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12/13



***Lionel  
E8/E9 A-A  
Diesel Locomotive Set  
Owner's Manual***

Featuring



# ***Congratulations!***

**C**ongratulations on your purchase of this Lionel LEGACY diesel locomotive set! On the outside, this locomotive set features numerous details and expert decoration in your favorite livery. Inside the body, this locomotive set is equipped with some of the most advanced sounds and controls in model railroading. This powerful locomotive set is ready for duty on your layout.

## **Contents of your locomotive set boxes**

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**1 Powered locomotive**

**1 Non-powered locomotive**

**4 Replacement traction tires**

**1 Owner's manual**

**1 Engine memory module (powered A unit only)**

**1 Smoke fluid funnel**

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# Running your locomotive set

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

**Note!** Your locomotive set requires Lionel or Lionel-compatible 0-36 or larger track curves.

**Note!** Both of the locomotives in this set are factory programmed as ENG 1.

## LEGACY Control operations

**F**or the finest operating experience, your locomotive set is fully compatible with the LEGACY Control System. To operate in LEGACY mode, you need a LEGACY Command Base and LEGACY CAB-2 Remote Controller (6-14295).

Your commands are sent by the CAB-2 Remote Controller to the Command Base, which sends a digital code through the rails to your locomotive set. Your locomotive set will not respond until it recognizes its unique ID#, so you can operate multiple Command-equipped locomotive sets on the same track at the same time.

1. **Turn off track power, and then plug in the LEGACY Base and connect it to the track.**
2. **Place your locomotive set on the track.**
3. **Increase track power voltage to full power (no more than 19 volts AC).** If a circuit breaker trips when you turn on the Lionel power supply, check the wheels of your locomotive set 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.
4. **As illustrated in Figure 1, press ENG and 1 (or your selected ENG ID#) to address the locomotive set with your LEGACY CAB-2 Remote Controller.**

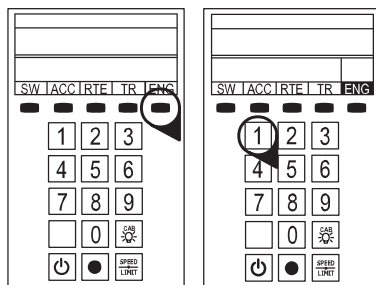


Figure 1. LEGACY engine selection

5. **Press the Start Up button on your LEGACY CAB-2 Remote, shown in Figure 2. Then, throttle up and move 'em out!** Your engine sound will start up, and the locomotive set-specific touch screen buttons will populate the remote. For more information on operating your locomotive set with the LEGACY system, please refer to the LEGACY section of this manual. Additional information is also found in the LEGACY System Manual, available online at [www.lionel.com](http://www.lionel.com).

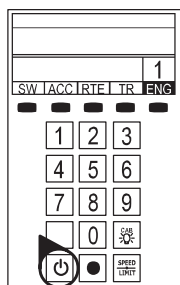


Figure 2. LEGACY start-up

# ***Running your locomotive set***

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

**Note!** Your locomotive set requires Lionel or Lionel-compatible 0-36 or larger track curves.

**Note!** Both of the locomotives in this set are factory programmed as ENG 1.

## **TrainMaster Command Control (TMCC) operations**

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**F**or operation in the TrainMaster Command Control environment, you need a TrainMaster Command Base (6-12911) and a CAB-1 Remote Controller (6-12868). Refer to your TMCC System Manual for complete information. **To access all the locomotive's features, you must operate in the LEGACY environment, as discussed on the previous page.**

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 set, which will not respond until it recognizes its unique ID#. TrainMaster Command Control gives you the power to operate multiple Command-equipped locomotive sets on the same track at the same time.

- 1. Turn off track power, and then plug in the Command Base and connect it to the track.**
- 2. Place your locomotive set on the track.**
- 3. Increase track voltage to full power (no more than 19 volts AC).** If a circuit breaker trips when you turn on the Lionel power supply, check the wheels of your locomotive set 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.
- 4. Press ENG and 1 (or the ENG ID# you set) to address your locomotive set with your CAB-1 Remote Controller.**
- 5. Throttle up and move 'em out.**

For more information, please refer to the TrainMaster Command Control operations section of this manual or the TMCC System Manual, available online at [www.lionel.com](http://www.lionel.com).

# Running your locomotive set

## Conventional transformer operations

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**Note!** For Conventional operation, a Command Base must not be powered up anywhere in the area, even if it is not connected to the track. If a base is detected, your locomotive set will default to Command mode.

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

**Note!** Your locomotive set requires Lionel or Lionel-compatible 0-36 or larger track curves.

- 1. With track power off, place your locomotive set on the track.**
- 2. Power up the track.** If a circuit breaker trips when you turn on the Lionel power supply, check the wheels of your locomotive set 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.
- 3. Move 'em out!** When the locomotive set's headlight illuminates and the LEGACY RailSounds sound system starts, press the DIRECTION button on your transformer to sequence your locomotive set through the repeating pattern of operations: neutral, forward, neutral, reverse, neutral, and so on. You may also briefly turn off track power to advance the locomotive set to the next operating state. Adjust the throttle until your locomotive set moves at your desired speed.

**Note!** When placing your locomotive set on your layout for the first time and after power interruptions lasting longer than five seconds, it will start out in neutral.

**We recommend that you operate your LEGACY locomotive set with Odyssey II Speed Control turned on.** You may choose to operate your locomotive set without speed control by placing the Odyssey II Speed Control System switch to the NO ODY position. See Figure 4 on page 8 for the location of the switch.

Use the **HORN** and **BELL** buttons on your transformer to activate those features. Adjust the volume using the volume control knob, which is located under the rear rooftop hatch on the powered unit. Refer to Figure 5 on page 9. For more information, please refer to the Conventional transformer operations section of this manual.

