GP-7 Diesel Locomotive
Owner's Manual

EQUIPPED WITH
LIONEL®
RailSounds™
TRAINmaster®

Welcome to Atlas O !

Atlas O is proud to introduce this new locomotive, a scale-sized and detailed model of the EMD GP-7 diesel locomotive.

Equipped with Lionel TrainMaster® Command including Electric Railroad Co. Cruise Commander Technology with Legacy compatible 100 speed steps and improved Railsounds, these locomotives sound and operate as good as they look!

Experience the sights and sounds of railroading with Atlas O!

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TRANSFORMER OPERATIONS

Running your Atlas O loco with a Lionel/ Lionel-compatible transformer

1. Place your locomotive on Atlas O or compatible O gauge track.

2. Power up your loco with your transformer.

- **Your loco is designed to operate on 8-18 volts alternating current.** Virtually all Lionel and Lionel-compatible alternating-current transformers are suitable.
- **Do not power your 3-rail loco with direct current** (DC). Damage to sensitive electronic components may occur.
- **When operating with a conventional transformer, the state in which your locomotive starts up (neutral or forward) depends on the method by which the locomotive was operated (conventional transformer or the TrainMaster Command system) the last time that the locomotive was used.**

When you operate your locomotive for the first time after taking it out of the box or if the locomotive was last operated using the TrainMaster Command system, the locomotive will start up in neutral with its headlights illuminated. When track power is briefly removed and then reapplied, the locomotive will move forward.

If the locomotive was last operated using a conventional transformer and has been powered down for at least five seconds, the locomotive will start up in forward at a speed dependent on the applied track voltage.

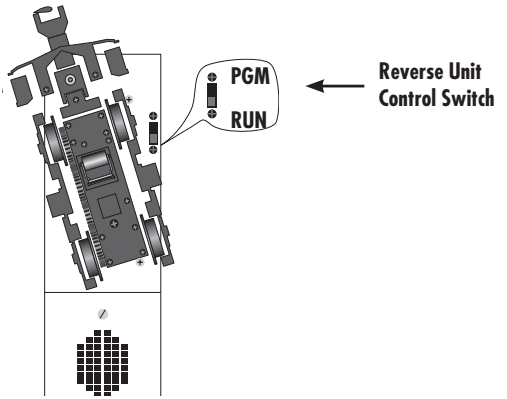
3. Move 'em out!

- **Get your loco moving.** Press the DIR button on your AC transformer. This will sequence the Lionel reverse unit to the next operating state.
- **Adjust track voltage** until your locomotive moves at your desired speed. To increase speed, increase track voltage. To decrease speed, reduce voltage. To stop the locomotive, cut track power.
- **See page 5 for information on locking your loco in a single operating state.**

Locking your locomotive into a single operational state

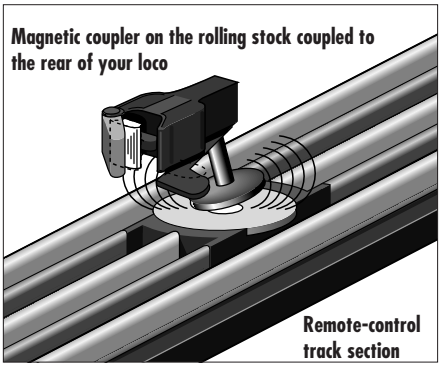
To select a single operational state for your Atlas O loco (example: forward only), you can deactivate the R4LC's sequencing function with the reverse unit control switch.

Get your locomotive moving in the desired direction, then slow it down without stopping. Set the reverse unit control switch to PROGRAM. The loco is now "locked" into your chosen direction. When you no longer want single-direction operation, just slide the reverse unit control switch back to RUN.



