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***Standard Gauge  
Hiawatha  
Steam Locomotive,  
Tender & Passenger Cars  
Owner's Manual***

***Command Control and RailSounds Equipped***

featuring **TRAI**Master<sup>™</sup> COM-M-A-N-D and RailSounds<sup>™</sup>

# ***“Standard of the World”***

**L**ionel returns to Standard Gauge railroad-  
ing with the first TrainMaster Command-  
and RailSounds-equipped locomotive, the

world-famous Hiawatha F7 Hudson.

Experience the superiority of today's Lionel!

- R2LC radio unit for use with the Lionel TrainMaster® Command™ model railroad control system
- Equipped with dual Pittman® motors
- RailSounds™ steam sound system—digital samples from a real steam locomotive
- All die-cast and stamped steel construction
- Opening doors and roofs on passenger cars
- Smoke generator that produces clean, safe, and realistic smoke
- Brilliant headlight
- CrewTalk™ and TowerCom™
- Illuminated Fire Box Glow

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# Transformer operations

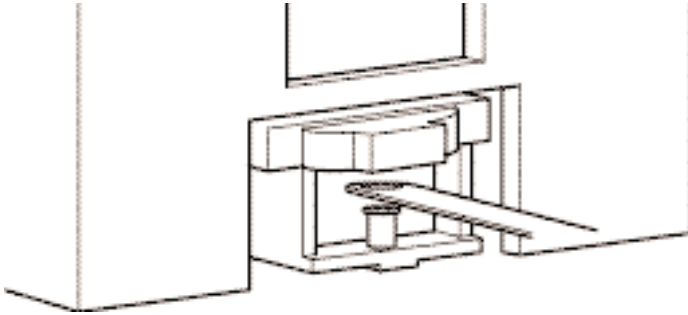
## Running your steam locomotive with a Lionel transformer

**Note:** Before running your new Standard Gauge Hiawatha set, it is important that you lubricate all the wheels and axle assemblies of the passenger cars in order to provide the best possible operation. See the illustration on page 18 for more information.

1

### **Place your steam locomotive on 42" diameter or larger Standard Gauge track.**

- **With track power OFF**, connect the drawbar between the locomotive and tender.



2

### **Power up your steam locomotive with your transformer.**

- **Your locomotive is designed to operate on 8-18 volts alternating current.** Due to the dual motor design of this locomotive as well as the overall size and weight, a transformer capable of delivering a minimum of 6 amps is recommended.
- **Do not power your locomotive with direct current (DC).** Damage to sensitive electronic components may occur.
- **When you first power up your track, the locomotive will wait between 3 and 8 seconds** as it "listens" for digital language from the TrainMaster Command-Base (available separately). When it's determined that it's on a conventional (nonCommand) railroad, the locomotive's headlight will illuminate and RailSounds will start up. At this point, the locomotive is in neutral. (This occurs when placing the locomotive on your railroad for the first time. Thereafter, it starts in forward after every three-second power interrupt.)

**Note!**

3

### **Move 'em out!**

- **Get your locomotive moving.** Press the DIR button on your CAB-1 remote or Lionel transformer. This sequences the Lionel Command reverse unit (R2LC) to the next operating state. The R2LC alternates between three states: forward, neutral, and reverse.
- **Adjust track voltage** until your locomotive moves at your desired speed. To increase speed, increase track voltage. To decrease speed, reduce voltage. To stop the locomotive, cut track power.
- **To select a single operating state** (example: forward only) you can deactivate the R2LC's sequencing function. Get your locomotive moving in the desired direction, then slide the Program/Run switch on the locomotive's underside to PROGRAM. See page 6 for the switch location and positioning.

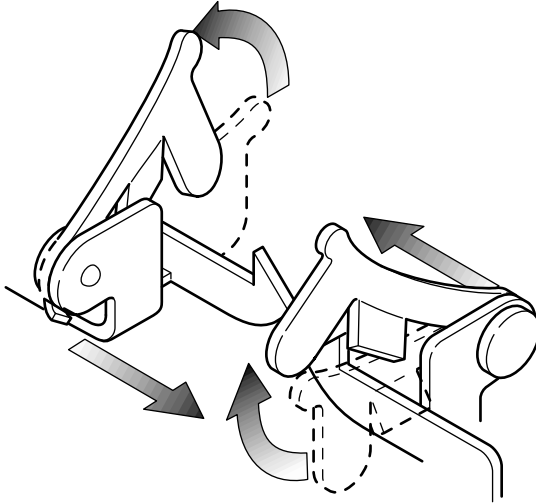
# Transformer operations

## "Latch" Couplers

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**Y**our new Lionel Standard Gauge set utilizes "latch" couplers in order to be compatible with previously manufactured Lionel Standard Gauge products.

