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Lionel ES44AC Diesel Locomotive Owner's Manual

Featuring

LEGACY R·A·I·L·S·O·U·N·D·S

LIONEL CONTROL SYSTEM LEGACY

ODYSSEY SYSTEM

Congratulations!

Congratulations your purchase of the ES44AC diesel locomotive. It is the most technically advanced and realistic O Gauge diesel locomotive ever made. This locomotive features more realistic interior detail, exterior detail and decoration than ever before. Inside the body you'll find the highest caliber electronics and sounds to give you unprecedented operational realism. In addition to all the great features found on Lionel Standard O locomotives, your ES44AC diesel locomotive is equipped with an array of other realistic and dramatic effects including a removable cab roof for viewing a highly detailed interior with illuminated gauges, opening door with interior details on the locomotives front cab, opening doors below the engineer's window showing scale details underneath, operating turbo-intercooler fans, and smoke output synchronized to the diesel RPM of the Legacy RailSounds sound system. More than ever, you are in control of the realistic effects and operation of your locomotive. Your Lionel ES44AC diesel locomotive is ready for duty on your layout.

Unpacking your locomotive

Because of all the fine details and special features on your locomotive, we thought it best to really pack it tight, even better than our normal sturdy packing. Carefully remove the container from the box, and set it on a flat surface. Remove the velcro straps and carefully remove the shell and wrapping. **CAUTION:** The handrails of your locomotive are the antennas for the LEGACY system. The stanchions are plastic to insulate the handrails from the die-cast body. **The stanchions are very fragile,** so do not squeeze them or the handrails when unpacking the locomotive. Your locomotive is now ready to place on the track. **PLEASE** see the smoke fluid section Fig. 8, page 35 before you run your locomotive.

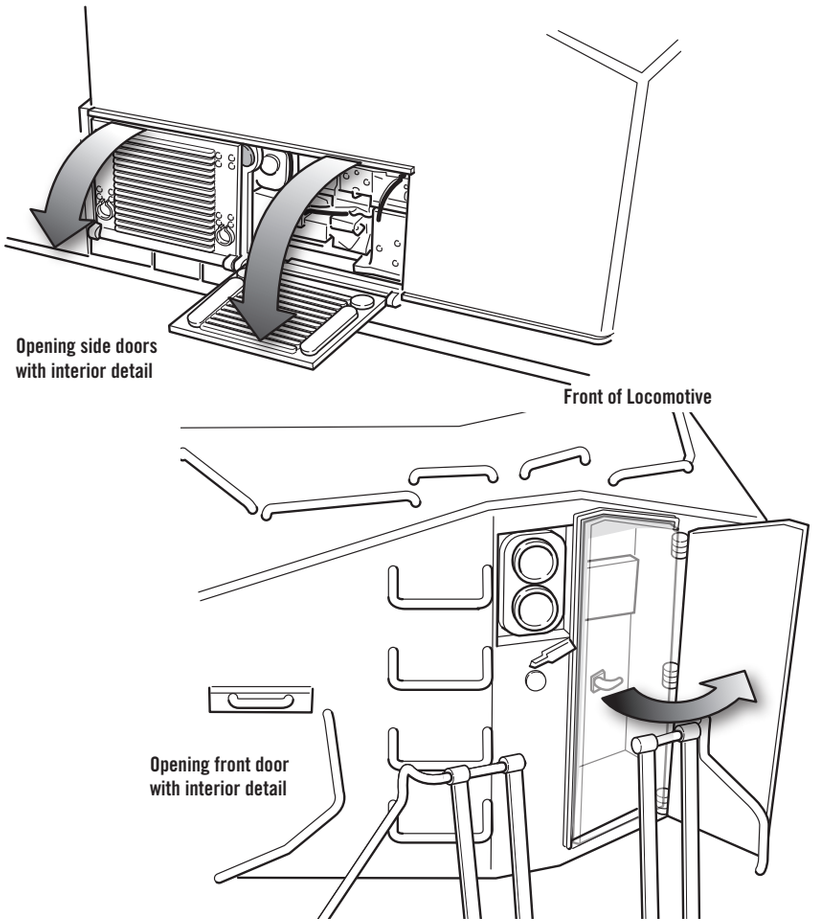
Features of this locomotive

Lighting Features

- Rule 17 lighting for both headlight and rear light
- Enhanced realistic lighting in cab interior with illuminated panel details

Unparalleled Detailing

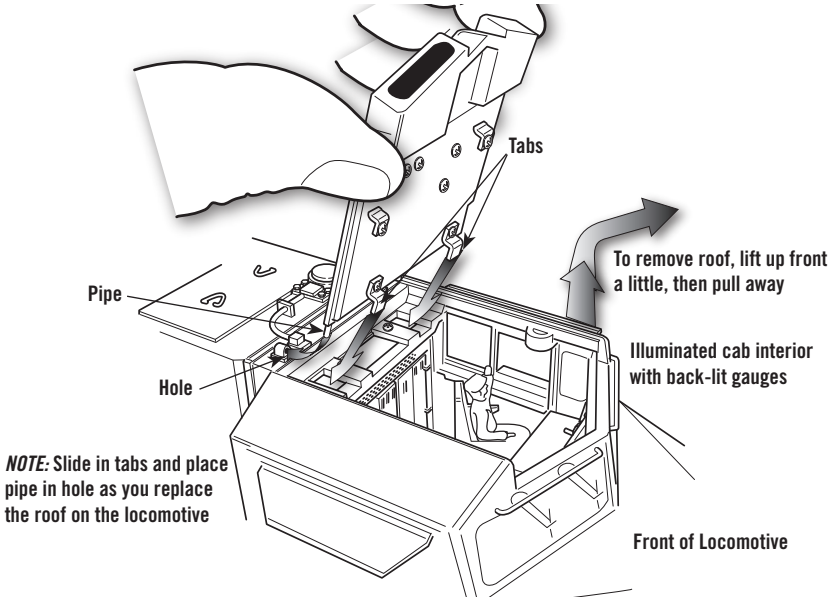
- Movable cab details
- Dual powered turbo-intercooler fans
- Opening doors on the engineer's side of cab and the front door of cab reveal realistic details



Features of this locomotive continued

Unparalleled Detailing

- Removable cab roof reveals the decorated cab interior



Prototypical Idle Mode Features

Prototypical to energy-saving procedures on the actual engine, your ES44AC diesel locomotive is equipped with Idle Mode features. When your engine is left idling for a period, it will automatically "step-down" its operations and enter a realistic and prototypical sequence of idle modes

- If the locomotive rests at idle for 30 seconds, it will enter a step-down mode in which operation on some of the diesel cylinders are shut down. You will hear this change through your RailSounds sound system. Lighting is not affected
- If the engine remains in idle another 30 seconds, the sounds of the diesel engine will shut off. Note you will continue to hear the occasional release of air from the cylinders, and every 15 seconds a warning bell will sound off. Cab lights turn off, all other lights are unaffected
- At maximum energy saving mode, your ES44AC diesel locomotive will randomly start up the diesel to charge the air tanks.
  After the brief startup, the locomotive cycles back through the steps above. Lights and sounds are reactivated
- If any command other than a speed-related command is entered, a long warning bell will sound off, and the engine will proceed to full startup

Features of this locomotive continued

New Smoke Features

- **TruRail Exhaust**, a new cab-controlled, variable-intensity smoke effect
- Fan-driven smoke unit with adjustable smoke output delivers varying intensities of smoke to exhaust stack
- All smoke effects are synchronized to the RailSounds sound system and are completely user controllable

Note: TruRail Exhaust models the prototypical behavior of the ES44AC diesel locomotive. Like the actual ES44AC diesel, this locomotive is capable of producing large volumes of smoke when it transitions through the 8 ascending RPM levels. Once a transition is made, the smoke level tailors off to a continuous wisp. Slight adjustments in speed steps using the Velocity Throttle will not produce a large volume of smoke unless an ascending transition in RPM level is detected. Descending levels of RPM levels will not produce large volumes of smoke.

Upgraded Sound Features

- The LEGACY RailSounds sound system synchronized realistic sounds to nearly all aspects of locomotive operation
- The independently adjustable volume control allows you to use the Remote Controller to lower the level of background effects (such as RPM levels) while keeping operator controlled effects (such as the horn) at full volume
- **TruRail Dialog** – Activate our upgraded dialog features which boast the most authentic railroad terminology possible. Also, dialog scenarios can change with engine operation and user control
- **TruRail Signals** – Activate the "quilling" horn and user-playable bell featuring continuous or single strike sounds with variable intensity. There is a dedicated CAB-2 slide lever control for both horn and bell functions

Have fun experimenting with the prototypical behavior of ES44AC diesel locomotive locomotive.