# Locomotive set basics

## Adding smoke fluid to your locomotive set's smoke generators

**B**oth locomotives are equipped with a smoke generator that produces safe, clean, white smoke during operation. Add 10-20 drops to the duct (shown in Figure 3) to prime the units the first time you run the locomotive set or after being stored for an extended period of time, and then add 10 to 20 drops to refill when smoke production decreases. When refilling, **DO NOT EXCEED 20 DROPS** as this can cause your smoke units to become oversaturated allowing leakage onto the electronics. Note that operating your locomotives' smoke units without smoke fluid will cause damage to the heating element.

If you prefer to operate your locomotive set without smoke, locate the smoke unit switch on each locomotive and slide it to the NO SMK position. Refer to Figure 4 on page 8 for the location of these switches.

**Note!** For best performance, we recommend using Lionel smoke fluid only.

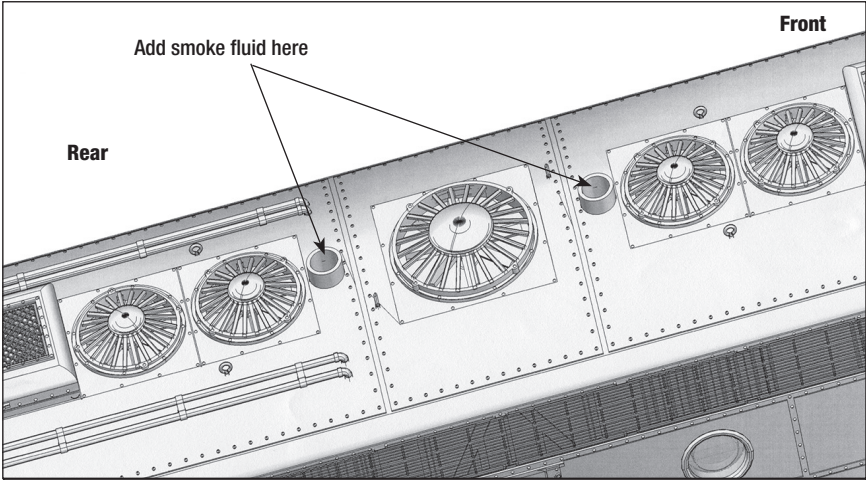


Figure 3. Stack location

# Locomotive set basics

## Locomotive set switch locations

The functions of your locomotive set's switches are outlined below. Refer to Figure 4 for the location of the switches. **The instructions below are specific to this particular locomotive set; note that available features (and switches) may differ from other locomotives and sets.**

### Smoke Unit Switch (SMK/NO SMK)

Used to turn the smoke unit function on and off.

### Program-Run Switch (RUN/PGM)

Used to assign an ID# and to reprogram each locomotive in this set for LEGACY and Command operation when the switch is in the PGM position. Also used to “lock” your powered locomotive in a single direction, or neutral, in conventional operation when the switch is placed in the PGM position.

### Odyssey II Speed Control System Switch (ODY)

Used to turn the Odyssey II Speed Control System on and off (powered unit only).

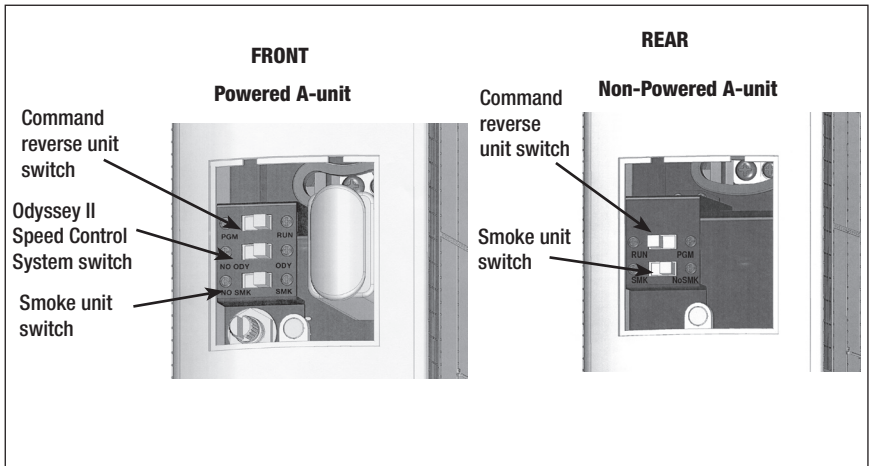


Figure 4. Switch locations (under roof hatch)

# Locomotive set basics

## Installing the battery in the powered A-unit

**A**lthough the LEGACY RailSounds sound system is powered through the track, you may choose to install a nine-volt alkaline battery if you find that the sound system shuts down during track power interruptions (for example, at a switch or over a dirty section of track). Follow these steps to install the battery.

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

1. As illustrated in Figure 5 below, carefully lift up and remove the rear rooftop hatch to access the battery harness.
2. Snap the battery harness onto the nine-volt alkaline battery's terminals.
3. Slide the battery into the battery holder.
4. Replace the rooftop hatch, which is held in place by a magnet.

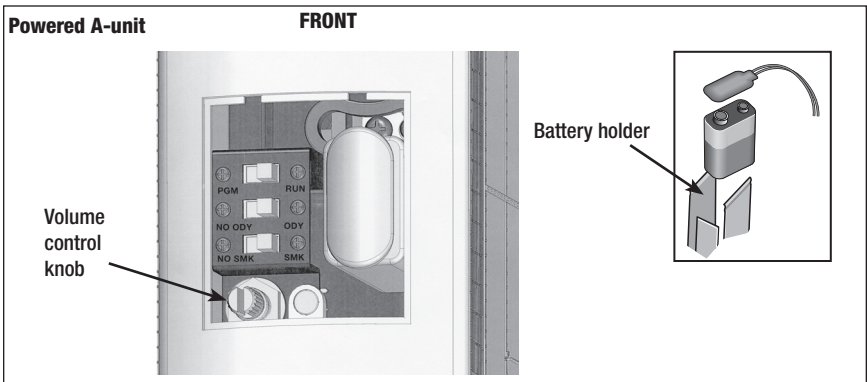


Figure 5. Battery installation (powered A-unit locomotive only)