In order to couple the tender and cars together with this latch system, it is necessary to lift the coupler arm on BOTH couplers at the same time and then push cars together.



# Transformer operations

## Adding fluid to your Locomotive's smoke generator

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**Y**our locomotive is equipped with a smoke generator that produces safe, clean, white smoke during operation.

The smoke generator requires the periodic addition of Lionel smoke fluid in order to function. Pierce the fluid tube's end with a pin, then add 10 to 15 drops of fluid directly into the smoke stack. Smoke production will commence momentarily, faster if you run your locomotive at speed. When smoke production wanes, add more fluid (4 to 8 drops).

In Command Control only, when the locomotive is first placed on the track and pow-

ered up, the smoke generator will be in a default "OFF" position. Using any function key on your CAB-1 remote will turn the smoke generator on. Turning off the sound (AUX1-5) or resetting the engine (AUX1-0) will return the smoke unit to the initial "OFF" position. *Always* keep a small amount of smoke fluid in the locomotive's smoke generator; the generator's element can become damaged if operated without fluid. Smoke production is greater at higher voltages and when the locomotive is pulling a heavy load or long consist.

**Note!** Always keep smoke fluid in your locomotive's smoke generator. If not, turn it off when smoke is not desired by using the switch shown on page 16 or the AUX1-8 command if you are running in Command mode. Using Smoke Boost with depleted fluid can damage the generator's element.

# Transformer operations

## Your locomotive's RailSounds system—the basics

**L**ionel RailSounds is the most realistic model railroad sound system in the world. Your locomotive's RailSounds features digital samples for the ultimate in realism.

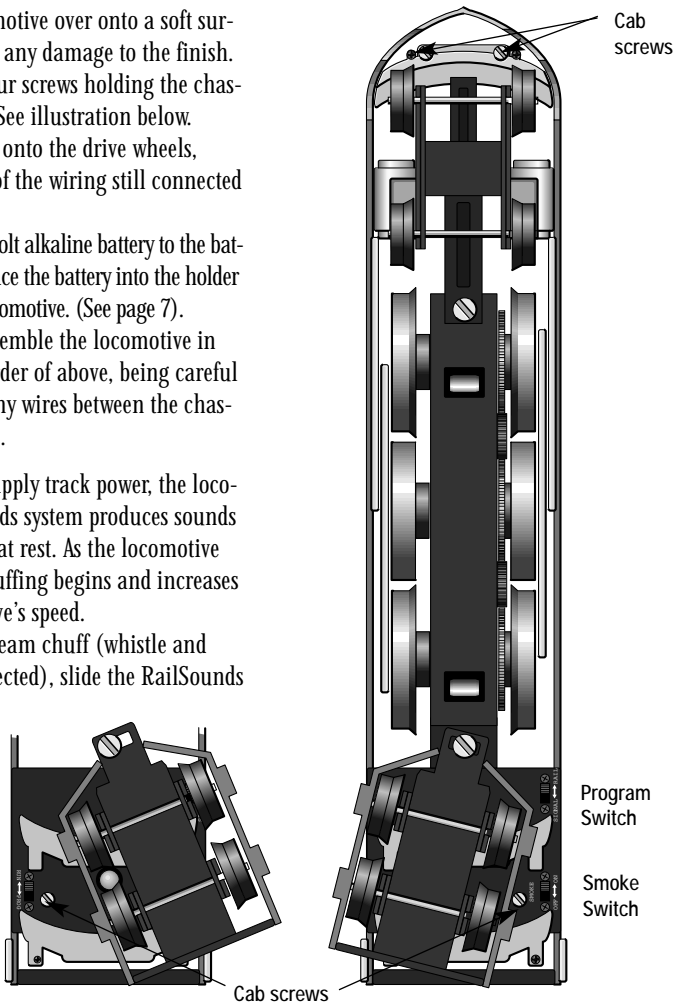
Begin by installing a 9-volt alkaline battery in your locomotive. This ensures interruption-free operation of RailSounds. Access to the battery holder in the locomotive is achieved as follows:

- Turn the locomotive over onto a soft surface to prevent any damage to the finish.
- Remove the four screws holding the chassis to the cab. See illustration below.
- Set the chassis onto the drive wheels, being careful of the wiring still connected to the cab.
- Connect the 9-volt alkaline battery to the battery clip and place the battery into the holder inside of the locomotive. (See page 7).
- Carefully reassemble the locomotive in the opposite order of above, being careful not to pinch any wires between the chassis and the cab.