Using your locomotive Electrocoupler in the non-Command environment

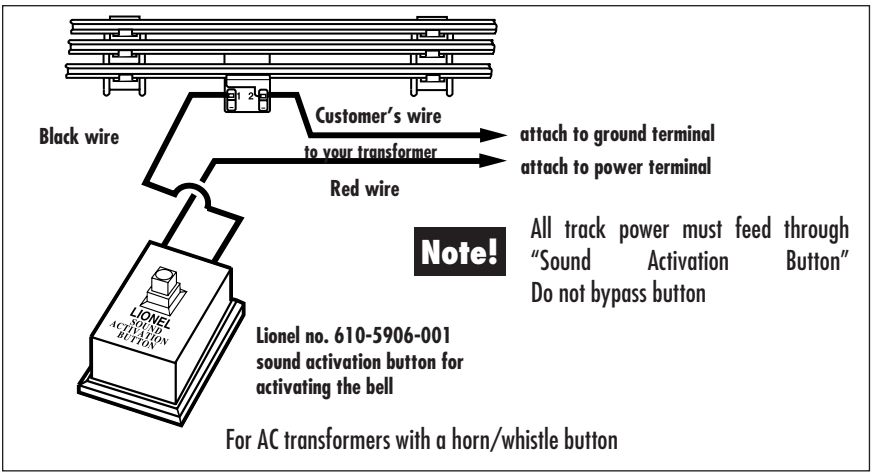
To use your loco's Electrocoupler in the non-Command environment, you must first couple a piece of rolling stock equipped with traditional magnetic couplers directly to your loco's electrocouplers. The magnetic coupler on the rolling stock will then react to the magnetic field generated by a remote-control track section (available separately). Place your rolling stock's coupler "trigger disc" over the central coil of a remote-control track section and press uncouple on the controller. The magnetic field pulls the disc downward, and the coupler opens.



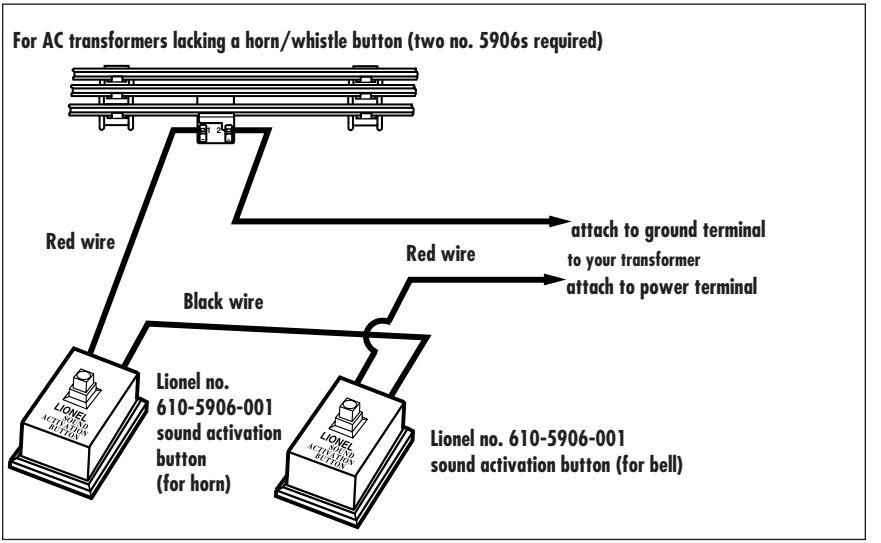
Note! Your loco's electrocouplers will NOT open manually or by using a remote-control track section

Installing the Lionel no. 610-5906-001 sound activation button

To operate the bell and horn sounds when operating your loco with conventional transformers that do not have a horn or bell button, you'll need to install the Lionel no. 610-5906-001 sound activation button (available separately from Lionel). Connect the button(s) as shown below.