# ***Locomotive set basics***

## **Assigning your locomotive set a new ID# (LEGACY and TMCC)**

---

**F**or operation in the LEGACY or TMCC environment, you will want to give each unit a unique ID#. The locomotive set will respond to commands associated with its ID# while all other units will disregard these commands. ***This procedure is not necessary for conventional (non-Command) operation.***

**Note!** Program each locomotive's ENG ID# separately.

- 1. Slide the Command reverse unit switch on your locomotive to the PGM position. See Figure 4 on page 8.**
- 2. Place the locomotive on the track.**
- 3. Connect the Command Base and plug it in.**
- 4. Power up the track.**
- 5. Press ENG on the CAB-1 or CAB-2 remote.**
- 6. Enter the unique ID#. Choose any number from 1 to 98 that has not been assigned to another locomotive (ENG). We recommend using a part of your locomotive set's road number.**

**Note!** All LEGACY locomotives respond to ENG 99. We recommend that you reserve ID# 99 as a "universal" ID#.

- 7. Press SET. On the powered unit, the locomotive's horn will sound, or the headlights will flash if the RailSounds sound system is off. On the non-powered unit, the headlight will flash.**
- 8. Slide the Command reverse unit switch back to the RUN position.**  
The locomotive set's ID# has been set. Be sure to record the new ID# for your reference.

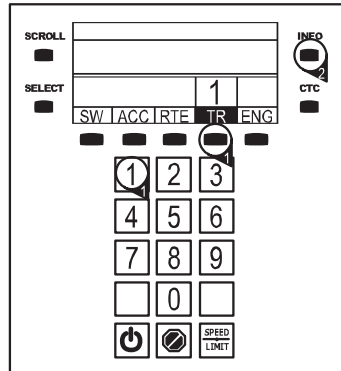
# Locomotive set basics

## Lash-ups (for LEGACY operations only)

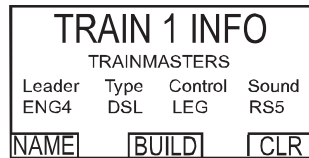
In the Command environment, building a lash-up allows you to control multiple powered and non-powered locomotives as one in a prototypical manner. It is still possible to control any of the engines in the lash-up individually. When you issue a train command, the individual engine you were controlling will return to the group. If there is a difference in speed, the individual engine will return to the speed of the lash-up at the rate set in the train momentum.

To build a lash-up, assign a unique engine (ENG) ID# to each unit. See page 10 for details.

1. Address the train ID# you wish to create or edit, 1 to 99.
2. Press INFO.
3. Press BUILD softkey (button directly under BUILD).
4. Enter the front engine number. It is not necessary to enter ENG, just enter the #. It will appear in the blinking box.
5. Press ADD to add the front engine. The engine will move to the right and the blinking box will be ready for your next engine to be added.
6. Enter the second engine ID# in the blinking box.
7. Press ADD to add the second engine. The engine will move to the right and the blinking box will be ready for your next engine to be added.
8. Add all the engines you want in your lash-up in this manner.
9. To change the direction of an engine in your lash-up, turn the Velocity Throttle to move the engine you want into the blinking box. Then press DIR to change the direction of the engine.
10. To delete an engine in your lash-up, turn the red Velocity Throttle knob to move the engine you want to delete into the blinking box. Then press DEL.
11. To save your lash-up, press SET. Watch onscreen prompts and wait until you see message TRAIN CREATED.
12. Press CTC to exit to the operating screen.



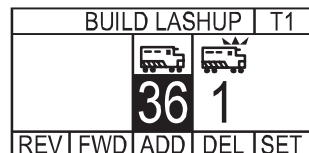
See reference numbers 1 and 2



See reference number 3



See reference number 4



See reference numbers 6 and 7

the  
the

# 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 Version 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. Toggles all lights on/off, except lights that are wired to track power.

### Record Button

Used to record and play back events.

### Velocity Throttle

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

### Set Button

Used to set Engine address and for programming.

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

### Info Button

### 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 Horn control. Pull down to sound 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

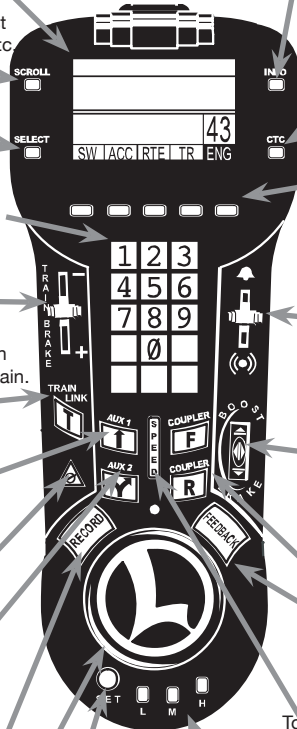
Toggle ON/OFF the vibration feedback feature in the CAB-2 Remote.

### 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.



# 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, available online at [www.lionel.com](http://www.lionel.com).

## The Velocity Throttle

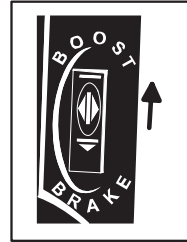
The Velocity Throttle (the red rotary knob on the bottom of your Lionel remote) is used to start your engine moving, slow it down, or speed it up. Use it simply by turning it clockwise (speed up) or counter-clockwise (slow down).



## The Multi-Controller

### Direction

The direction of your engine toggles between forward and reverse at the touch of the Multi-Controller. Press the center of the Multi-Controller once, and your engine's lights will change directions and the engine will stop until you throttle up again in the new direction.