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

To silence the steam chuff (whistle and bell remain unaffected), slide the RailSounds

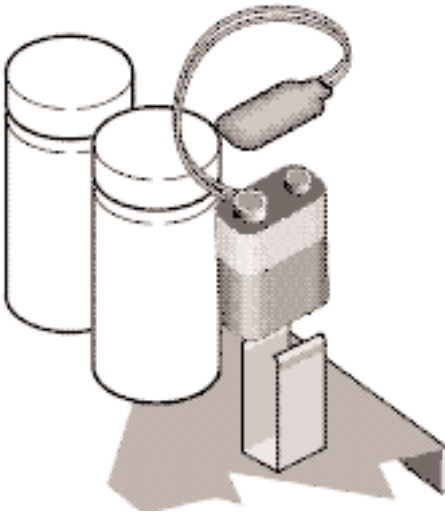
switch, located underneath the cab of the locomotive, to the SignalSounds position before powering up the locomotive. (See illustration below.) The whistle is activated by using the whistle lever or button on your transformer or CAB-1. The volume control knob to raise or lower the level of sound is located underneath the rear truck near the RailSounds switch (see illustration).



# ***Transformer operations***

## ***Your locomotive's RailSounds system—the basics***

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### **Notes!**

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

Discontinue locomotive power *for 10 seconds* before changing the RailSounds/SignalSounds ON/OFF switch position.

If RailSounds “drops out” during track power interrupts (direction change), replace the battery.

# Transformer operations

## Notes on RailSounds

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- Listen for incidental locomotive sounds during RailSounds operation. They're automatic and, of course, authentic.
- The 9-volt alkaline battery you installed ensures *continuous* steam locomotive sounds.
- Longer track-power interruptions (including locomotive derailments) cause RailSounds to shut down after about 7 seconds.
- For even *more* authentic RailSounds effects, operate in the TrainMaster Command environment.

## Experiencing the range of your locomotive's RailSounds system

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**W**ith RailSounds, you experience the sounds of real railroading like never before. Simply put, it's the most sophisticated, authentic model railroad sound system in the world.

- **Variable chuff rate.** Your locomotive's speed determines the steam chuff rate.
- **MultiWhistle™.** Different whistles every time—a RailSounds exclusive.
- **Authentic bell.** Press BELL on your CAB-1 or transformer to begin the effect, again to discontinue. Even the final “hit” is muted like the real thing.
- **Reverse unit reset sound.** Power down your track, wait for 3-5 seconds, and listen for the air-release sound—that's the locomotive telling you its Command reverse unit has just reset to forward operation.
- **Shutdown sequence.** No other model railroad sound system shuts down like RailSounds. Turn off track power, and after the air-release reset sound, you have two seconds to restart your locomotive. If you're done with operations, RailSounds will commence with an authentic steam locomotive shutdown sequence about two seconds after the air-release reset occurs.