Standard Features for this locomotive:

- LEGACY Control System – You can run the engine in LEGACY Control mode, in TrainMaster Command Control mode, or in Conventional mode with a standard transformer
- Odyssey II Speed Control with ON/OFF switch
- Two high-torque motors with momentum flywheels
- Front and rear ElectroCouplers
- Die-cast metal locomotive body, frame, and trucksides
- Traction tires
- Engineer and brakeman figures
- Opening roof on cab
- Sliding cab window glass
- Enhanced realistic lighting in cab interior with backlit gauges
- Directional lighting including operating headlight and back-up light
- Illuminated number boards
- Ground lights
- Oscillating ditch lights
- Fan-driven smoke unit with ON/OFF switch
- User-adjustable smoke output

Table of contents

Contents of your locomotive box

1 Locomotive

1 Smoke fluid bottle

4 Replacement traction tires

1 Owner's manual

1 Engine memory module

Quick Start

Note! Power your locomotive with an alternating-current (50-60Hz AC) transformer only. Powering your locomotive with a direct-current (DC) transformer, or in excess of 19 volts AC, may result in damage to sensitive electronic components.

LEGACY Control operations

For the finest operating experience, your locomotive is fully compatible with the new LEGACY Control System.

To operate in LEGACY mode, you need a LEGACY Command Base and LEGACY CAB-2 Remote Controller. Both products are offered together in the LEGACY Command Set, 6-14295.

1. **Turn off track power and plug in the LEGACY Base.**
2. **Place your locomotive on Lionel or Lionel-compatible O-54 or larger track.**
3. **Increase track power voltage to full power (no more than 19 volts AC).**
4. **Press ENG and 1 to address your locomotive with your LEGACY CAB-2 Remote Controller.**
5. **Throttle up and move 'em out.**

TrainMaster Command Control operations

To operate your locomotive in the Command Control environment, you need a Command Base (available separately, 6-12911) and a CAB-1 Remote Controller (available separately, 6-12868).

1. **Turn off track power and plug in the Command Base.**
2. **Place your locomotive on Lionel or Lionel-compatible O-54 or larger track.**
3. **Increase track voltage to full power (no more than 19 volts AC).**
4. **Press ENG and 1 to address your locomotive with your CAB-1 Remote Controller.**
5. **Throttle up and move 'em out.**

Transformer operations

1. **Turn off track power.**
2. **Place your locomotive on Lionel or Lionel-compatible O-54 or larger track.**
3. **Power your locomotive at 12-18 volts with your alternating current (AC) transformer.**
4. **Wait three to eight seconds until the locomotive's headlight illuminates and the LEGACY RailSounds sound system starts up.**
5. **Move 'em out! Press the DIRECTION button on your controller, then throttle up.**

Note! For conventional operation, there must not be a Command Base powered up anywhere in the area. The locomotive receives its signals through the airwaves. If a base is detected your locomotive will default to command mode.

Locomotive switch function overview

Locomotive switch location

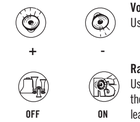
The switches that control the features and programing of your locomotive are located under the radiator roof hatch on the top rear of the locomotive. See Figure 2 on page 10. When you lift up the hatch these switches are visible with their icons. Icons on the left hand side show the ON or RUN positions. Icons on the right hand side show the OFF or PROGRAM positions. On the inside of the lift off hatch, there is also a legend with words that help describe the function of each switch.

Looking down at the back of the locomotive with the front facing away from you the switches are as follows:

Smoke Unit Switch
Used to turn the main smoke stack unit function "ON" and "OFF". This switch is "read" by your engine at start-up. Switching it after start-up will have no effect.

Odyssey II Speed Control System Switch
Used to turn the Odyssey II Speed Control System "ON" and "OFF".

Program Run Switch
Used to assign an ID# and reprogram the locomotive in LEGACY and Command operation when the switch is in the "PROG" position. Also used to "lock" your locomotive in a single direction, or neutral, in conventional operation when the switch is placed in the "PROG" position. See pages 21, 27, and 31.



Volume UP/DOWN Control
Used to turn the maximum volume up or down.

RailSounds ON/OFF Switch
Used to turn off all sounds except horn and bell. Switch is read when the locomotive is powered up after it has been powered down for at least 10 seconds.

Figure 1. Locomotive switch functions

Locomotive switch function overview

Locomotive switch location continued

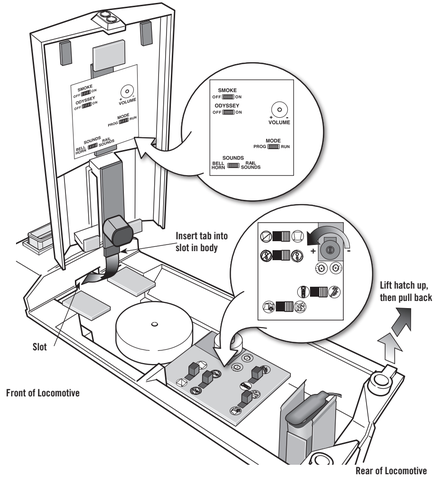


Figure 2. Locomotive switch locations

LEGACY RailSounds sound system operations

Installing the battery

Although the LEGACY RailSounds sound system is powered through the track, we recommend that you install a nine-volt alkaline battery in the locomotive to prevent the sound system from shutting down during track power interruptions (for example, at a switch or a dirty section of track). Follow these steps and see below as you install the battery.

Note! If the RailSounds sound system turns off during interruptions in track power, you may need to replace the battery.

1. Lift the radiator roof hatch off the rear of the locomotive body by lifting up at the rear and pulling back. See Figure 2 on page 10.
2. Remove the protective cover from the battery harness.
3. Snap the battery harness onto the nine-volt alkaline battery's terminals.
4. Slide the battery into the battery holder.
5. Replace the radiator roof hatch on the body by inserting the tab at the front of the radiator fan housing and placing the rear on the magnets. See Figure 2 on page 10.

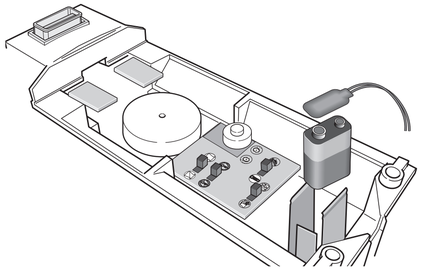


Figure 3. Installing the battery in the locomotive

LEGACY Control System operations

Note! This section is a brief overview of the LEGACY Control System. For a more in-depth explanation of the LEGACY Control System features, please see your LEGACY Control System Operations Manual.

GET READY TO RUN

Get your engine running now by following the instructions in this guide. We'll power up the track, "address the engine" so it can be controlled by your CAB-2 remote, and learn to use the Velocity Throttle, Horn, Bell, Brake and Direction commands.

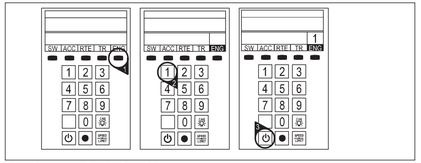
Power Up The Track

If using a PowerMaster, TPC or ZW, refer to the proper manual for the correct method to power up. With your locomotive on the track and ready to roll, power up your track to a constant 18 volts. If a circuit breaker trips when you turn on the Lionel power supply, check the wheels of your locomotive to make sure they are all securely on the track. Check to make sure the track is free of all metals that may cause a short circuit.

Address Your Engine

First, you must address the engine. This "tells" your CAB-2 which locomotive you want to control. This is important when you have more than one engine on your layout.

To address an engine:
1. Press ENG
2. Press 1



See reference numbers 1, 2, and 3

Start 'Er Up

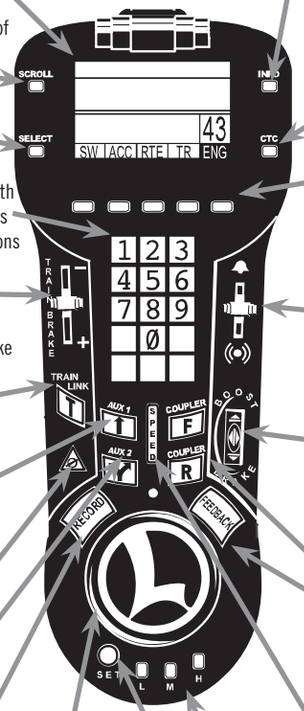
Now it is time to start up your engine's sound system.