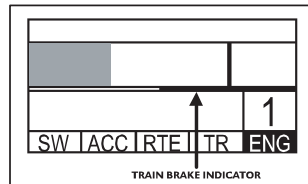
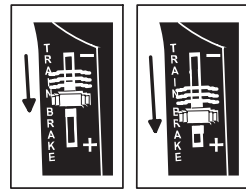


### Boost & Brake

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, while the brake command slows you down more quickly than the Velocity Throttle alone.

## The Train Brake Slider

The 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. If your smoke unit is turned on, you'll also see more smoke as the slider is pulled down.



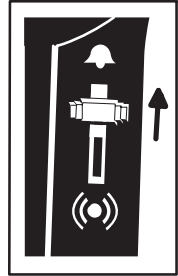
# LEGACY Control System operations

## 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.

Blow the Horn by pulling down on the Warning Sound Controller. Notice the difference in intensity of the horn sound.

Strike the bell once by pushing the Warning Sound Controller up and releasing quickly. To activate continuous bell sounds, push the Warning Sound Controller up and hold it for 1.5 seconds. To discontinue the bell sounds, push and hold the Warning Sound Controller up until the bell stops.



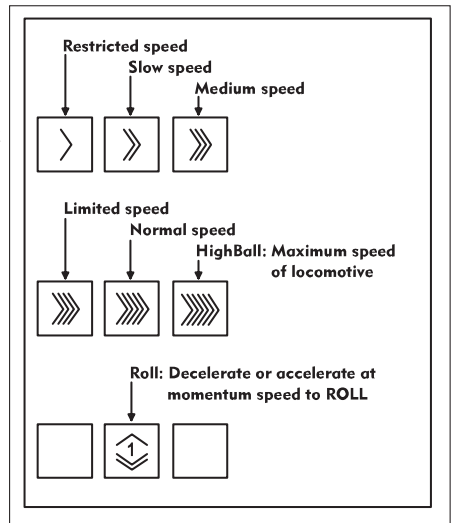
## The Speed Bar

The Speed Bar is used to select a new touch-screen Icon Control set. This set of touch-screen keys is used to select prototypical preset speeds. The speed of the engine changes with each press and release of a different Preset Speed key.

- Tap a key, and your locomotive set will immediately begin moving to that speed.
- Press and hold a key, and you'll hear the dispatcher radio the engineer and order him to move to that speed.
- If you hold the key until the dialog is finished, the engineer will indicate that he is "increasing to...", "slowing to...", or "we are at..." the command speed.

You can also use the Velocity Throttle and other action controls in this mode and continue to use Preset speeds at the same time.

Press **AUX1** to leave the Preset speed mode and return to the Standard Control Panel. Press the speed bar to toggle between the Speed Control Panel and the Standard Control Panel.



**Note!** Switcher engines do not have preset speed dialog.

# ***LEGACY Control System operations***

## **EFX Trim and EFX Bar Graph**

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Sound and smoke effects of the engine can be trimmed higher or lower depending on your operating preference. Pressing the EFX up button will make the engine sound like it is working harder and will also increase the smoke output (if the smoke unit is turned on). Similarly, the EFX down button will decrease the laboring sound of the engine and smoke. A RESET command will return the EFX trim to its default setting.

Notice that the current EFX level is displayed on the remote as a bar graph inside the soft key to the left of the ROLL button. The height of this graph varies with the EFX keys, throttle and train brake adjustments.

## **Leaving the Preset Speed Screen**

---

Use the Speed Bar to leave the Speed Panel and return to the Control panel. Press the Speed Bar to toggle between the Speed Control Panel and the Standard Control Panel.

# LEGACY RailSounds sound system operations

## LEGACY RailSounds sound system

### Volume UP

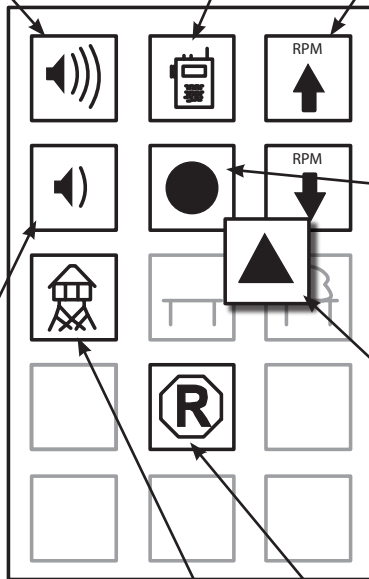
Raises the overall master volume of the LEGACY RailSounds sound system. To independently adjust the level of the background sounds only (e.g., the diesel roar and brake sounds), tap AUX1 and then this key.

### CrewTalk

Engineer begins radio dialog, dispatcher replies.

### RPM Levels

Adjusts the level of the RPM sounds.



### RailSounds Shutdown

Activates the LEGACY RailSounds sound system shutdown sequence when stopped.

### Emergency Stop

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

### Volume DOWN

Lowest the overall master volume of the LEGACY RailSounds sound system. To independently adjust the level of the background sounds only (e.g., diesel roar and brakes), tap AUX1 and then this key. Volume settings are retaining when track power is turned off.

### Stops and resets the locomotive set

Resets the locomotive sets direction to forward. Press and hold to activate a fueling sequence. Fueling sounds.

### TowerCom

Dispatcher begins radio dialog, engineer replies.

When adjusting the overall volume, you'll hear a single bell hit that gets louder or softer with each volume adjustment. When the volume is at maximum, additional button presses have no effect and won't play the bell. When adjusting the background sounds (AUX1, then a volume key) you'll hear the prime mover volume change without a single bell hit.

# LEGACY RailSounds sound system operations

## LEGACY RailSounds Sequence Control

Your LEGACY-equipped locomotive set features Sequence Control. Based on the movement and speed of the locomotive set, Sequence Control automatically plays the sound effects of an entire trip, from departure to destination, while you run your locomotive set. Prototypical horn signals, bell, and radio chatter are added automatically as you spin your throttle—no need to memorize a sequence of button presses.