**Note!** *Battery must be installed for shutdown sequence.*

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

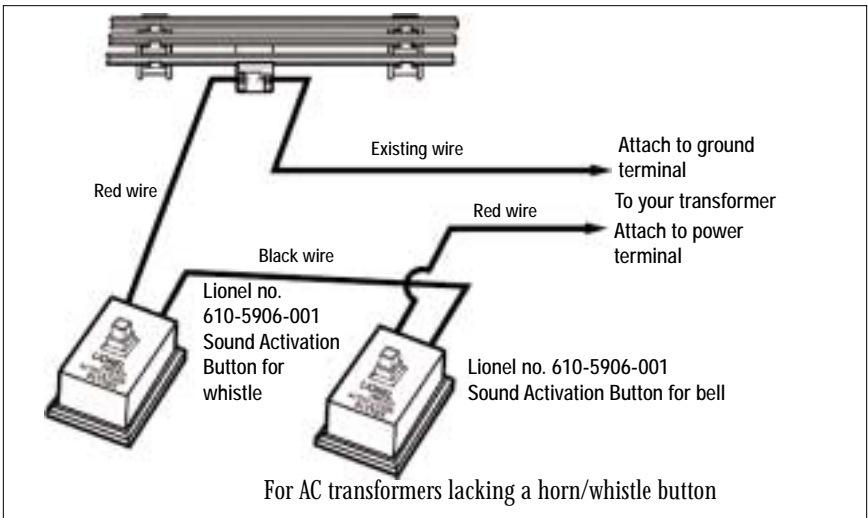
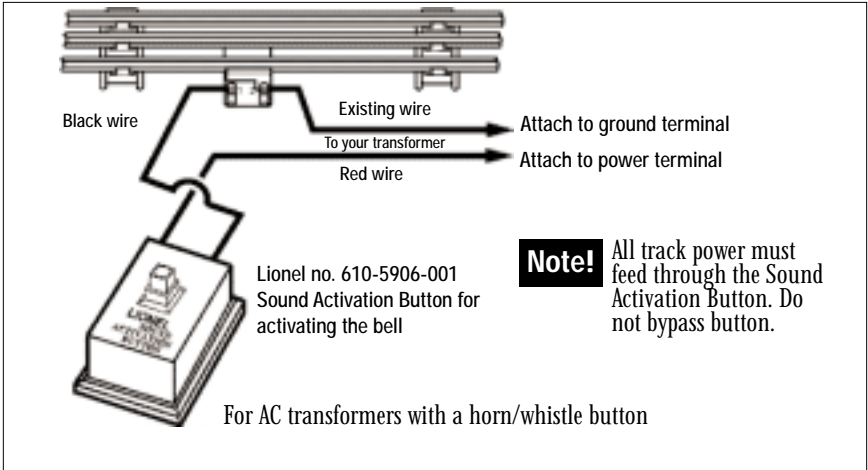


# Transformer operations

## Installing the Lionel Sound Activation Button

To operate the bell and whistle sounds when operating your locomotive with conventional transformers, you'll need to

install the Lionel no. 610-5906-001 Sound Activation Button (available separately). Connect the button(s) as shown below.



### Note!

The no. 610-5906-001 button works with any Lionel AC transformer except no. 6-4690 Type MW. Transformers made by other manufacturers may not be compatible with RailSounds.

# TrainMaster Command operations

## Your locomotive in the TrainMaster Command environment

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**L**ionel TrainMaster Command is the fun and sophisticated model railroad control system from Lionel. Your locomotive features the R2LC reverse unit, which acts as both a conventional reverse unit as well as the key to unlocking many extra features when you operate in Command mode.

TrainMaster Command gives you the power to operate multiple Command-

equipped locomotives *on the same track, at the same time*. It's the most fun you can have with electric trains, and it's incredibly easy too! Just follow the directions below and you'll be on your way.

**To operate in Command mode, you need a Command Base and a CAB-1 remote.** Find them both at your authorized Lionel retailer.

**1**

**Place your locomotive on Lionel or Lionel-compatible 42" diameter or larger Standard Gauge track.**

- **Make sure track power is OFF before placing it on track.**
- **Make sure your Lionel Command Base is ON** and its communications wire is connected to the COMMON post on your Lionel transformer *or* the U terminal on any of your installed PowerMasters.
- Once positioned on the track, **increase track voltage to FULL** (on PowerMaster, slide the CMD/CONV switch to CMD).

**2**

**Address your locomotive with CAB-1.**

- **Press ENG and 1** on the numeric keypad of your CAB-1 remote. This command is sent by CAB-1 to the Command Base, which then translates your commands into digital code. That code is sent around your railroad's outside rails in the form of a digital "halo." All Command-equipped Lionels listen to this digital communication, but they *do not respond* until they hear their own ID number.
- The digital language of TrainMaster Command—and not track power—controls the actions of Command-equipped Lionels. Track power is simply like gasoline in the tank of your car—it gives you the power to go places, but it doesn't tell you where to go or how fast to get there.
- **All Command-equipped Lionels come factory-programmed with an ID# of "1."** To change your locomotive ID#, see page 15.

**3**

**Move 'em out!**

- **Throttle up or press any command button on CAB-1.** Your locomotive will respond to your *every* command. Read on. The fun is just beginning!

# TrainMaster Command operations

## Running your locomotive in the TrainMaster Command environment

### Example Address Locomotive #1

PowerMasters set to CMD or traditional power supplies ON FULL



Press ENG



Press 1 (the ID#)

Throttle up/press any command button

Your Command-equipped locomotive comes factory-programmed with an ID# of “1.” To get your locomotive into action, set PowerMasters to CMD or set all power supplies on full. Press ENG and “1” on CAB-1. Turn the throttle or press any command button; RailSounds starts up. Your locomotive is ready for Command operations.