3. Press Startup

Your engine sound system will start up and the Touch-screen Control Panel will appear. **Startup dialog**. Pressing and holding the startup key while the engine is off triggers a conversation between the dispatcher and locomotive crew, prior to the prime mover sounds coming on. Tapping the same button while the engine is shutdown starts the prime mover sounds without dialog.

LEGACY Control System operations

The LEGACY CAB-2 Remote Controller



Main Display
Displays real-time information about your railroad system. Displays real-time feedback of operation.

Scroll Button
Navigates through the entire list of Engines, Trains, Switches, etc.

Select Button
Performs addressing by 3-4 digit road number.

Touch Screen Key Pad
A group of touch sensitive keys with icons for each function. These keys serve many purposes and their icons change accordingly.

Train Brake Slider
This slider is used to increase or decrease the amount of Train Brake affecting the engine or train.

Train Link Button
Quick select of Train-Link devices. LEGACY Control System V 1.3

AUX-1/Thru Button
Press to view the Control Panel while operating. Controls switch direction.

Emergency Halt Button
Stops everything on layout; also stops recording playback.

AUX-2/Out Button
Controls switch direction. Turns Headlight ON/OFF

Record Button
Used to record and play back events.

Velocity Throttle
Throttle control over engines, also used to navigate thru info/options.

Info Button
Used to enter/view the info/options of selected components.

CTC Button
Press and hold to turn your remote on and off. Tap this button to enter the remote and base options. Tap it again to return to the main screen.

Soft Keys
These keys directly correlate to the 5 selection boxes located at the bottom of the main display. These are also used in the info/option menus to select options.

Warning Sound Controller
Warning Bell and Variable Whistle/Horn control. Pull down to sound Whistle/ Horn. Push up and release to trigger Warning Bell.

Multi Controller
Boost, Brake, and Direction control. Rock forward for Boost, rock backward for engine brake, and press down for direction change. Click-hold-and rock for absolute direction selection.

Front & Rear Coupler Buttons
Fire couplers.

Feedback Button
Toggle ON/OFF the vibration feedback feature in the CAB-2 Remote.

Official R.R. Speed Control Bar
Toggles the touchscreen display of R.R. preset speeds and control panel.

Low, Medium, High Momentum Buttons
Used to select the desired momentum of your addressed engine/train/accessory.

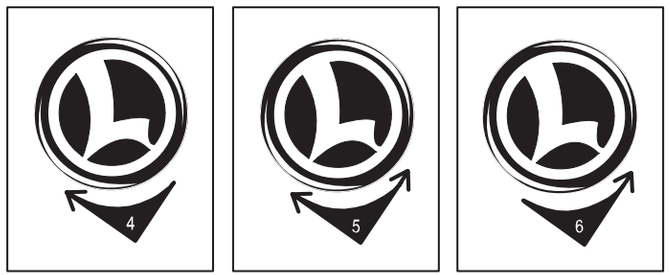
Set Button
Used to set Engine address and for programming.

LEGACY Control System operations

THE VELOCITY THROTTLE

The Velocity Throttle (that big red rotary knob on the bottom of your Lionel remote) is used to start your engine moving, slow it down or speed it up. Use it simply by turning it clockwise (speed up) or counter-clockwise (slow down).

4. Turn the Velocity Throttle clockwise a small amount. Your engine will begin to move.
5. Experiment with the engine's response to the Velocity Throttle. Turn the Velocity Throttle clockwise and counter-clockwise.
6. Slow and stop your engine by turning the Velocity Throttle counter-clockwise.



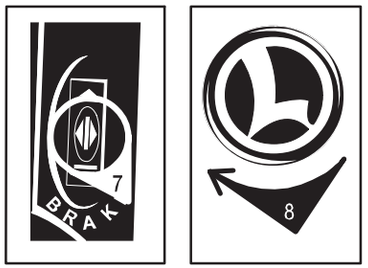
See reference numbers 4, 5, and 6

THE MULTI-CONTROLLER

Direction

The direction of your engine toggles between forward and reverse at the touch of the Multi-Controller.

7. Press the Multi-Controller once. Your engine will come to a stop and the lights will change directions.
8. Turn the Velocity Throttle clockwise a small amount. Your Engine will reverse directions and travel in the opposite direction.



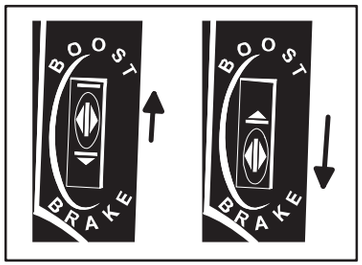
See reference numbers 7, and 8

LEGACY Control System operations

THE MULTI-CONTROLLER (continued)

Boost & Brake

Boost and Brake give you another way to control the speed of your train. Boost gives your loco a temporary increase in tractive power, and returns to the previous speed when you release the control. The brake command slows you down more quickly than the Velocity Throttle alone.



See reference number 9

9. Experiment with Boost and Brake. Notice how your engine responds to the Multi-Controller.

THE TRAIN BRAKE SLIDER

A Train Brake is used to slow down and limit the top speed of your train by adding a load. The more the Train Brake is applied by pulling the Train Brake Slider down, the more laboring is heard from the engine. Eventually Train Brake application will slow down the train and it is even possible to stop a train by pulling the Train Brake Slider all the way down. A tremendous amount of laboring can be heard whenever you apply the Train Brake in a large amount.

10. Experiment with the Train Brake. Try a small amount of the Train Brake when your engine is moving down the rails at a medium speed. Notice the effect the Train Brake has on sound and speed. Try adding even more Train Brake and notice that the engine sounds like it is working harder and harder.

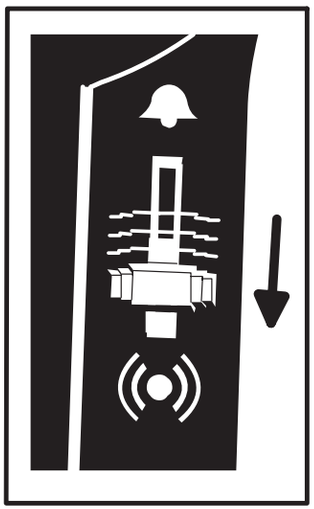
See reference number 10

LEGACY Control System operations

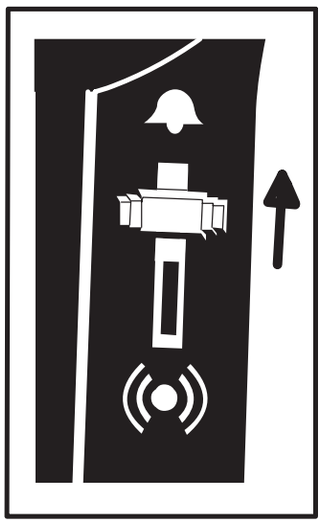
THE WARNING SOUND CONTROLLER

Warning sounds are an important part of Lionel Railroading. Your Lionel Legacy Control System equipped engines have a real-time variable "quilling" Horn while Lionel TMCC engines do not have this feature.

11. Blow the Horn by pulling down on the Warning Sound Controller.
12. Try pulling down the Warning Sound Controller various amounts and listen. Notice the difference in intensity of the Horn sound.
13. Push the Warning Sound Controller up once and quickly release. Notice that the bell rings.
14. Push the Warning Sound Controller up and hold it for 1.5 seconds. Notice that the bell is sounding continuously.
15. Push the warning sound controller up and hold for 1.5 seconds. Notice that the continuous bell stops.
16. Experiment with ringing the bell in your own rhythm or continuously, depending on how you push the Warning Sound Controller



See reference numbers 11, and 12



See reference numbers 13, 14, 15, and 16

LEGACY Control System operations

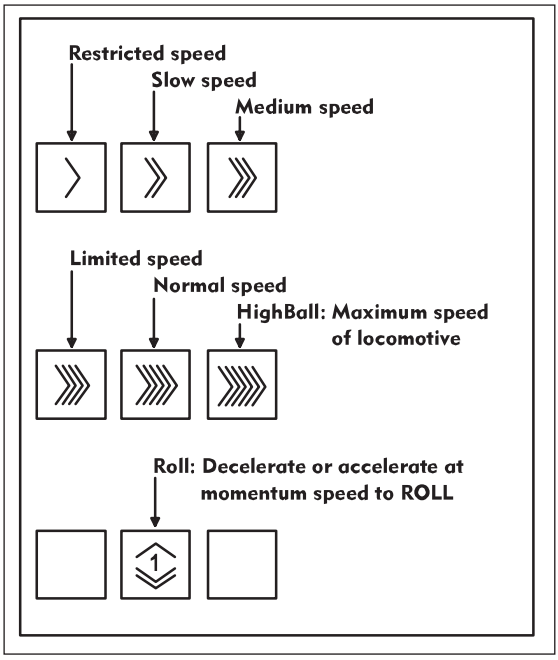
THE SPEED BAR

Selection of Preset Speeds

The Speed Bar is used to select a new touch-screen Icon Control set. This set of touch-screen keys is used to select preset speeds. Pressing AUX-1 returns you to the standard control panel.