To activate the Sequence Control feature, press and hold the **AUX1** button for three seconds. You'll hear a unique bell/horn signal, indicating that Sequence Control is now enabled. Release the **AUX1** key when you hear the sound.

Now, radio chatter, air brake release, and warning signals will play automatically as you move out, reach cruising speed, and then decelerate for arrival, as illustrated in Figure 6. Plus, you can still activate CrewTalk communication and TowerCom announcements using your remote.

To discontinue Sequence Control, you must tap **AUX1**, and then tap the **0** key or the **RESET** button. Cycling track power off and back on also turns off Sequence Control mode.

**Note!** During sequence control mode operation, speed step 1 is used to trigger departure effects such as air brake release and departure horn. Therefore your engine will not begin moving until speed step 2 and the Roll Mode button will bring your engine to a stop while Sequence Control mode is enabled. For the most realistic operation, medium or high momentum is recommended when using Sequence Control.

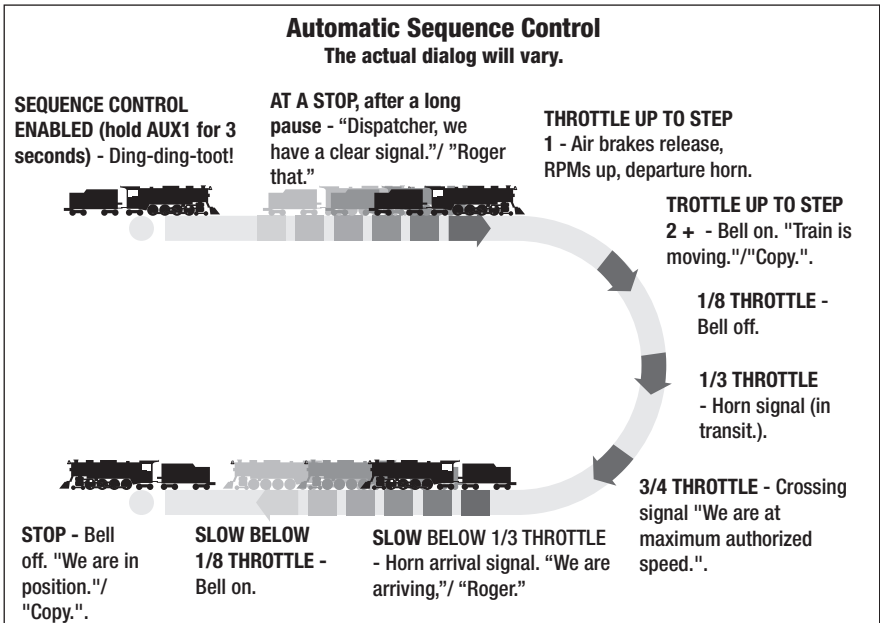


Figure 6. LEGACY RailSounds automatic Sequence Control

# LEGACY Control System operations

## CrewTalk dialog and TowerCom announcements in the LEGACY environment

In addition to the automatic triggering of dialog via Sequence Control mode operation (see the previous section), you may control the dialog manually.

CrewTalk dialog and TowerCom announcements feature a variety of brief radio conversations between the engineer and dispatcher. 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.

Refer to Table 1 below for the dialog commands. The dialog in the table provides examples of the conversations you can trigger. The actual dialog will vary.

Locomotive set	Commands	Example dialog
<b>Stopped</b>	<b>AUX1, 2</b>	Crew: Ask To Depart Tower: Deny Departure
	<b>AUX1, 7</b>	Tower: Ask To Standby Crew: Acknowledge
	<b>2</b>	Crew: Ask To Depart Tower: Approve Departure
	<b>7</b>	Tower: Approve Departure Crew: Acknowledge
	<b>5 or AUX1, 5</b>	Crew: Shutdown Announcement Shutdown sequence
	<b>AUX1, 0</b>	Refueling sequence Crew: My tank is full
<b>Moving</b>	<b>2</b>	(recent departure) Crew: Train is underway Tower: Acknowledge
	<b>2</b>	Crew: Are we clear ahead? Tower: Acknowledge
	<b>AUX1, 2</b>	Crew: Report engine status
	<b>7 or AUX1, 7*</b>	Tower: Clear in-bound Crew: Acknowledge
	<b>5 or AUX1, 5</b>	Tower: Emergency stop Crew: Acknowledge

\*Activating 7 or **AUX1, 7** while the locomotive set is in motion enables an arrival conversation for 30 seconds. If the train stops within this time, pressing 2 will play this special conversation.

Table 1. LEGACY Remote Controller dialog commands

# LEGACY RailSounds Sound System operations

## LEGACY RailSounds sound system dialog on a round trip

Refer to Figure 7 for a sample dialog script for manually controlled dialog on the locomotive set's round trip using the numeric keypad. See page 17 for the automatic Sequence Control.