## CAB-1 commands for your locomotive

### Locomotive

### RailSounds effects in bold italic.



**Coupler release sounds.**



**Coupler release sounds.**



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



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

**Speed-dependent variable steam chuffing.**  
**DynaChuff dynamic chuffing effect.**



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

**NOTE:** Use “HALT” only in “emergency” situations.



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



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



Press DIR—the locomotive decelerates to a complete stop; turn the throttle up, and the locomotive moves in the opposite direction. There is no neutral. **Steam air-release sound.**



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



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

# TrainMaster Command operations

## RailSounds in the Command environment

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

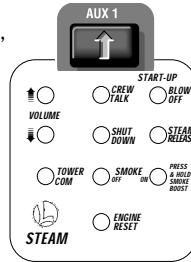
- **DynaChuff™**. Real steam locomotive chuffing depends on the locomotive's load. DynaChuff simulates both labored and relaxed chuffing sounds. Highball down the mainline and hear the labored chuffing of a locomotive battling inertia. Reduce your throttle setting, and chuffing relaxes to a

more sedate sound, as though the load placed on the locomotive has decreased. Experience DynaChuff on steep grades, at yard crawls, and at speed. *Another* RailSounds exclusive.

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

## CAB-1 numeric keypad commands for your locomotive

When you press AUX1 on CAB-1, you turn the numeric keypad into 10 command buttons. The keypad “stays open” and gives you access to extra command features until you press any top-row button (SW, ACC, RTE, TR, or



ENG). The CAB-1 keypad overlay included with your locomotive is designed to help you learn the auxiliary features specific to this classic locomotive.

***Locomotive RailSounds effects in bold italic.***

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

**1** Raises the volume of RailSounds. ***Sound volume increases.***

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

**3** Starts-up RailSounds. ***Start-up sequence commences. Steam blowoff sound.***

**4** Lowers the volume of RailSounds. ***Sound volume decreases.***

**5** Activates the RailSounds steam shut-down sequence. Just like the real thing, *your locomotive must be idle for shut-down to occur.* ***Steam shutdown commences.*** Remember, the whistle and bell will not sound until you *restart* RailSounds. ***CrewTalk sounds.***

**6** ***Steam release sound.***

**7** TowerCom™ is an audible announcement that includes that engine's road number and/or name. *There is a four second delay in this function.*

**8** Turns off the smoke generator. ***CrewTalk sounds\*.***

**9** Turns on the smoke generator. Press and hold 9 (10 seconds maximum) to initiate Smoke Boost™—this superheats the smoke generator and enhances smoke output when you start running your locomotive. ***CrewTalk sounds\*.***

*\*Hearing the CrewTalk sounds lets you know that the locomotive has received these commands.*

**Note!** AUX 1-9 only works if the smoke unit switch is in the ON position.

# *TrainMaster Command operations*

## Tuning your locomotive performance

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### **MOMENTUM**

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

### **BOOSTING AND BRAKING**

Use the BOOST and BRAKE command buttons for incremental control of speed *and* a superior method for handling grades, stops-and-starts, and more. Plus, using BRAKE in the Command environment gives you a bonus RailSounds effect—the ultra-realistic sound of squealing brakes.

### **STALL**

Make your locomotive feel more responsive by setting a “stall” voltage. Get your locomotive moving, then press SET; the locomotive will stop. The headlight will flash, indicating it's in the SET mode. Turn the throttle clockwise to get the locomotive moving, then decrease speed until the locomotive just stops. Then press SET again; the R2LC remembers the stall setting until you change

it. To clear stall, press SET twice, holding it for one second each time.

### **HIGH VOLTAGE SETTING**

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

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

### **SOUND QUALITY**

To achieve your preferred RailSounds master volume level, use the volume control dial located on the bottom of the locomotive (see page 7). Turn the dial left or right to adjust the volume to your liking.

For quick remote-control of volume *below* the master setting—like muting—use the CAB-1 numeric keypad's volume control. Pressing AUX1 and 4 on the keypad lowers overall RailSounds output.

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

# *TrainMaster Command operations*

## **Reprogramming R2LC circuit boards to restore features**

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**D**ue to the inevitable derailments, static, and the nature of electricity, it is possible that your R2LC could someday lose its setup program.

**STEP 1:** Move switch on locomotive from RUN to PROGRAM.

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

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

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

**STEP 5:** Press “ENG,” then the ID#, “AUX1,” then press **the number 4**.

The symptoms of this condition would be unresponsiveness in Command mode. This can be easily remedied by “reprogramming” your R2LC using the following steps.