17. Press, hold and release the Preset Speed icons one by one. Experiment.
18. The speed of the engine changes with each press and release of a different Preset Speed key.
19. You can also use the Velocity Throttle and other action controls in this mode and continue to use Preset speeds at the same time.
20. Repeat step 17.
21. Press AUX-1 to leave the Preset speed mode and return to the Standard Control Panel.

Note: Pressing and holding a preset speed button triggers corresponding dialog between the dispatcher and locomotive crew. Tapping a preset speed button changes the locomotive speed without dialog.



See reference numbers 17, 18, 19, 20, 21, and 22

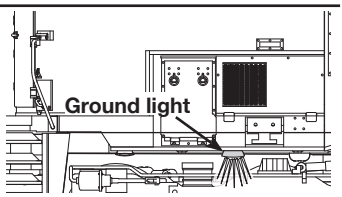
22. Press the speed bar to toggle between the Speed Control Panel and the Standard Control Panel.

At this point you know the basics of how to operate your LEGACY Control system. There is a lot of fun waiting as you experience the interaction of the controls and the touch-screen.

Be sure to read the entire Lionel Legacy Control System Manual to get the most from your Lionel products.

LEGACY Control System operations

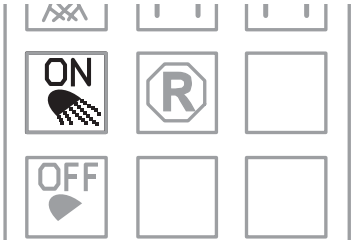
GROUND LIGHT CONTROL



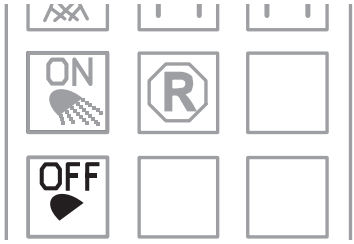
When operating the locomotive under low-light or dark conditions, Ground Lights provide the engineer and brakeman with a visual reference to the ground and allow them to more accurately judge the motion of the locomotive.

AUTO MODE is the default operation of the Ground Lights. In AUTO MODE, the Ground Lights are ON when the locomotive is stopped and they remain ON when the locomotive is in motion through speed step 24. At speed step 25 and above, the Ground Lights are OFF. When the locomotive slows to speed step 24, the Ground Lights will turn ON. In the Legacy environment, you may activate the Ground Lights when the locomotive is in motion at speed step 25 and above using the icon shown below to turn the Ground Lights ON. When the locomotive comes to a stop by either throttling down or by pressing the DIRECTION button, the Ground Lights will default to AUTO MODE. You may also set the Ground Lights so that they will remain OFF when the locomotive is stopped or in motion by using the icon shown below to turn the Ground Lights OFF. When the Ground lights are set to OFF, The AUTO MODE is de-activated.

Note! **For optimal effect of the functional Ground Lights, operate your locomotive in low light conditions.**



Ground Light ON

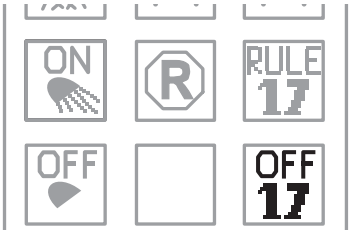


Ground Light OFF

RULE 17 LIGHTING CONTROL

Rule 17 lighting features – In Auto mode, when the locomotive stops the headlights dim.
Press Rule 17 OFF Button
Standard Lionel diesel behavior, headlamp at full intensity in motion and stop conditions.
TAP Rule 17 ON button:
Toggles headlamp between dim and full settings. Does not engage Rule 17 Auto mode.
PRESS and HOLD Rule 17 ON Button:
Engages Rule 17 Auto mode, which causes the headlights to dim when the locomotive stops.

Rule 17 Lighting ON



Rule 17 Lighting OF

LEGACY Control System operations

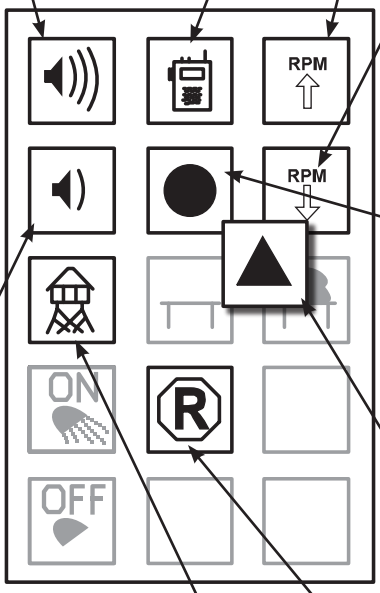
LEGACY RailSounds

Volume UP
Raises the volume of the LEGACY RailSounds sound system background sounds, such as diesel RPM and air release sounds. The horn, bell and dialog are unaffected. The default is full volume. The volume setting is retained when track power is turned off.

Crew Talk
Engineer begins radio dialog and dispatcher replies.

Engine RPM up
Increases RPM levels.

Engine RPM down
Decreases RPM levels.



RailSounds Shutdown
Activates the LEGACY RailSounds sound system shutdown sequence when stopped.
Shutdown sounds.

Emergency Key
Activates the emergency stop feature while in motion.
(Icon will change as the state of the locomotive changes).

Volume DOWN
Lowers the volume of the LEGACY RailSounds sound system background sounds, such as diesel RPM and air release sounds. The horn, bell, and dialog are unaffected. The volume setting is retained when track power is turned off. Sound volume decreases.

Stops and resets the locomotive
Resets the locomotives direction to forward and restores standard lighting defaults.

Tower Com
Dispatcher begins radio dialog and engineer replies.

Figure 5. Legacy RailSounds and RESET icons

LEGACY Control System operations

Activating the CrewTalk dialog and TowerCom announcements

With the LEGACY RailSounds sound system, CrewTalk dialog and TowerCom announcements feature a variety of brief radio conversations between the engineer and the dispatcher. All dialog is intelligible, and each comment is followed by at least one automatic response.

CrewTalk dialog is an engineer initiated radio conversation with the dispatcher. TowerCom announcements are a dispatcher initiated radio conversation with the engineer. Be sure to listen for the different combinations of words and phrases that comprise these exchanges.

See below for the dialog commands. The dialog in the table provides examples of the conversations you can trigger. **The actual phrasing will vary.**

Locomotive	Commands	Example dialog
Stopped	AUX1, 	Crew: Can we go? Tower: No, please standby
	AUX1, 	Tower: Stand by for clearance Crew: Roger
		Crew: Can we go? Tower: Roger, you are clear
		Tower: You are clear for departure Crew: Roger, we are clear
		Crew: Signing off! Shutdown sequence
Moving	 (recently in motion)	Crew: Train is moving Tower: Roger
		Crew: Are we clear ahead? Tower: Roger, clear ahead
	* 	Tower: You are clear inbound Crew: Roger
		Tower: Emergency stop! Crew: Emergency stop, braking now

*Activating  while the locomotive is in motion enables an arrival conversation for 30 seconds. If the train stops within this time, pressing  will play this special conversation.

LEGACY Control System operations

Assigning your locomotive a new ID#

As your roster of Command Control-equipped locomotives grows, you will want to give each unit a unique ID#. The locomotive will respond to commands associated with its ID# while all other units will disregard these commands.

1. Slide the program run switch on your locomotive to the PROG position. See Figure 2 on page 10.
2. Place the locomotive on the track.
3. Connect the LEGACY Base and plug it in.
4. Power up the track.
5. Press **ENG**.
6. Enter the unique ID#. Choose any number from 1 to 99 that has not been assigned to another locomotive (**ENG**). We recommend using a part of your locomotive's road number.
7. Press **SET**. The locomotive's horn will sound.
8. Slide the program run switch back to the RUN position.

   The locomotive's ID# has been set. Be sure to record the new ID# for your reference.