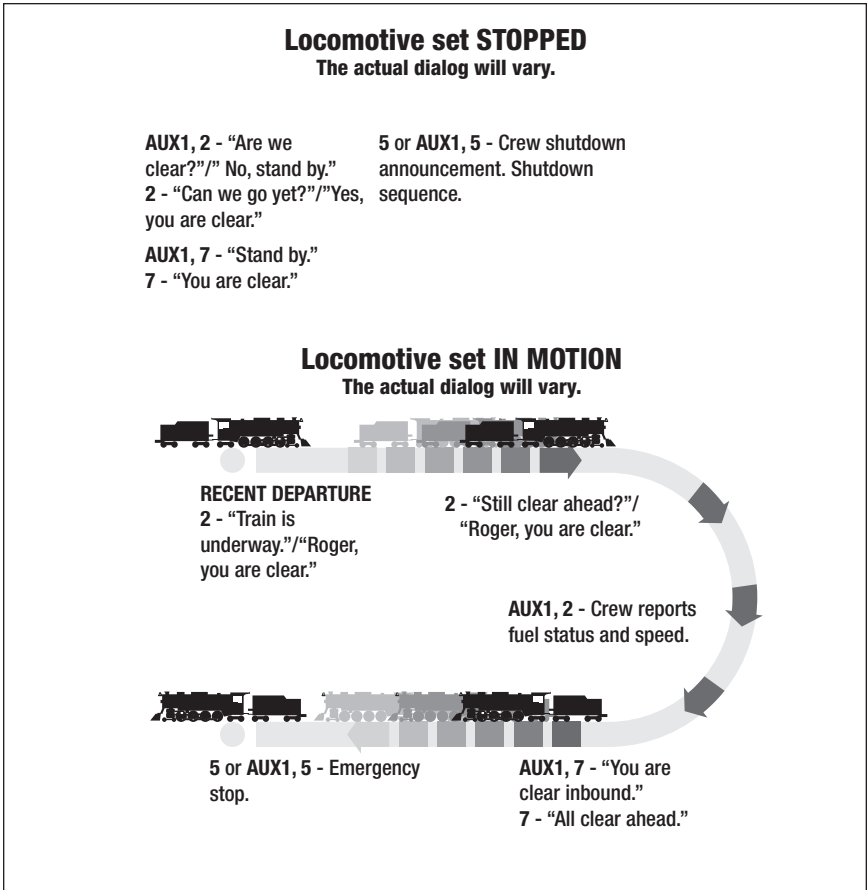


Figure 7. LEGACY RailSounds sound system dialog on a round trip

# 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 Powered locomotive. *Coupler release sound.*



Releases the ElectroCoupler on the front of the Non-Powered locomotive.



Activates the numeric keypad. *Short air release sound.*



Controls switch direction. Toggles all lights on/off, except lights that are wired to track power.



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



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



Toggles the bell sound on and off. *Bell sound.*



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



Increases the locomotive set's speed while the button is pressed. Release the button to return to the initial speed. *Labored prime mover.*



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



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



### Odyssey II Momentum

- L** 32 speed steps with low momentum
- M** 100 speed steps with low momentum
- H** 100 speed steps with medium momentum

# ***TrainMaster Command Control operations***

## **CAB-1 Remote Controller numeric keypad commands**

---

**W**hen you press the AUX1 button on your CAB-1 Remote Controller, you turn the numeric keypad into ten command buttons. After you press the **AUX1** button, you will be able to press any numbered button until you address a different product. *The corresponding RailSounds sound system effects are in italic type.*



Your locomotive set keeps track of its fuel level. Higher engine run levels and/or heavy labor use fuel at a faster rate. At various times, you will hear mention of the fuel level in CrewTalk dialog. To add fuel via a "long reset," press and hold **AUX1, 0** for at least three seconds. When you release the button, the sounds will stop, and the engineer will confirm that the tank is full. Stops and resets the locomotive set. Resets the locomotive set's direction to forward. *Refueling sequence.*



Raises the overall master volume of the LEGACY RailSounds sound system. To independently adjust the level of the background sounds only (e.g., the diesel roar and brake sounds), tap **AUX1** and then this key. *Sound volume increases.*

When adjusting the overall volume, you'll hear a single bell hit that gets louder or softer with each volume adjustment. When the volume is at maximum, additional button presses have no effect and won't play the bell. When adjusting the background sounds (**AUX1**, then a volume key) you'll hear the prime mover volume change without a single bell hit.



Engineer begins radio dialog, dispatcher replies (see page 18). *CrewTalk communication.*



Enters manual RPM mode and increases the RailSounds sound system RPM level. 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 set is stopped after pressing **AUX1, 5** with track power on.

# TrainMaster Command Control operations

## CAB-1 Remote Controller numeric keypad commands (continued)

---



Lowers the overall master volume of the LEGACY RailSounds sound system. To independently adjust the level of the background sounds only (e.g., diesel roar and brakes), tap **AUX1** and then this key. Volume settings are retaining 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. Note that, in the shutdown sequence, the smoke unit will turn off if it was already on.



Enters manual RPM mode and lowers the LEGACY RailSounds diesel motor RPM level.



Dispatcher begins radio dialog, engineer replies (see page 18). *TowerCom announcement.*



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



Turns on the smoke units if the smoke unit's switches are in the ON position. Be sure to add smoke fluid before turning on the smoke unit to prevent damage to your locomotive set. *Air release sound.*

**Note!** **AUX1**, **8** and **9** function only if the locomotive set's smoke unit switch is in the ON position.

## Setting the smoke level

---

**Y**ou may adjust the level of smoke production using your Remote. Use the sequences below.

**Low** smoke production:      **AUX2, 9, L, AUX2**

**Medium** smoke production:      **AUX2, 9, M, AUX2**

**High** smoke production:      **AUX2, 9, H, AUX2**

# ***Conventional transformer operations***

## **Using the LEGACY RailSounds sound system in the conventional environment**

---

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

To adjust the volume, use the volume control knob. Refer to Figure 5 on page 9 for the location of the volume control knob.

For proper operation of the LEGACY RailSounds sound system during track power interruptions and for the locomotive set shutdown sequence, you must install a nine-volt alkaline battery.

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

- **Diesel motor RPM levels.** The level of diesel motor RPM level automatically varies with the speed of the locomotive set.
- **MultiHorn.** A different horn sound at different speeds.
- **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.** These brief conversations between the train crew and the tower are triggered by short horn blasts.
- **Reverse unit reset sound.** Power down your track, wait three seconds, and listen for the air-release sound, which is the locomotive set telling you that its Lionel Command reverse unit has reset to forward (a nine-volt alkaline battery is required).
- **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 shutdown sequence. Because track power is off, a battery is required for this sequence to function.

