Lionel
Phantom Locomotive
Owner’s Manual

featuring TRAINmaster
and RailSounds
Congratulations!

Congratulations! You now own one of the most sophisticated model trains ever built—the Lionel TrainMaster Command Control equipped Phantom locomotive. This magnificent locomotive comes with all the styling and power that you have come to expect from Lionel.

Features of this locomotive

• TrainMaster Command Control equipped
• RailSounds sound system with eerie “Phantom” locomotive sounds
• Directional lighting including operating headlights

• Magne-Traction track gripping system
• Two traction tires
• ElectroCoupler on rear (in Command)
• Interior lighting with strobe effect

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Lionel®, Train Master®, Odyssey®, RailSounds™, CrewTalk™, TowerCom™, DynaChuff™, StationSounds™, Pullmor®, ElectroCoupler™, Magne-Traction®, CAB-1 Remote Controller®, PowerMaster®, Lionel ZW®, ZW®, PowerHouse®, TMCC™
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Transformer operations

Running your locomotive with a Lionel transformer

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

2. Power up your locomotive with your transformer.
   Your locomotive is designed to operate on 7-18 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 it has determined that it’s on a conventional (non-Command) railroad, the locomotive’s headlight will illuminate and RailSounds will fire up. 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 three-second power interruption.)

3. Move ‘em out!
   Get your locomotive moving. Press the DIRECTION button on your CAB-1 Remote Controller or 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.
Transformer operations

Locking your locomotive into a single operational state

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

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**Figure 1. Switch locations**
Transformer operations

Using your locomotive’s ElectroCouplers in the non-Command environment

To uncouple rolling stock from your locomotive’s rear ElectroCoupler 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 or Uncoupling Track section (available separately, 6-65530 for O gauge, 6-65149 or 6-12746 for O-27 gauge). Place your rolling stock’s coupler “trigger disc” over the central coil of a Remote-Control or Uncoupling Track section and press UNCOUPLE on the controller. The magnetic field pulls the disc downward, and the coupler opens.

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

Installing a Lionel Sound Activation Button

To activate the bell and horn sounds when operating your locomotive with conventional transformers, you’ll need to install a Lionel no. 610-5906-001 Sound Activation Button (available separately).

Connect the button(s) as shown below.

Note! All track power must feed through the Sound Activation Button. Do not bypass the 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 RailSounds.
Lionel RailSounds is the most realistic model railroad sound system in the world. Your locomotive features eerie Phantom engine sounds.

You may choose to install a 9-volt alkaline battery in your locomotive. This ensures interruption-free operation of RailSounds. As illustrated in Figure 3, the battery clip is located inside the body. Remove the four body mount screws (see Figure 4 on page 16) and lift away the body. Attach the battery harness and slide the battery into the holder. Reassemble in reverse order.

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

To silence the Phantom engine roar (the horn and bell remain unaffected), slide the RailSounds switch on the underside of the locomotive to SIGNAL (refer to Figure 1 on page 5) before powering up the locomotive.

Figure 3. Battery installation

**Note!** Please remove the protective cover from the battery clip.

**Note!** Although RailSounds 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 FULL/SIGNAL switch position.

**Note!** If RailSounds “drops out” during track power interruptions (for example, during a direction change), replace the battery.
RailSounds operations

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.

- **Four engine-roar levels.** Your locomotive’s speed determines the level of engine RPM roar— automatically, if you prefer: idle, half throttle, three quarters or full-speed output.
- **Phantom horn.** A different futuristic horn sound at different speeds— a RailSounds exclusive.
- **Phantom bell.** Press BELL on your CAB-1 Remote Controller or transformer to begin the futuristic ringing effect, again to discontinue.
- **Reverse unit reset sound.** Power down your track, wait for three to five seconds, and listen for the air-release sound— that’s the locomotive telling you that its Lionel 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 shutdown sequence about two seconds after the air-release reset occurs. (Battery installation required.)

Notes on RailSounds

- Turn the volume knob clockwise or counter-clockwise in the location shown in Figure 4 on page 16 to adjust sound output.
- Listen for incidental locomotive sounds during RailSounds operation.
- The 9-volt alkaline battery you installed ensures continuous diesel locomotive sounds.
- Longer track-power interruptions (including locomotive derailments) cause RailSounds to shut down after about seven seconds.
- For even more authentic RailSounds effects, operate in the TrainMaster Command environment.
TrainMaster Command operations

The 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 and a CAB-1 Remote Controller. Find them both at your authorized Lionel retailer.

1 Place your locomotive on Lionel or Lionel-compatible O gauge track.
   • Make sure track power is OFF before placing your locomotive 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 20 volts). On PowerMasters, slide the CMD/CONV switch to CMD.

2 Address your locomotive using CAB-1.
   • Press ENG and 1 on the numeric keypad of your CAB-1. This command is sent by the 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 Lionel engines listen to this digital communication, but they do not respond until they hear their individual ID number—in this case, “1.”
   • The digital language of TrainMaster Command—and not track power—controls the actions of Command-equipped 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.
   • All Command-equipped locomotives come factory-programmed with an ID# of “1.” To change the ID# of your locomotive, see page 14.