If your locomotive is unresponsive to your commands in the Command Control environment, we recommend that you follow this procedure to reset your locomotive. All factory default settings will be restored when you reprogram the locomotive.

1. Slide the program run switch to the PROG position.
2. Plug in and connect your LEGACY Base.
3. Place your locomotive and tender on the track, then power up the track.
4. Press **ENG** and enter the locomotive's ID#.
5. Press **SET**.
6. Press **INFO.**
7. Press **AUX PROG.**
8. Enter **2** for this particular locomotive.
9. Press **CTC** to exit programming mode.
10. Turn off track power and wait ten seconds.
11. Slide the program run switch back to the RUN position.

At this point, your locomotive has been reset. Restore power to the track and operate the locomotive as usual. Be sure to use the ID# entered in Step 4.

TrainMaster Command Control operations

Operating your locomotive in the Command Control environment

In addition to your transformer, to operate your locomotive in the Command Control environment you need a Command Base (available separately, 6-12911) and a CAB-1 Remote Controller (available separately, 6-12868).

Your commands are sent by the CAB-1 Remote Controller to the Command Base, which translates the command into digital code. That code is sent through the outside rails to your locomotive, which will not respond until it recognizes its unique ID#. TrainMaster Command Control gives you the power to operate multiple Command-equipped locomotives on the same track at the same time.

Keep in mind that track power is like gasoline in the tank of a car—it gives you the power to go places, but it does not tell you where to go or how fast to get there.

1. **Turn off track power and plug in the Command Base.** Be sure that the Command Base is connected to the outside rail or to the Common/Ground/U terminal on your track power supply.
2. **Place your locomotive on Lionel or Lionel compatible O-54 or larger track.**
3. **Increase track voltage to full power (no more than 19 volts AC).** On PowerMasters, slide the CMD/CONV switch to CMD. Program Track Power Controllers to Command Control operation.

Caution! Power your locomotive with an alternating-current (50-60Hz AC) transformer only. Powering your locomotive with a direct-current (DC) transformer or in excess of 19 volts AC may result in damage to sensitive electronic components.

4. **Press ENG and enter the ID# to address your locomotive with your CAB-1 Remote Controller.** All Lionel locomotives come factory-programmed as ID# 1. To change the ID#, see page 27.
5. **Throttle up and move 'em out!** Your locomotive will respond to every command from your CAB-1 Remote Controller.

TrainMaster Command Control operations

Using the LEGACY RailSounds sound system in the TrainMaster Command Control environment

To access the LEGACY RailSounds sound system features listed below, you must operate your locomotive in the TrainMaster Command Control environment. The CAB-1 Remote Controller/Command Base is required to activate these features.

Note! For proper operation of the LEGACY RailSounds sound system during track power interruptions and for the locomotive shutdown sequence, you must install a nine-volt alkaline battery. Refer to Figure 3 on page 11.

In the TrainMaster Command Control environment, you will experience the features of the LEGACY RailSounds sound system listed below.

- **Eight levels** of diesel motor RPM. Your CAB-1 Remote Controller throttle automatically determines the level of the diesel motor RPM. You may also set the RPM sounds to a particular level manually, using your CAB-1 Remote Controller.
- **MultiHorn**. A different horn sound at different speeds—a LEGACY RailSounds sound system exclusive.
- **Mechanical bell**. Press BELL on your CAB-1 Remote Controller to begin the effect, then press BELL a second time to discontinue the effect.
- **Squealing brakes**. Press the BRAKE button and listen for the squealing of the locomotive's brakes as the locomotive slows down.
- **Coupler release sounds**. Use your CAB-1 Remote Controller to release an ElectroCoupler, and you get the sounds of the coupler opening.
- **CrewTalk dialog** and TowerCom announcements. Use your CAB-1 Remote Controller to trigger conversations between the dispatcher and locomotive engineer. You'll hear "hold for clearance," "cleared for departure," and many other exchanges. See page 26.
- **Shutdown sequence**. When you turn off track power, you have two seconds to power up again after you hear the reverse unit reset sound. If you do not restore power, you will hear the realistic diesel shutdown sequence. Because track power is off, a nine-volt alkaline battery is required for this sequence to function. Refer to Figure 3 on page 11. You may also trigger the shutdown sequence without powering down the track using the AUX1, 5 command when the locomotive is stopped and the diesel RPM sounds are at their lowest level.

Note! Because track power is off, a battery is required for this sequence to function. See Figure 3 page 11 for battery installation.

TrainMaster Command Control operations

CAB-1 Remote Controller commands

The CAB-1 Remote Controller commands are detailed below. ***The corresponding RailSounds sound system effects are in bold italic type.***

Releases the ElectroCoupler on the front of the locomotive. ***Coupler release sound.***

Releases the ElectroCoupler on the rear of the tender. ***Coupler release sound.***

Activates the numeric keypad.
Short air release sound.

Toggles the headlight and rear light on and off.
Electric circuit breaker snap.

Accelerates the locomotive with a clockwise rotation. Decelerates the locomotive with a counter-clockwise rotation.
Speed-dependent RPM sounds.

Activates the locomotive's horn. Release the button to discontinue the sound.
Horn sound.

Toggles the bell sound on and off.
Mechanical bell sound.

Changes the locomotive's direction. The locomotive decelerates to a stop and continues in the opposite direction when you increase the throttle.
Air release sound.

Increases the locomotive's speed while the button is pressed. Release the button to return to the initial speed. ***RPM increase.***

Decreases the locomotive's speed while the button is pressed. ***Squealing brake sounds.***

Shuts down all PowerMasters on your railroad. Stops all TrainMaster Command Control-equipped locomotives in operation. Use **HALT** only in emergency situations.

L = 32 speed steps
M = 100 speed steps
H = 100 speed steps with momentum.

TrainMaster Command Control operations

CAB-1 Remote Controller numeric keypad commands

When you press the **AUX1** button on your CAB-1 Remote Controller, you turn the numeric keypad into ten command buttons. These commands are specific to your locomotive. After you press the **AUX1** button, you will be able to press any numbered button until you address a different Command Control equipped product. ***The corresponding LEGACY RailSounds sound system effects are in bold italic type***.

Stops and resets the locomotive. Resets the locomotive's direction to forward. Horn blows. ***RPM sounds return to automatic.***

Raises the volume of the LEGACY RailSounds sound system background sounds, such as RPM sounds and let-off sounds. The horn, bell and dialog are unaffected. The default is full volume. The volume setting is retained when track power is turned off. ***Sound volume increases.***

Engineer begins radio dialog, dispatcher replies (see page 26). ***CrewTalk communication.***

Enters manual RPM mode and increases the RailSounds sound system RPM level (see page 18). If the LEGACY RailSounds sound system is shut down (see 5 key below), AUX1, 3 activates a full LEGACY RailSounds sound system start-up while the locomotive is stopped after pressing AUX1, 5 with track power on.

Lowers the volume of the LEGACY RailSounds sound system background sounds, such as RPM sounds and let-off sounds. The horn, bell, and dialog are unaffected. The volume setting is retained when track power is turned off. ***Sound volume decreases.***

Activates the LEGACY RailSounds sound system shutdown sequence when stopped. Activates the emergency stop feature while in motion. Pressing the 5 key after presssing AUX1, 5 will activate the "Go to restricted speed" announcement while in motion. Note that in the shutdown sequence, the smoke unit does not turn off if it was already on. To turn off the smoke unit, press AUX1, 8 or use the smoke unit SMK/NO SMK switch.

Enters manual RPM mode and lowers the LEGACY RailSounds diesel motor RPM level (see page 18).

Dispatcher begins radio dialog and engineer replies (see page 19). ***TowerCom announcement.***

Turns off the smoke unit. ***Air release sound.***

Turns on the smoke unit if the smoke unit switch is in the SMK position. Be sure to add smoke fluid before turning on the smoke unit to prevent damage to your locomotive. ***Diesel generator blow-off sound.***

Note! AUX1, 8 and 9 function only if the locomotive's smoke unit switch is in the SMK position. Sounds will be active in both switch positions.

TrainMaster Command Control operations

Activating CrewTalk and TowerCom announcements

With the LEGACY RailSounds sound system, CrewTalk dialog and TowerCom announcements feature a variety of brief radio conversations between the engineer and the dispatcher. All dialog is intelligible, and each comment is followed by at least one automatic response.

CrewTalk dialog is an engineer initiated radio conversation with the dispatcher. TowerCom announcements are a dispatcher initiated radio conversation with the engineer. Be sure to listen for the different combinations of words and phrases that comprise these exchanges.