For AC transformers with a horn/whistle button



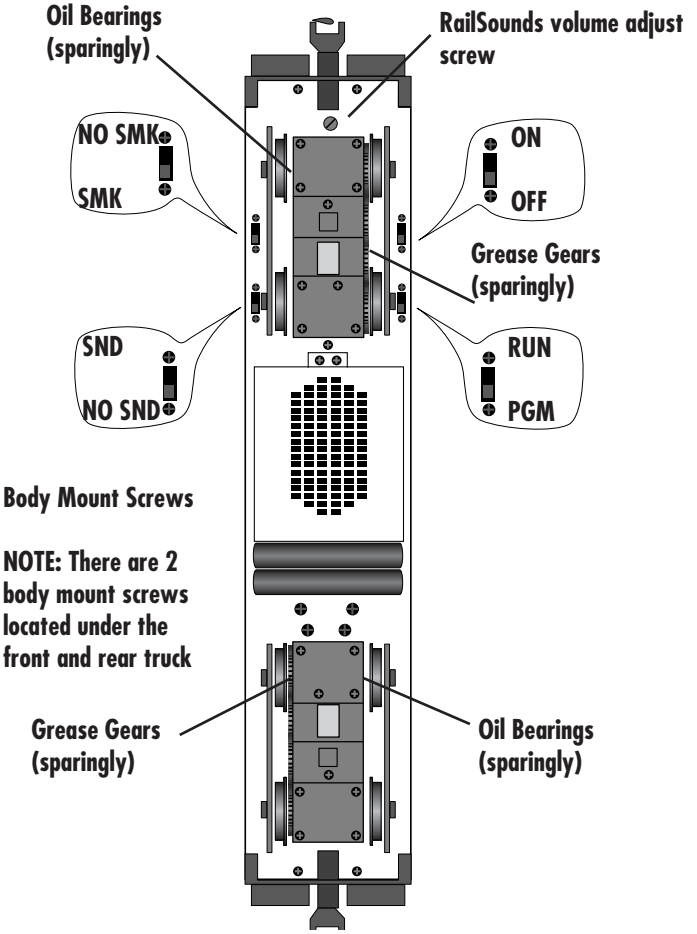
Note! The no. 610-5906-001 sound activation button (available separately) works with any Lionel AC transformer except no. 6-4690 Type MW. Transformers made by other manufacturers may not be compatible with Railsounds.

Maintaining and Servicing Your Locomotive

Lubricating your Locomotive

Help your Atlas O loco lead a long and productive life on your railroad by maintaining it properly.

Two basic rules to keep in mind: never over-lubricate (a small amount will do), and avoid getting grease or oil on the loco's wheels or your track. You'll know your loco 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.



Transformer (non-command) operations

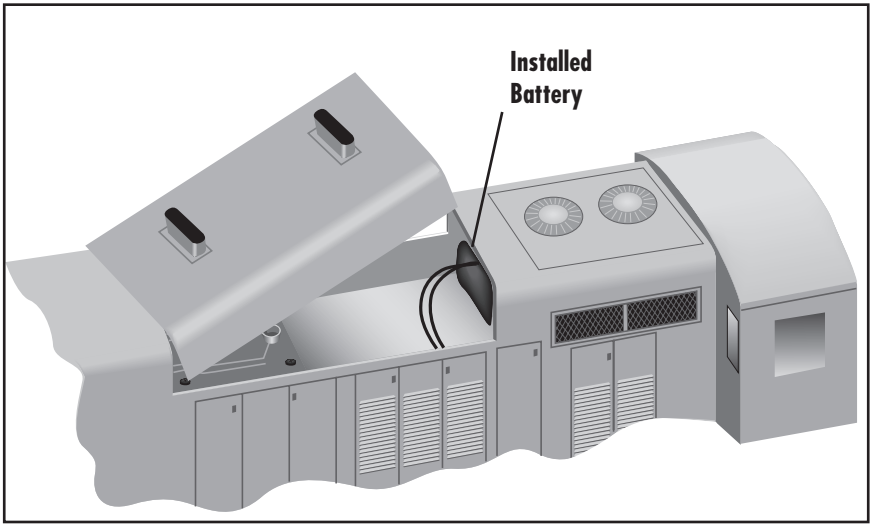
Installing the RailSounds battery in your locomotive

This Atlas O Locomotive is equipped with Lionel RailSounds®. Your loco features digital samples from real-life diesel locomotives for the ultimate in realism.