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

**STEP 7:** Remove locomotive from track, move switch from PROGRAM to RUN.

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

**STEP 9:** Press “ENG” and ID#, then operate as normal.

## **Maintaining your locomotive’s handrail antenna**

---

**Y**our locomotive’s handrails are more than just model grab irons—they’re the R2LC’s antenna for receiving Command Base digital communications. *Please handle the locomotive carefully to avoid handrail damage.* To ensure optimum reception, both handrails are insulated from the tinplate

shell. If your locomotive experiences difficulty receiving Base communications, check the handrail ends in the cab and pilot for the presence of insulating material. Ensure that each insulator is present and enjoys a proper fit. Finally, prevent the handrails from touching any part of the die-cast locomotive cab.

# TrainMaster Command operations

## Assigning your locomotive a new ID#

### Example

### *Assign a new ID# to your Command-equipped locomotive*

Set the locomotive PROGRAM/RUN Switch to PROGRAM

Command Base ON

Place the locomotive on track

PowerMasters set to CMD or traditional power supplies ON FULL

Turn track power on (PowerMasters):



Press BOOST

Program the locomotive with a new ID#:



Press ENG



Press a number you choose (the ID#)



Press SET

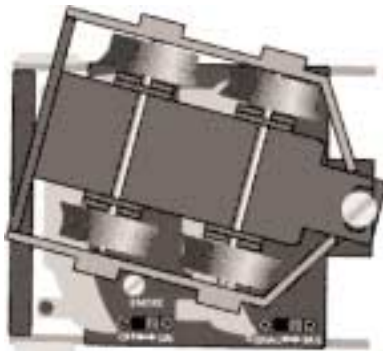
Set PROGRAM/RUN Switch to RUN

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

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

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

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



Front

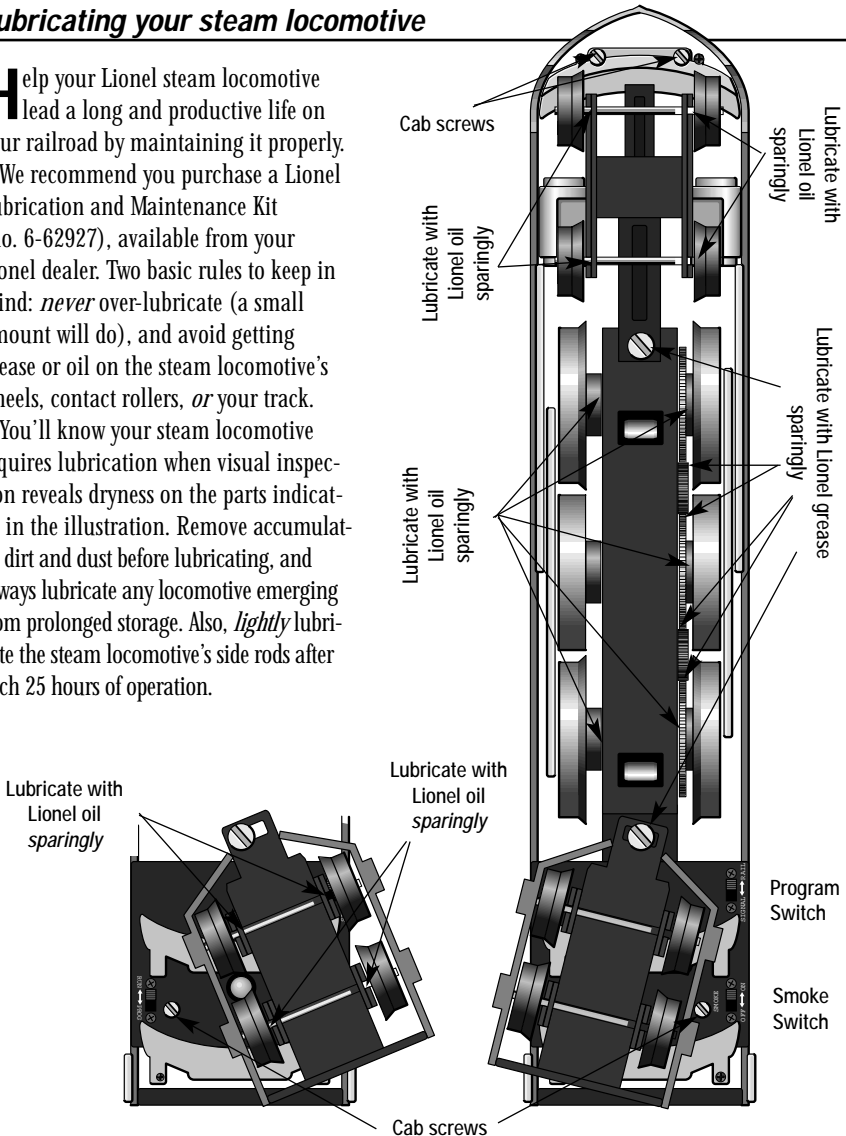
# Maintaining and servicing your locomotive and passenger cars