See below for the dialog commands. The dialog in the table provides examples of the conversations you can trigger. **The actual phrasing will vary.**

Locomotive	Commands	Example dialog
Stopped	AUX1,2	Crew: Can we go? Tower: No, please standby
	AUX1,7	Tower: Stand by for clearance Crew: Roger
	2	Crew: Can we go? Tower: Roger, you are clear
	7	Tower: You are clear for departure Crew: Roger, we are clear
	AUX1, 5	Crew: Signing off! Shutdown sequence
Moving	AUX1, 2*	Crew: Train is arriving Tower: Roger, you are clear inbound
	AUX1, 7*	Tower: You are clear for arrival Crew: Roger
	2	Crew: Are we clear ahead? Tower: You are all clear
	7	Tower: You are all clear Crew: Roger
	AUX1, 5	Crew: Train is moving Tower: Roger
	AUX1, 5	Tower: Come to an immediate stop Crew: We are stopping now
	5	Tower: Slow to caution speed Crew: Roger, slowing now

*Activating while the locomotive is in motion enables an arrival conversation for 30 seconds. If the train stops within this time, pressing 2 or 7 will play this special conversation.

TrainMaster Command Control operations

Assigning your locomotive a new ID#

As your roster of TrainMaster Command Control-equipped locomotives grows, you will want to give each unit a unique ID#. The locomotive will respond to commands associated with its ID# while all other units will disregard these commands.

1. Slide the program run switch on your locomotive to the PROG position. See Figure 2 on page 10.
2. Place the locomotive on the track.
3. Connect the Command Base and plug it in.
4. Power up the track.
5. Press **ENG**.
6. Enter the unique ID#. Choose any number from 1 to 99 that has not been assigned to another locomotive (**ENG**). We recommend using a part of your locomotive's cab number.
7. Press **SET**. The locomotive's horn will sound.
8. Slide the program run switch back to the RUN position.

   The locomotive's ID# has been set. Be sure to record the new ID# for your reference.

Reprogramming your locomotive to restore features

If your locomotive is unresponsive to your commands in the TrainMaster Command Control environment, we recommend that you follow this procedure to reset your locomotive. All factory default settings will be restored when you reprogram the locomotive.

1. Slide the program run switch to the PROG position.
2. Plug in and connect your Command Base.
3. Place your locomotive on the track, then power up the track.
4. Press **ENG** and enter the locomotive's ID#.
5. Press **SET**.
6. Press **ENG** and enter the locomotive's ID# again.
7. Press **AUX1**.
8. Enter **2** for this particular locomotive.
9. Turn off track power and wait ten seconds.
10. Slide the program run switch back to the RUN position.

At this point, your locomotive has been reset. Restore power to the track and operate the locomotive as usual. Be sure to use the ID# entered in Step 4.

Conventional transformer operations

Operating your locomotive in the conventional environment

Your locomotive is capable of operating in the conventional environment with nothing more than a standard Lionel alternating current (AC) transformer.

In the conventional environment, your locomotive cycles through a repeating pattern of operations: forward, neutral, reverse, neutral, and so on. To advance to the next operation, press the **DIRECTION** button on your transformer. Alternately, you could use the throttle to briefly turn off track power so that the locomotive advances to the next operation when power is restored.

Once you cycle the locomotive into forward or reverse, you control your locomotive's speed by varying track voltage with the transformer's throttle. To increase the speed of the locomotive, increase track voltage. To decrease the speed, decrease track voltage. To stop the locomotive and to change directions (or to enter neutral), track voltage is turned off or interrupted.

Use the **HORN** and **BELL** buttons on your transformer to activate these features. If your transformer is not equipped with these controls, separate buttons are available (610-5906-001). Please refer to page 34 of this manual.

To experience all of your locomotive's features, we recommend operating in the LEGACY Command Control environment. With a simple one-wire connection, you can use the CAB-2 Remote Controller to access all of the functions of your locomotive. Refer to pages 9-21 to see how to operate your locomotive in the LEGACY Command Control environment.

Conventional transformer operations

Operating your locomotive in the conventional environment (continued)

1. **Place your locomotive on Lionel or Lionel-compatible O-54 or larger track.**
2. **Power your locomotive at 12-18 volts with your alternating current (AC) transformer.**

Caution! Power your locomotive with an alternating current (AC) transformer only. Powering your locomotive with a direct current (DC) transformer or in excess of 19 volts AC may result in damage to sensitive electronic components. 50-60 HZ AC is required.

3. **Wait three to eight seconds as your locomotive determines whether it is in a conventional environment or a TrainMaster Command Control environment.** When the locomotive has determined that a TrainMaster Command Base is not connected to the track, the locomotive's headlight will illuminate and the LEGACY RailSounds sound system will start. You are ready for operation in the conventional environment.
4. **Move'em out!**
   Press the **DIRECTION** button on your transformer to sequence your locomotive through the repeating pattern of operations: forward, neutral, reverse, neutral, and so on. You may also briefly turn off track power to advance the locomotive to the next operating state. Adjust the throttle until your locomotive moves at your desired speed.

Note! When placing your locomotive on your layout for the first time, it will start out in neutral. Thereafter, it will start in forward after every power interruption lasting five seconds or longer.

We recommend that you operate your LEGACY locomotive with The Odyssey II Speed Control System turned on. You may choose to operate your locomotive without speed control by placing the Odyssey II Speed Control System switch to the OFF position. See Figure 1 on page 9.

Use the **HORN** and **BELL** buttons on your transformer to activate those features. Refer to page 34 if your transformer is not equipped with those buttons. Adjust the volume using the volume control knob located under the radiator hatch. Refer to Figure 2 on page 10.

Conventional transformer operations

Using the LEGACY RailSounds sound system in the conventional environment

When you first power up your locomotive, you will hear the sounds of the locomotive at rest. As the locomotive set moves, the RPM sounds automatically increase with the locomotive's speed. In the conventional environment, the horn and bell sounds are activated by your transformer controls.

To silence the motor sounds, slide the LEGACY RailSounds sound system switch located under the rear radiator vent to the BELL HORN position (see Figure 2 on page 10 for the location of this switch) before you power up the locomotive or after the locomotive has been powered down for a minimum of ten seconds. The horn and bell sounds will still be active. To adjust the volume, use the volume control knob located under the rear radiator hatch. Refer to Figure 2 on page 10.

Note! When the LEGACY RailSounds sounds system switch is in the "BELL HORN" position, the CrewTalk dialog and TowerCom announcements are inactive.

Note! For proper operation of the LEGACY RailSounds sound system during track power interruptions and for the locomotive shutdown sequence, you must install a nine-volt alkaline battery. Refer to Figure 3 on page 11.

In the conventional environment, you will experience several features of the LEGACY RailSounds sound system.

- **Eight levels of diesel motor RPM**. The level of diesel motor RPM automatically varies with your throttle adjustments.
- **MultiHorn**. A different horn sound at different speeds—a LEGACY RailSounds sound system exclusive.
- **Mechanical bell**. Press BELL on your transformer to begin the effect, then press BELL a second time to discontinue the effect.
- **CrewTalk dialog** and **TowerCom announcements**. CrewTalk dialog is triggered by your transformer's HORN button. See page 31.
- **Reverse unit reset sound**. Power down your track, wait three seconds, and listen for the air-release sound—that's the locomotive telling you that its Lionel Command reverse unit has reset to forward. Because the track is powered down, a nine-volt alkaline battery is required for this feature. Refer to Figure 3 on page 11.
- **Shutdown sequence.** When you turn off track power, you have two seconds to power up again after you hear the reverse unit reset sound. If you do not restore power, you will hear the realistic diesel shutdown sequence. Because track power is off, a nine-volt battery is required for this sequence to function. Refer to Figure 3 on page 11.

Conventional transformer operations

Activating the CrewTalk dialog and TowerCom announcements

In the conventional environment, CrewTalk dialog and TowerCom announcements are triggered by short horn blasts and vary with the state of the locomotive.

- If the locomotive has been stopped for less than 15 seconds, a short horn blast triggers a “please standby” dialog (a 9V battery is required for this sequence).
- If the locomotive has been stopped for longer than 15 seconds, a short horn blast triggers a “cleared outbound” dialog.
- If the locomotive is moving, a short horn blast triggers an “all clear ahead” dialog.
- If the locomotive is moving, turning on the bell and a short horn blast triggers a “slow to caution speed” dialog.

Conventional transformer operations

Locking your locomotive into a single direction

When the PROG/RUN switch is in the RUN position, your locomotive sequences through a repeating pattern of operations: forward, neutral, reverse, neutral, and so on.