You may choose to install a 9-volt alkaline battery (included) in your loco. The battery ensures interruption-free operation of RailSounds when the locomotive is operated with a conventional transformer.

However, if the locomotive is to be operated only with the TrainMaster® Command system, installing abattery is neither necessary nor recommended.

The battery is located at the rear of the locomotive. Remove the body by loosening the body mounting screws. Refer to diagram on page 9.



NOTE! Please remove protective cover from battery clip.

NOTE! Although RailSounds is powered by track voltage, the battery is required for uninterrupted operation and shutdown sequences when the locomotive is operated in non-command mode with a conventional transformer. Use only **Alkaline** batteries.

NOTE! If RailSounds "drops out" during track power interrupts (direction change), replace the battery.

Adding fluid to your locomotive's smoke generator

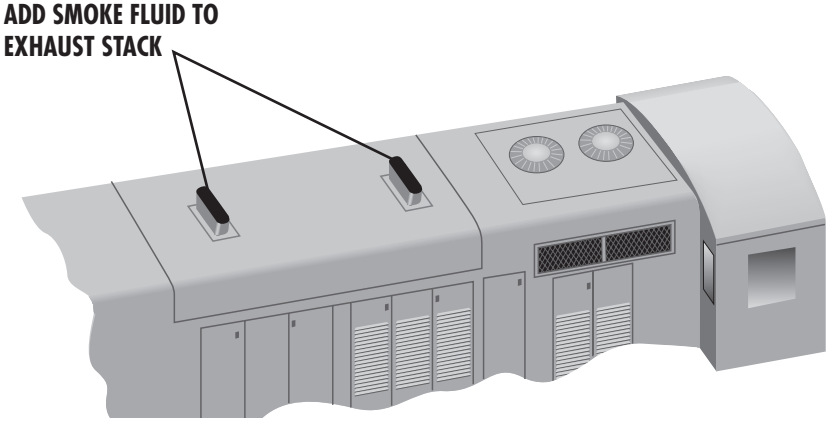
Your locomotive is equipped with a smoke generator that produces safe and clean white smoke during operation.

NOTE! **The locomotive is shipped with the smoke unit turned off and with very little smoke fluid in the smoke generator.**

There is a smoke unit control switch that is marked SMK/NO SMK, as shown in the diagram on page 10. If you prefer to have a smoke-free locomotive, leave the switch set at its NO SMK position.

If you wish to use the smoke unit, before filling the smoke generator, move the smoke unit control switch from the NO/SMK to the SMK postion. To fill the smoke generator, first remove the hatch from the top of the long hood. Then add 15 to 20 drops of Lionel or Lionel compatible smoke fluid to the loco's smoke fluid funnel. Refer to diagram below. If no smoke comes out of the exhaust stackafter you have filled the smoke unit and run the loco for 20 or more seconds, there is probably a vapor lock in the smoke generator. To clear this vapor lock, simply blow gently down the exhaust funnel. To protect the smoke generator from overheating, the smoke unit will automatically turn itself off when the smoke fluid is empty. To refill an empty smoke generator, add another 15 to 20 drops of smoke fluid to the loco's funnel.

When using command control, you can increase the speed at which the smoke generator heats up by using the CAB-1 remote. First press AUX1 and then press and hold the 9 key to speed heating of the smoke generator. ***Do not hold down the 9 key for more than 15 seconds.***



Transformer (Non-Command Operations)

Experiencing the range of your locomotive's Railsounds system

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

- **Four diesel-roar levels.** Your loco's speed determines the level of diesel RPM roar—automatically, if you prefer: idle, half throttle, three quarters or full-speed output.
- **MultiHorn™.** A different horn sound at different speeds—a Railsounds exclusive.
- **Mechanical bell.** Press BELL on your transformer to begin the effect, again to discontinue.
- **Reverse unit reset sound.** Power down your track, wait for 3-5 seconds, and listen for the air-release sound—that's the loco telling you its Lionel Command reverse unit has just reset to forward operation.
- **Shutdown sequence.** No other model railroad sound system shuts down like Railsounds. Turn off track power, and after the air-release reset sound, you have two seconds to restart your loco. If you're done with operations, Railsounds will commence with a realistic diesel shutdown sequence about two seconds after the air-release reset occurs.
- For even *more* authentic Railsounds effects, operate in the TrainMaster Command environment.