## Lubricating your steam locomotive

**H**elp your Lionel steam locomotive lead a long and productive life on your railroad by maintaining it properly.

We recommend you purchase a Lionel Lubrication and Maintenance Kit (no. 6-62927), available from your Lionel dealer. Two basic rules to keep in mind: *never* over-lubricate (a small amount will do), and avoid getting grease or oil on the steam locomotive's wheels, contact rollers, *or* your track.

You'll know your steam locomotive requires lubrication when visual inspection reveals dryness on the parts indicated in the illustration. Remove accumulated dirt and dust before lubricating, and always lubricate any locomotive emerging from prolonged storage. Also, *lightly* lubricate the steam locomotive's side rods after each 25 hours of operation.



Do not lubricate your locomotive's electric motors. They have been pretested and all the necessary moving parts have been sufficiently lubricated for life at the factory and should run smoothly for many years to

come. If you have any difficulty in the operation of your engine, see the Warranty and Service section at the end of this instruction sheet for more information.



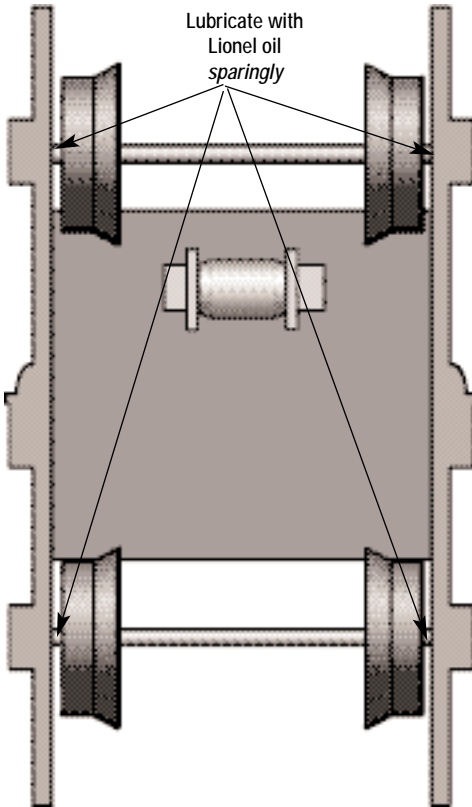
# Maintaining and servicing your locomotive and passenger cars

## Lubricating your passenger cars

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**B**efore running your passenger cars, lubricate all axle ends and wheels as shown below. Remove dirt and dust before

lubricating. Always lubricate after prolonged storage and after every 25 hours of operation.



# Maintaining and servicing your locomotive and passenger cars

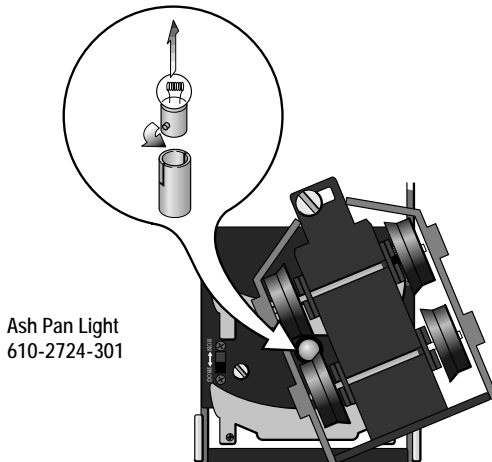
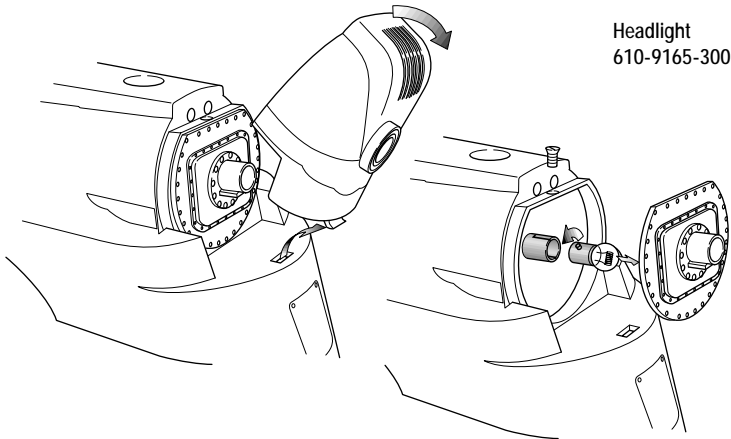
## Servicing your locomotive's lamps