3 Move ‘em out!
   • Throttle up or press any command button on the CAB-1. Your locomotive will respond to your every command. Read on.
TrainMaster Command operations

Running your locomotive in the TrainMaster Command environment

Example Address Locomotive #1

Set PowerMaster to CMD or traditional power supplies to full throttle (no more than 20 volts)

Press ENG

Press 1 (the ID#)

Throttle up/press any command button

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 20 volts). Press ENG and “1” on your CAB-1. Turn the throttle or press any command button; your locomotive is ready for Command operations.

CAB-1 commands for your locomotive

Press WSTL/HRN to activate the locomotive’s horn, release it to discontinue. **Phantom horn sound.**

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

Press DIR—the locomotive decelerates to a complete stop; turn the throttle up, and the locomotive will accelerate in the opposite direction. There is no neutral state. **Diesel 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.**

**Note!** Use HALT only in emergency situations.

Turn the THROTTLE to the right to accelerate, left to decelerate.

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

Beneath this panel Use HALT only in emergency situations.
TrainMaster Command operations

CAB-1 numeric keypad commands for your locomotive

When you press AUX1 on your CAB-1, 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 sounds in bold italic.

0 Stops and resets the locomotive. Resets the locomotive’s direction to FORWARD. Resets RailSounds to automatic RPM operation.

Futuristic horn blows. RPM’s return to automatic.

1 Raises the volume of RailSounds. Sound volume increases.

2 Futuristic Phantom controls sound.

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

4 Lowers the volume of RailSounds. Sound volume decreases.

5 Activates the RailSounds 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 sound.

Phantom shutdown commences. Remember, the horn, bell, and RPM’s will not sound until you restart RailSounds by pressing 3.

6 Lowers RailSounds RPM level. RPM’s decrease.

7 Futuristic Phantom communication sound.

8 Turns cab light off.

9 Turns cab light on.
TrainMaster Command operations

Tuning your locomotive’s performance

MOMENTUM

TrainMaster Command’s momentum feature simulates the labored performance of a locomotive pulling a heavy load. Press L, M, or H (located under CAB-1’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 throttle. Use the BOOST and BRAKE command buttons—they give you incremental control of speed and are the superior way to handle grades, gradual stops-and-starts, and more. Plus, using BRAKE in the Command environment gives you a bonus RailSounds effect—the ultra-realistic sound of squealing brakes.

SOUND QUALITY

To achieve your preferred RailSounds master volume level, we recommend that you adjust your locomotive volume control knob (see Figure 4 on page 16 for the location). Turn the knob left or right to reach the desired volume level.

For quick remote-control of volume below the master setting— for example, muting— use the CAB-1 numeric keypad’s volume control. Press AUX1, 4 on the numeric keypad to lower the overall RailSounds 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.
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 1 on page 5). Plug in the Command Base and place the locomotive on track, then power up. Using CAB-1, press ENG, the locomotive ID# that you select and then press the SET button located under CAB-1’s removable panel. Hear the horn blow (or see the headlight flash if RailSounds 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 fuel tank 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.

**Note!** If you would like to remove the strobe effect, press 6 instead of 5.

**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 PGM 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.
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 (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 locomotive’s wheels or your track. You’ll know your locomotive requires lubrication when visual inspection reveals dryness on the parts indicated in Figure 4 below. Remove accumulated dirt and dust before lubricating, and always lubricate any locomotive emerging from prolonged storage.

Figure 4. Underside details and lubrication points
Maintaining and servicing your locomotive

Lubricating your Phantom’s Pullmor motor armature

Your locomotive will require the occasional lubrication of its Pullmor motor armature. If you hear excess noise during operation, or if the locomotive slows down intermittently, you may need to oil the top armature bearing.

Remove the four cab mounting screws and lift away the body (see Figure 4 page 16). Apply a small amount of Lionel oil (two drops) in the armature shaft hole. Refer to Figure 5.

Finish the job by reinstalling the body shell and replacing the four cab mounting screws.

**Note!** The Lionel Command reverse unit is extremely sensitive to static electricity. Please avoid all physical contact with the circuit boards.

![Figure 5. Armature lubrication](image)
Maintaining and servicing your locomotive

Replacing your locomotive’s lamps

Your locomotive is illuminated by three lamps. One lamp illuminates the rear of the locomotive, and the other two lamps illuminate the front lights and the cab interior. During the course of normal operation, they may require replacement.

Before replacing the headlight, press AUX2 to make sure that the headlight was not turned off accidentally.

Remove the four body mounting screws and lift away the body. Refer to Figure 4 on page 16 for the locations of these screws. Locate the expired lamp. Refer to Figure 6.

- To replace the headlight, gently pull back the retainer clip and remove the bulb and socket. Replace the lamp with Lionel part no. 610-8049-300 and replace the unit into the lamp holder.
- To replace the interior light, remove the lamp from the retainer, then cut and strip the wires near the lamp. Use wire nuts or electrical tape (not included) to attach the new lamp, Lionel part no. 600-2342-009.
- To replace the rear lamp, gently push down on the retainer clip to remove the lamp and socket. Insert the new lamp, Lionel part no. 610-8049-300, and replace the unit into the lamp holder.

Figure 6. Lamp replacement
Maintaining and servicing your locomotive

Replacing the traction tires

Your locomotive is equipped with four traction tires. These rubber tires increase the tractive effort of your locomotive, allowing it to pull more cars at once. During the course of normal operation, the traction tires may become worn out. Because you must remove the trucks and the side frames to access the wheels, we recommend that you have the traction tires replaced by your authorized Lionel Service Center. See the Lionel Service section on page 20 for more information.
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 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____________________