Notes on Railsounds

- Turn the volume knob clockwise or counter clockwise in the location shown on page 6 to adjust sound output.
- Listen for incidental locomotive sounds during Railsounds operation. They're automatic and, of course, authentic.
- The 9-volt alkaline battery you installed ensures *continuous* loco diesel roar in conventional operation.
- Longer track-power interruptions (including locomotive derailments) cause Railsounds to shut down after about 7 seconds.

Lionel TrainMaster Command Operations

The Command control environment

Lionel TrainMaster Command is the advanced model railroad control system from Lionel. Your Atlas O loco is equipped with a Liontech Command reverse unit.

TrainMaster Command gives you the power to operate multiple Command-equipped locomotives on the same track, at the same time.

To operate in Command, you need a Legacy system and Cab-2 or a legacy light system and Cab-1 L. Find them both at your authorized Lionel retailer.

1. Place your locomotive on Atlas O or compatible O gauge track.

- **Make sure track power is OFF before placing on the track.**
- **Make sure your Lionel Legacy Base is ON** and its communications wire is connected to the COMMON post on your AC transformer or the U on any of your installed PowerMasters.
- Once positioned on the track, **increase track voltage to 18V** (on PowerMaster, slide the CMD/CONV switch to CMD).

2. Address your locomotive using remote.

- **Press ENG and 1** on the numeric keypad of your remote. This command is sent by remote to the Base, which then translates your command into digital code. That code is sent around your railroad's outside rails in the form of a digital "halo." All Command-equipped locos listen to this digital communication, but they do not respond until they hear their individual ID number—in this case, "1."
- **The digital language of TrainMaster Command—and not track power—controls the actions of Command-equipped locos.** Track power is simply like gasoline in the tank of your car—it gives you the power to go places, but it doesn't tell you where to go or how fast to get there.
- **All Command equipped locomotives come factory-programmed with an ID# of "1."** To change the ID# of your loco, see page 13.

3. Move 'em out!

- Throttle up or press any command button on the remote. Your loco will respond to your every command. Read on.

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

CAB-1 commands

Front coupler releases. ***Coupler release sounds.***

Rear coupler releases. ***Coupler release sounds.***

AUX 1

Activates keypad.

AUX 2

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

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

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

Press WSTL/HRN to activate the loco horn; release it to discontinue. ***MultiHorn diesel horn sound.***

Press BELL once to activate the bell; press again to discontinue. ***Diesel mechanical bell sound.***

Press DIR—the locomotive decelerates to a complete stop; turn the throttle up, and the locomotive will accelerate in the new, opposite direction. (THERE IS NO NEUTRAL STATE) ***Diesel air-release sound.***

Press and hold BOOST to increase speed. Release BOOST to return to the previous speed.

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

Note! Cab-1 shown. Similar functions are available with Cab-1L and Cab2

CAB-1 numeric keypad commands for your locomotive

AUX1

When you press AUX1 on the remote, you turn the numeric keypad into 10 command buttons. The keypad lets you control extra command features (until you press any top-row button like SW, ACC, RTE, TR, or ENG). ***Railsounds sounds in bold italic.***

0 Stops and resets the loco. Resets the locomotive's direction to FORWARD. Resets Railsounds to automatic RPM operation. ***Horn blows. RPMs return to automatic.***

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

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

3 Raises Railsounds RPM level. Starts up Railsounds. ***RPMs increase. Startup sequence commences.***

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

5 Activates the Railsounds shutdown sequence. Just like the real thing, *your loco's RPMs must be at idle for shutdown to occur.* Press 6 repeatedly to lower RPMs until they won't descend further. Your locomotive is now at idle. Press 5 to initiate the shutdown sequence, following Crewtalk sound. ***Crewtalk sounds, Diesel shutdown commences.*** Remember, the horn, bell, and RPMs will not sound until you *restart* Railsounds.