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

Your locomotive is illuminated by two lamps. One is located in the headlight housing mounted on the boiler front. One red lamp provides “ashpan glow” that shows under the cab.

Lamp Numbers:  
Headlight (1) 610-9165-300  
Ash Pan (1) 610-2724-301

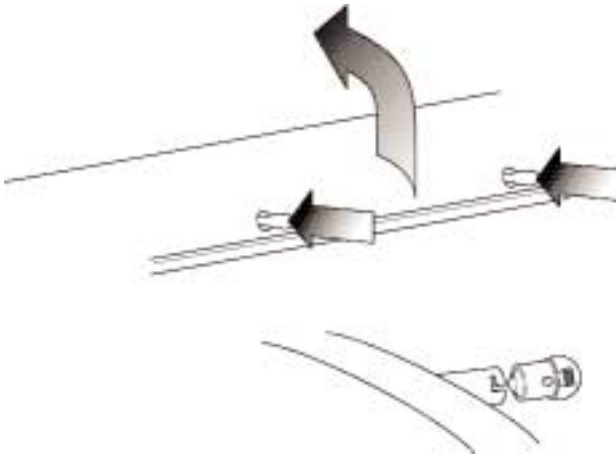


## Servicing the passenger car lamps

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Each passenger car is illuminated by two lamps (part number 610-9165-300). To replace the expired lamps, open the car roof,

locate the expired lamp, press in and turn to remove. Replace with lamp number 610-9165-300.



**Note!** All lamps are available from your Lionel Service Station or direct from the Lionel Service Department.

## Limited Warranty/Lionel Service

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**T**his Lionel product, including all mechanical and electrical components, moving parts, motors and structural components, except for light bulbs, is warranted to the original consumer-purchaser, for one year against original defects in materials or workmanship when purchased through an authorized Lionel dealer.

This warranty does NOT cover normal wear and tear, light bulbs, defects appearing in the course of commercial use, or damage resulting from abuse or misuse of the product by the purchaser. Transfer of this product by the original consumer-purchaser to another person voids this warranty. Modification of this product voids this warranty.

Any warranted product which is defective in original materials or workmanship and is delivered by the original consumer-purchaser to Lionel L.L.C. or an authorized Lionel L.L.C. Service Station, together with proof of original purchase will, at the option of Lionel L.L.C., be repaired or replaced, without charge for parts or labor. In the event the defective product cannot be repaired, and a replacement is not available, a refund of the original purchase price will be granted. Any products on which warranty service is sought must be sent freight or postage prepaid, as transportation and shipping charges are not covered by the warranty.

### In no event shall Lionel L.L.C. be liable for incidental or consequential damages.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state.

### Instructions for Obtaining Service

If service for this Lionel L.L.C. product is required, bring the item, along with your dated sales receipt and completed warranty information

to the nearest Authorized Lionel Service Station. Your nearest Lionel Service Station can be found by calling 1-800-4-Lionel, or by accessing our Website at [www.lionel.com](http://www.lionel.com).

If you prefer to send your product back to Lionel L.L.C. for factory repair, you must first call 810-949-4100 or FAX 810-949-5429, or write to Customer Service, P.O. Box 748, New Baltimore, MI 48047-0748, stating what the item is, when it was purchased and what seems to be the problem. You will be sent a return authorization letter and label to ensure your merchandise will be properly handled upon receipt.

Once you have received your return authorization and label, make sure that the item is packed to prevent damage during shipping and handling. We suggest that you use the product's original packaging. This shipment must be prepaid and we recommend that it be insured.

Please make sure you have followed all of the above instructions carefully before returning any merchandise for service.

### Warranty Information

Please complete the information below and keep it, along with your dated sales receipt. You must present this and your dated sales receipt when requesting warranty service.

Name \_\_\_\_\_

Address \_\_\_\_\_

Place of Purchase \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Product Number \_\_\_\_\_

Product Description \_\_\_\_\_

\_\_\_\_\_