# ***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 set.

- If the locomotive set has been stopped for less than 15 seconds, a short horn blast triggers a “please standby” dialog.
- If the locomotive set has been stopped for longer than 15 seconds, a short horn blast triggers a “cleared outbound” dialog.
- If the locomotive set has started moving within the last seven seconds, a short horn blast will trigger a "train is underway" dialog.
- If the locomotive set has been moving for more than seven seconds, a short horn blast will trigger a "are we clear?" dialog.
- If the locomotive set has been moving and the bell is ringing, a short horn blast will trigger a "go to restricted speed" dialog.

# ***Conventional transformer operations***

## **Locking your powered locomotive into a single direction**

---

**W**hen the Command reverse unit switch is in the RUN position on the powered unit, your locomotive sequences through a repeating pattern of operations: forward, neutral, reverse, neutral, and so on.

To “lock” your powered 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 set moving slowly in the desired direction or into neutral.**
- 2. Slide the Command reverse unit switch on the powered unit to the PGM position. At this point, the powered locomotive is “locked” into your chosen direction. See Figure 4 on page 8 for the location of this switch.**

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

# ***Odyssey II Speed Control system operations***

## **Odyssey II Speed Control operations**

---

**T**he Odyssey II Speed Control system is “cruise control” for your locomotive set. Once the speed control is set, your locomotive set will maintain a constant speed, no matter what load is placed on the locomotive set 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 LEGACY Control operation**

---

**I**n LEGACY Control System CAB-2 mode, Odyssey II Speed Control system provides 0-199 speed steps. For a more in-depth explanation of the LEGACY Control System features, please see your LEGACY Control System operations manual, available online at [www.lionel.com](http://www.lionel.com).

## **Odyssey II Speed Control TrainMaster Command Control operation**

---

**W**hen the Odyssey II Speed Control system is activated, changes in the speed of the locomotive set will correspond to each signal from the Command Base. For example, when you address the locomotive set 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 set. The locomotive set 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. See the table on page 20.

## **Odyssey II Speed Control conventional transformer operation**

---

**T**he Odyssey II Speed Control system is automatically operational when you operate your locomotive set in conventional (non-Command Control) mode, as long as the Odyssey II Speed Control system switch is in the ON position (see Figure 4 on page 8). This means that your locomotive set will maintain a constant speed, compensating for grades, loads, and turns. Simply use your transformer's throttle to adjust the speed of your locomotive set.

**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 set. 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 4 on page 8).

# ***Maintaining and servicing your locomotive set***

## **Reprogramming your locomotive set to restore features**

---

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

**Note!** Work with only one locomotive at a time. Do not attempt to reprogram both units simultaneously.

- 1. Slide the Program-Run switch to the PGM position.**
- 2. Plug in and connect your LEGACY Base.**
- 3. Place your locomotive on the track, then power up the track. Reprogram only one unit at a time.**
- 4. Press ENG and enter the locomotive set's ID#.**
- 5. Press SET.**
- 6. Turn off track power and wait ten seconds.**
- 7. Slide the program run switch back to the RUN position.**

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

# Maintaining and servicing your locomotive set

## Lubricating your locomotive set

**H**elp your Lionel locomotive set lead a long and productive life on your railroad by maintaining it properly. To keep your locomotive set 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 8 appear dry, lubricate your locomotive set after you have removed any accumulated dirt and dust. There are two basic rules to keep in mind when you are lubricating your locomotive set: use only a small amount of lubrication and avoid getting grease or oil on your locomotive set's wheels, roller pick-ups, or the track.