6 Lowers Railsounds RPM level. ***RPMs decrease.***

7 ***TowerCom™*** is an audible announcement from the dispatcher. *There is a four second delay in this function.*

8 ***No function on this locomotive***

9 ***No function on this locomotive***

Note! The loco is shipped with very little smoke fluid in the smoke generator and the SMK/NO SMK Switch in the off position.

Speed Step Selection

The default speed step selection is 100 as shipped. The 100 speed steps start at a lower threshold, thus the motor is operating at a lower initial voltage with fine adjustment as the throttle is advanced. The momentum and stall features are not applicable, and do not operate.

100 speed steps should be used for best performance. 32 speed steps should be used when double-heading this locomotive with any older production Atlas locomotives (EOB-equipped). Note that the cruise feature must be disabled in ALL units when doing so.

To switch Speed Steps do the following:

Activate 32 Speed Steps:
AUX1 + 0 + AUX1 + 0 + BRAKE
Activate 100 Speed Steps:
AUX1 + 0 + AUX1 + 0 + BOOST

Note: *The speed step selection is stored until changed, and survives power cycling.*

Cruise On/Off Selection

The Cruise function may be disabled with the on/off switch or when operating in TMCC via keypresses on the remote. This setting is stored and affects command and conventional mode operation.

When operating without TMCC, simply set the speed control switch to the OFF position for the same effect.

When double-heading with a locomotive that does not have Cruise Commander or one that uses a different cruise technology (i.e. EOB), set the speed control switch to the off position. Note that the other locomotive(s) will also need to have their cruise technology disabled for proper performance.

To turn the Cruise OFF or ON using TMCC, do the following:

Cruise Off:
AUX1 + 0 + AUX1 + BRAKE + 7 + BRAKE
Cruise ON:
AUX1 + 0 + AUX1 + BRAKE + 9 + BRAKE

Note: *The cruise off/on selection is stored until changed, and survives power cycling.*

Sound Quality

To achieve your preferred RailSounds master volume level, we recommend you adjust your loco's volume screw (see page 9 for location). Turn the screw left or right to reach the desired volume level.

For quick remote-control of volume below the master setting — for example, muting — use the remote numeric keypad's volume control. Press AUX1 and then 4 on the numeric keypad to lower overall RailSounds output.

"Nudge Mode" Operation

The Cruise Commander has a bit of "play" to allow locos to operate in a lash-up. At times the "play" is not optimal, so it is possible to match locos a bit closer with the "nudge" mode feature. Remember to lash-up only very similar locos and that it is a requirement that the gear ratios match. Simply try the locos together in a lash-up at slow speeds. If they buck each other, use the Cruise Commander "nudge" mode to try to match the locos a bit closer. Nudge mode basically increases the slower loco to match the locos a bit closer. Although similar to a "stall" setting, the nudge mode is a bit more complex as it calculates the speed profile dynamically to hold the locos in sync throughout the throttle range.

First create a "train" with the Cab-1. Once the locos are operating in Train mode do the following:

- Test run the locos (not coupled) to find the slower loco.
- Place the slower loco behind the faster one.
- Get them moving as a train, around 10 speed steps on the throttle.
- Select the **slower** loco ENG ID.
- Press AUX2 4 times, with a 1 second pause between each press.
- The lights should blink off twice, confirming the loco to be "nudged."
- Use the BOOST and BRAKE keys to adjust the slower loco to match the faster one.
- Press "HORN" to lock the setting in the slower loco.
- AUX1 will cancel the setting.
- Couple the locos together and run as Train

To summarize:

Select: Slower Engine ID
Activate: AUX2 + AUX2 + AUX2 + AUX2
Nudge: BOOST to speed up, BRAKE to slow down
Save: Horn

To clear the nudge settings, select the speed step (32 or 100) on the "nudged" loco.
NOTE: the "nudge" selection is stored until changed, and survives power cycling.