To “lock” your locomotive into a single direction (for example, to operate in forward only), you can deactivate the Command reverse unit’s sequencing function.

1. Use your transformer’s **DIRECTION** button or interruptions in track power to get your locomotive moving in the desired direction or into neutral.
2. Slow the locomotive down without stopping (reduce the throttle without turning off track power).
3. Slide the PROG/RUN switch to the PROG position. At this point, the locomotive is “locked” into your chosen direction. See Figure 2 on page 10 for the location of this switch.

To restore the forward-neutral-reverse sequence, just slide the PROG/RUN switch back to the RUN position.

Conventional transformer operations

Uncoupling your locomotive in the conventional environment

Your locomotive features an ElectroCoupler that is released by remote control at any point around your layout in the TrainMaster Command Control environment.

In the conventional environment, the ElectroCoupler will not open manually or by using a Remote-Control Track section. To couple your locomotive in the conventional environment, you must rely on a piece of rolling stock equipped with a magnetic coupler. Simply release the magnetic coupler and couple the rolling stock to the locomotive, even if the ElectroCoupler is closed.

Keep in mind that you may still make use of Lionel Remote-Control Track sections (6-65530 for O gauge; 6-12746 and 6-65149 for O-27 gauge; and 6-12020 and 6-12054 for FasTrack layouts) with the magnetic couplers on the rolling stock. Place the trigger disc on the magnetic coupler over the central coil on the Remote-Control Track section, then press UNCOUPLE on the track section’s controller. As illustrated in Figure 6, the magnetic field pulls the disc downward, releasing the coupler.

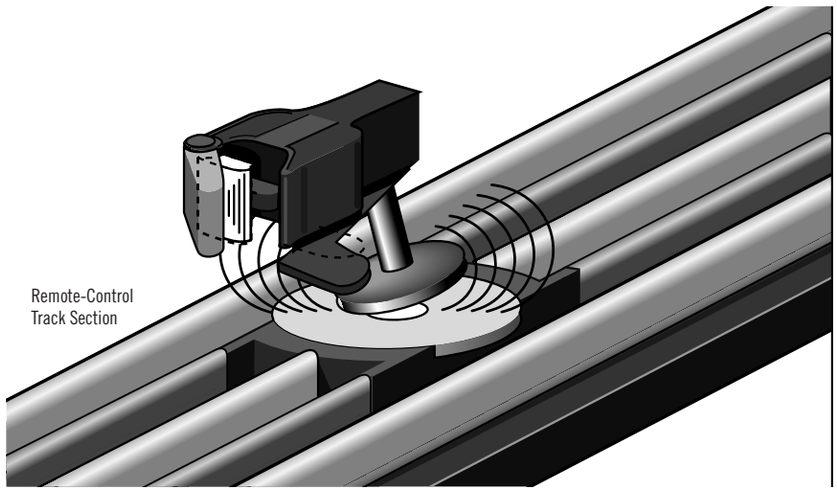


Figure 6. Magnetic coupler operation

Odyssey II Speed Control system operations

Odyssey II Speed Control system performance

The Odyssey II Speed Control system is "cruise control" for your locomotive. Once the speed control is set, your locomotive will maintain a constant speed, no matter what load is placed on the locomotive or what grades you have on your layout. The Odyssey II Speed Control system also allows for extremely slow movement that will amaze any scale enthusiast.

Odyssey II Speed Control system LEGACY Control operation

In LEGACY Control System CAB-2 mode, Odyssey II Speed Control system provides 0-199 speed steps. For a more indepth explanation of the LEGACY Control System features, please see your LEGACY Control System operations manual.

Odyssey II Speed Control system TrainMaster Command Control operation

When the Odyssey II Speed Control system is activated, changes in the speed of the locomotive will correspond to each signal from the Command Base. For example, when you address the locomotive and slowly turn the throttle knob, the first flash of the red light on the Command Base corresponds to the first speed step, which is the slowest speed of the locomotive. The locomotive will maintain that speed until you increase or decrease the throttle.

In TrainMaster Command Control CAB-1 mode, Odyssey II Speed Control System now provides selectable resolution and momentum. L=32 speed steps, M=100 speed steps, and H=100 speed steps with momentum.

Odyssey II Speed Control system conventional transformer operation

The Odyssey II Speed Control system is automatically operational when you operate your locomotive in conventional (non-Command Control) mode, as long as the Odyssey II Speed Control system switch is in the ON position (see Figure 2 on page 10). 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.

Note! Because of the way the 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 II Speed Control system using the Odyssey II Speed Control switch (see Figure 2 on page 10).

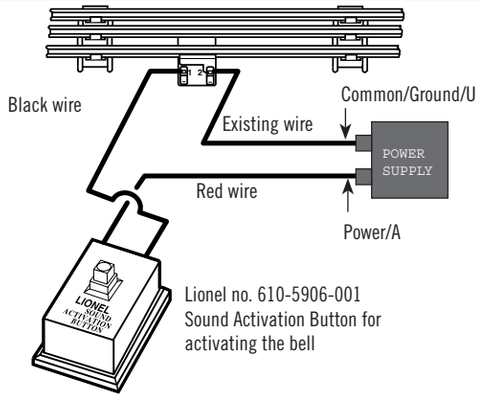
Conventional RailSounds operations

Installing a Lionel Sound Activation Button for conventional operation

If your transformer lacks **HORN** and **BELL** buttons, you will need to install Lionel no. 610-5906-001 Sound Activation Buttons (available separately) to activate the locomotive's horn and bell sounds.

Connect the buttons as shown below. Be sure that all track power passes through the Sound Activation Button(s). Do not bypass the buttons.

For AC transformers lacking a BELL button



For AC transformers lacking BELL and HORN buttons

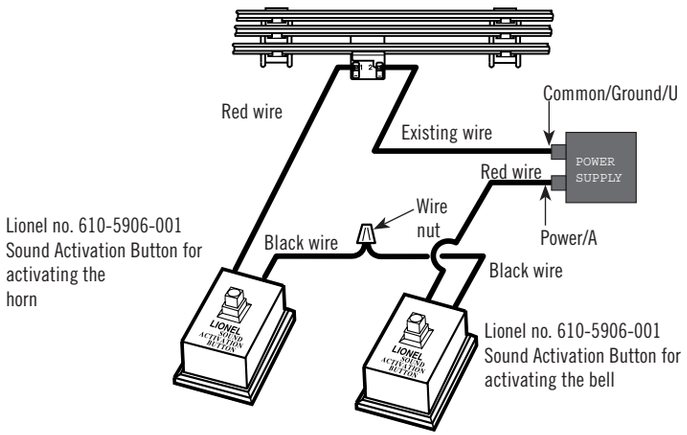


Figure 7. Sound activation button

Maintaining and servicing your locomotive

Adding fluid to your locomotive's smoke generator

Your locomotive is equipped with a smoke generator that produces a safe, clean, white smoke during operation. Your ES44AC diesel locomotive's smoke generator is located under the exhaust stack in the middle of the engine roof. Place 20 drops of smoke fluid in the stack for the first time, and 10 to 20 thereafter. See Figure 8 below. **DO NOT EXCEED 20 DROPS** as this can cause your smoke unit to become oversaturated, allowing leakage onto the electronics. **Note that operating your locomotive's smoke unit without smoke fluid will cause damage to the heating element.**

If you prefer to operate your locomotive without smoke, locate the smoke unit switch under the rear radiator hatch and slide it to the OFF position. Refer to Figure 2 on page 10 for the location of this switch.