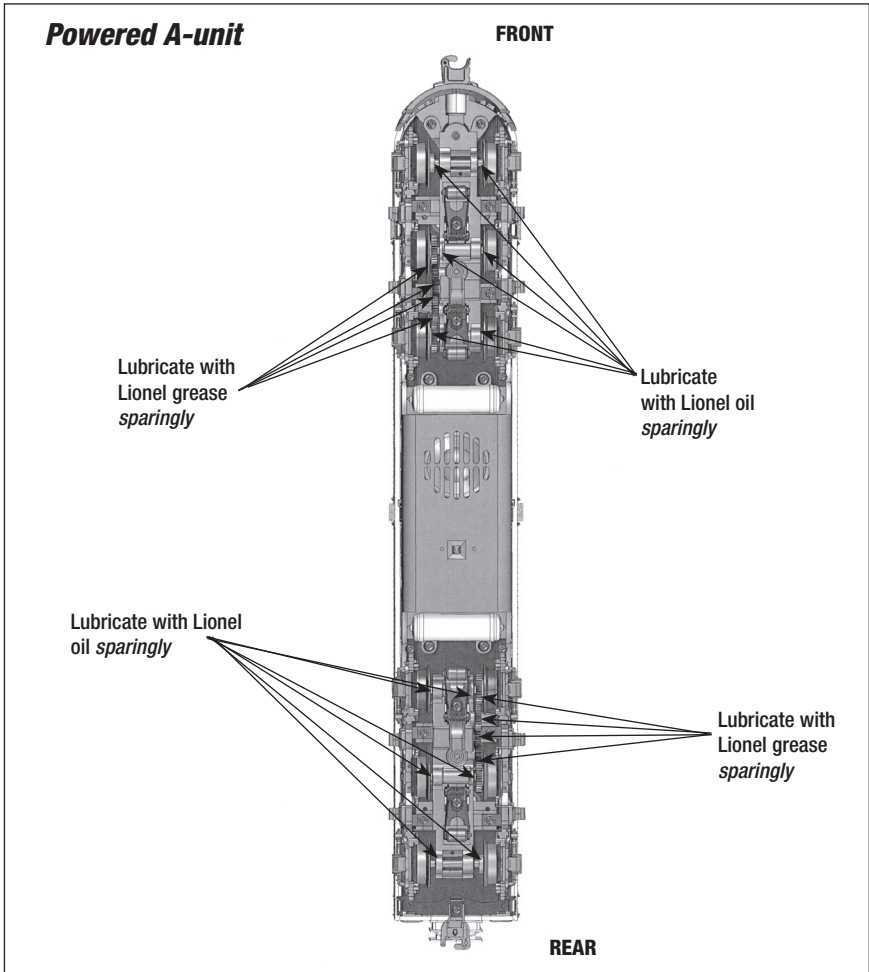


Figure 8. Lubricating the powered A-unit

# Maintaining and servicing your locomotive set

## Lubricating your locomotive set (continued)

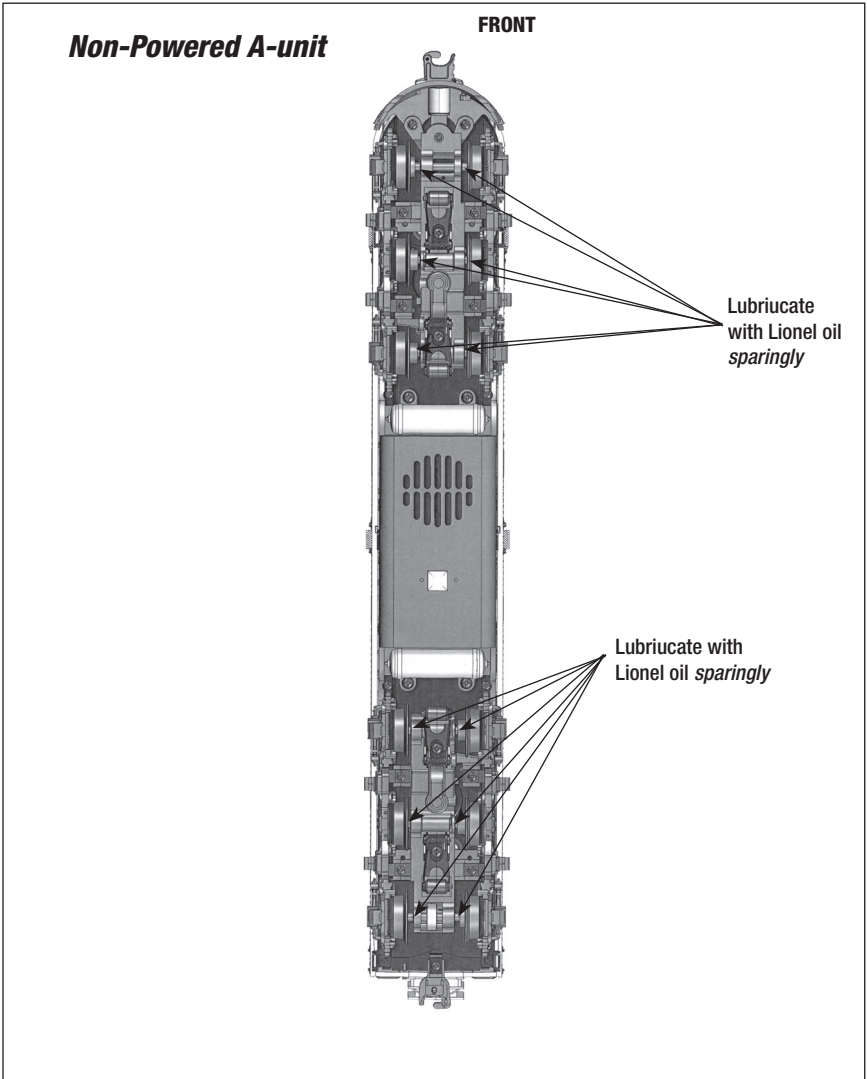


Figure 9. Lubricating the non-powered A-unit

# ***Maintaining and servicing your locomotive set***

## **Servicing your locomotive set's LEDs**

---

**Note!** If the locomotive set is powered up and the lights are not on, check that the **AUX2** command was not used to turn the lamps off.

**Y**our locomotive set is illuminated by several LEDs that are expected to last for the life of the locomotive set. The LED's are not user serviceable. If service is required, we recommend that you have your locomotive set serviced at a Lionel Factory Trained Authorized Service Station.

## **Replacing the traction tires**

---

**Y**our locomotive set is equipped with traction tires (Lionel part no. 6208815206) to increase the tractive effort of your locomotive set and allow it to pull more cars at once.

During the course of normal operations, the traction tires may become worn out. To replace the traction tires, remove the side frame screws from the underside of the trucks and lift away the side frame. Remove the worn tire, then slip the replacement around the wheel. Reposition the side frame on the truck and secure it with the two screws.

# Maintaining and servicing your locomotive set

## Locomotive set diagnostics

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**Y**our locomotive set includes built-in diagnostics to monitor the condition of the main drive motor and smoke system. If a problem is detected, the locomotive set's cab light will blink a diagnostic code.

If you see the light inside the cab flashing, press **RESET** (for LEGACY operation), **0** (for TMCC operation), or **DIRECTION**/power interruption (for conventional operation) to attempt to clear the problem. The locomotive set will immediately check itself again. If the problem persists, the cab light will blink the code again.

Note that smoke-related errors can be reset a maximum of three times. On the third try, if the problem still persists, the smoke unit will be shut down and must be returned to Lionel Service for repair.

**Note!**

Turning the smoke unit switch to the off position will disable diagnostic checks of the smoke system.

---

<b>Number of Blinks</b>	<b>Diagnostic Code Description</b>
1	Main drive motor stalled.
2	Smoke 1 element problem.
3	Smoke 1 fan problem.
4	Not applicable.
5	Not applicable.

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## Lionel Limited Warranty Policy & Service

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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.**

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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

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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](http://www.lionel.com).

If you prefer to send your Lionel product directly to Lionel, for repair you must FIRST call 586-949-4100 extension 2 or FAX Lionel at 330-286-4146 or write to Lionel Customer Service, 6655 Seville Drive, Canfield, OH 44406. 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

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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](http://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 \_\_\_\_\_



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