast metal shell. If your locomotive experiences difficulty receiving Command Base communications, check that the ends of the handrails are insulated from the cab with either an insulating bushing or an insulating handrail stanchion. Ensure that each insulator is present and in position. Finally, prevent the handrails from touching any part of the die-cast metal locomotive cab.
Help your Lionel locomotive lead a long and productive life on your railroad by maintaining it properly.

We recommend that you purchase a Lionel Lubrication and Maintenance Kit (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 locomotive wheels, contact rollers, or your track.

You’ll know your locomotive requires lubrication when visual inspection reveals dryness on the parts indicated in Figure 4. Remove accumulated dirt and dust before lubricating, and always lubricate any locomotive emerging from prolonged storage. Also, lightly lubricate the front and rear truck pivot points, and wheel bearings after each 25 hours of operation.

Figure 4. Lubrication points
Maintaining and servicing your locomotive

Servicing your locomotive’s lamps

Note! Before changing the lamps in your locomotive, be sure to check that the AUX2 command was not used to turn off the headlights.

Your locomotive is illuminated by two lamps. One is located in each of the headlight housings. During the course of normal operations, they may require replacement.

Removing the body screws as shown on page 20 will allow access to the inside of the cab and the expired lamps. However, due to the close fit of many components and the inter-connected wiring, we recommend that you take your locomotive to your authorized Lionel Service Center for any required lamp replacement.

Lamp Numbers:
Headlights (2) 620-8029-300
Maintaining and servicing your locomotive

Tire-Traction

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

Lionel has provided extra traction tires to replace the installed traction tires if they ever wear out. Simply slip off the old traction tire and remove it from under the truck side. Place the new traction tire on the wheel. You’re now ready to pull that long freight back to the yard.
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 accessing our Website at www.lionel.com.

If you prefer to send your product back to Lionel L.L.C. for repair in Michigan, you must first call 586-949-4100 or FAX 586-949-5429, 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. 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 ____________________________________________________________