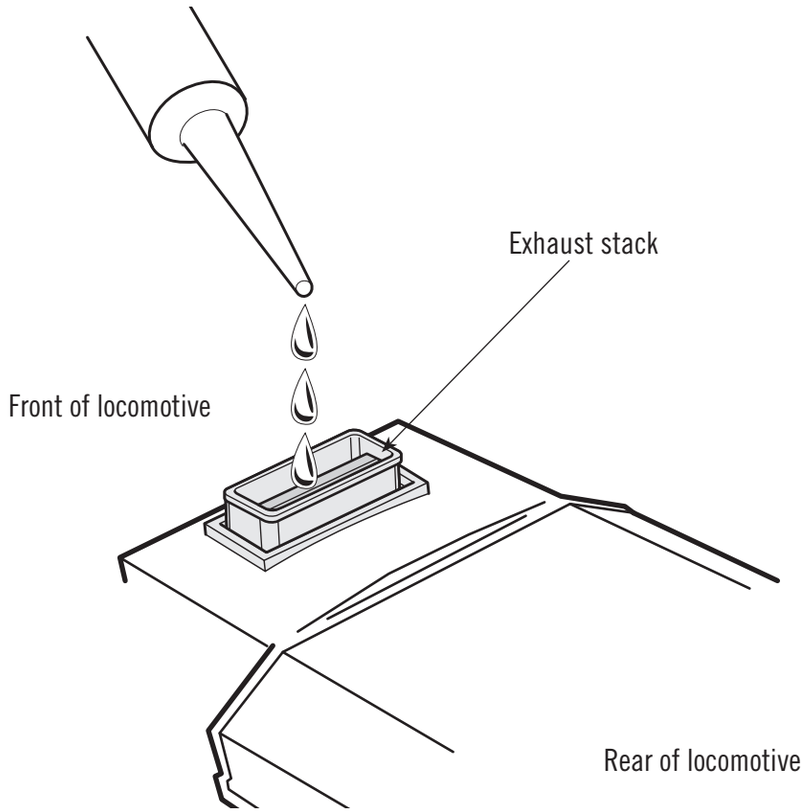


Figure 8. Smoke fluid fill location

Maintaining and servicing your locomotive

Lubricating your locomotive

Help your Lionel locomotive lead a long and productive life on your railroad by maintaining it properly. To keep your locomotive lubricated, we recommend that you purchase a Lionel Lubrication and Maintenance Kit (6-62927), available from your authorized Lionel dealer.

When you find that the lubrication points illustrated in Figure 9 appear dry, lubricate your locomotive after you have removed any accumulated dirt and dust. There are two basic rules to keep in mind when you are lubricating your locomotive: use only a small amount of lubrication and avoid getting grease or oil on your locomotive's wheels, roller pick-ups, or the track.

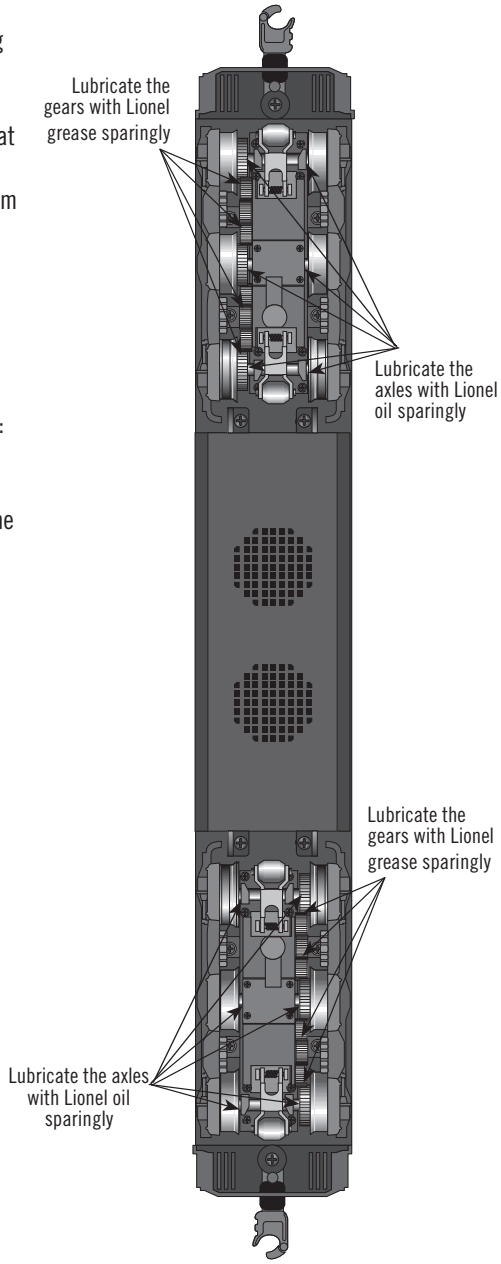


Figure 9. Lubrication points

Maintaining your locomotive's handrail antenna

The handrails on your locomotive are the antennas that receive the digital communication from the Command Base. For optimum reception, the handrails have been insulated from the die-cast body. **Please handle the locomotive carefully to avoid handrail damage.** The handrails should not touch the locomotive's body.

If your locomotive appears to have problems receiving communications from the Command Base, be sure that the ends of the handrails are insulated from the body with either an insulating washer or handrail stanchion.

Servicing your locomotive's lamps

Note! Before having the headlamp in your locomotive changed, be sure to check that the **AUX2** command was not used to turn the headlamp off.

Your locomotive is illuminated by several LEDs (light emitting diodes) and are not user-serviceable. They can be replaced by your authorized Lionel Service Center, if it is ever required. **You should never attempt this yourself due to the complexity of this locomotive.**

Tire-Traction

Your locomotive is equipped with traction tires. This means that four 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 four extra traction tires to replace the installed traction tires if they ever wear out. The traction tires are replaced by slipping off the old traction tire and replacing it with a new traction tire (Lionel part # 620-8815-206) on the wheel.

NOTES

Lionel Limited Warranty Policy & Service

This Lionel product, including all mechanical and electrical components, moving parts, motors and structural components, with the exception of **LIGHT BULBS, LED's & TRACTION TIRES** are warranted to the original owner-purchaser for a period of **one year from the original date of purchase** against original defects in materials or workmanship when purchased through a **Lionel Authorized Retailer***.

This warranty does **NOT** cover the following:

- Normal wear and tear
- Light bulbs or LED's
- Defects appearing in the course of commercial use
- Damage resulting from abuse/misuse of the product

Transfer of this product by the original owner-purchaser to another person voids this warranty in its entirety. Modification of this product in any way; visually mechanically or electronically, voids the warranty in its entirety.

Any warranted product which is defective in original materials or workmanship and is delivered by the original owner-purchaser (this warranty is non-transferrable) to Lionel LLC or any Lionel Authorized Service Station **MUST** be accompanied by the original receipt for purchase (or copy) from an **Authorized Lionel Retailer***, will at the discretion of Lionel LLC, be repaired or replaced, without charge for parts or labor. In the event the defective product cannot be repaired, and a suitable replacement is not available, Lionel will offer to replace the product with a comparable model (**determined by Lionel LLC**), if available. In the event a comparable model is not available the customer will be refunded the original purchase price (requires proof of purchase from the **Authorized Lionel Retailer*** it was originally purchased). Any products on which warranty service is sought must be sent freight or postage prepaid (Lionel will refuse any package when postage is due). **Transportation and shipping charges are not covered as part of this warranty.**

NOTE: Products that require service that do not have a receipt from an LIONEL AUTHORIZED RETAILER* will be required to pay for all parts required to repair the product (labor will not incur a charge) providing the product is not older than 3 years from date of manufacture and is within 1 year from date of purchase. A copy of the original sales receipt is required.

In no event shall Lionel LLC be held 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 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 LLC product is required; bring the item, along with your DATED sales receipt and completed warranty information (at the bottom of this page) to the nearest Lionel Authorized Service Station. Your nearest Lionel Service Station can be found by calling 1-800-4-LIONEL or by accessing the website at www.lionel.com.

If you prefer to send your Lionel product directly to Lionel, for repair you must FIRST call 586-949-4100 extension 9105 or FAX Lionel at 586-949-5429 or write to Customer Service, 26750 Twenty Three Mile Road, Chesterfield, MI 48051-2493. Please have the 6-digit Lionel product number, the date of original purchase, the dealer where the item was purchased and what seems to be the problem. You will receive a return authorization (RA) number to ensure your merchandise will be properly tracked and handled upon receipt at Lionel LLC.

Once you have your Return Authorization (RA) number, make sure the item is packed in its original Styrofoam inner container which is placed inside the original outer display box (this will help prevent damage during shipping and handling). This shipment MUST be prepaid and we recommend that it be insured with the carrier of your choice.

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 Lionel LLC's Authorized Service Stations after its warranty has expired. A reasonable service fee should be expected once the product warranty has expired.

Warranty Information

Please complete the information below and keep it, along with your **DATED ORIGINAL SALES RECEIPT**. You MUST present this form **AND** your **DATED SALES RECEIPT** when requesting warranty service.

*A complete listing of Lionel Authorized retailers can be found by calling 1-800-4-LIONEL or by visiting our website at www.lionel.com.

Products that are more than 3 years old, from date of manufacture, are not applicable for warranty coverage, even if they have never been sold prior to this date. (Under no circumstance shall any components or labor be provided free of charge.)

Name _____

Address _____

Place of Purchase _____

Date of Purchase _____

Product Number _____

Product Description _____