Lionel Legacy Users

Your Legacy CAB-2 system supports REL 100 mode and this should work well with the default 100 speed step setting in this locomotive. Please refer to your Lionel Legacy Control System manual under the heading "Controlling Your Layout" for more information on accessing the REL 100 mode. Note that the most up-to-date version of this manual is available for download from www.lionel.com

Tuning your locomotive's performance

MOMENTUM

TrainMaster Command's momentum feature simulates the labored performance of a locomotive pulling a heavy load. Press L, M, or H (located under CAB-1's removable panel) for light, medium, or heavy momentum. The locomotive's R4LC remembers this setting until you change it. For quick locomotive response, choose L.

BRAKING AND BOOSTING

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

SOUND QUALITY

To achieve your preferred Railsounds master volume level, we recommend you adjust your loco volume control set screw (see page 6 for location). Turn the set screw left or right to reach the desired volume level.

For quick remote-control of volume *below* the master setting—for example, muting—use the remote numeric keypad's volume control. Press AUX1 and then 4 on the numeric keypad to lower overall Railsounds output.

HIGH VOLTAGE SETTING

Press SET, headlight will flash. Get your locomotive moving to the maximum speed you want it to run, press BOOST. Use this to keep your locomotive from excess-speed derailing. Turn off the high voltage setting by pressing SET, then BOOST, holding each for one second.

STALL

Make your loco feel more responsive by setting a "stall" voltage. Get your locomotive moving, then press SET; the locomotive will stop. Turn the throttle clockwise to get the locomotive moving, then decrease speed until the locomotive just stops. 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.

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

Assigning your locomotive a new ID#

Example Assign a new ID# to your Command-equipped loco

Command Base ON
Place the loco on track
PowerMasters set to CMD or traditional power supplies ON 18V
Set the locomotive reverse unit control switch to PROGRAM

Turn track power on (PowerMasters):

Press BOOST

Program the loco with a new ID#:

Press ENG

Press a number you choose (the ID#)

Press SET

Set the reverse unit control switch to FORWARD/RUN

Your loco set remembers its ID# forever; change it <u>any time</u> with these steps

As your fleet of Command-equipped locomotives grows, you'll want to give your loco a more individualized number. Choose from any between 1 and 99. To make things easy, use a portion of your loco's cab number.

Turn the Command Base ON and place the locomotive on track. Power up, then set the loco's reverse unit control switch to PGM (see the illustration on page 6). Using your remote, press ENG, the locomotive ID# (you select: ?), then press the SET button located under CAB-1's removable panel. Hear the horn blow (or see the headlight flash if Railsounds is off); that's the R2LC confirming the new ID#. Set the reverse unit control switch to RUN. Your loco is ready for operations with its all-new ID#.

We recommend that you choose an easy to remember ID# for your engine. Some possibilities are part of the engine road number, your age, any two digit number that is not used by another engine. Write the number on a small piece of tape and put this on the bottom of the fuel tank to aid in remembering.

Reprogramming R4LC circuit boards to restore features

Due to the inevitable derailments, static, and the negative nature of electricity, it is possible that your R2LC could someday lose its setup program. The symptoms of this condition would be unresponsiveness in command mode. This can be easily remedied by "reprogramming" your R4LC using the following steps.

STEP 1: Move switch on locomotive from run to program.

STEP 2: Turn on 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 8 for your locomotive.

STEP 6: Turn off power to track, 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.

WARRANTY, MAINTENANCE and SERVICE

Atlas Model Railroad Company Limited Warranty Information

Congratulations on the purchase of your Atlas product(s). The following limited warranty information, effective as of January 2015, is applied to all Atlas products including locomotives, rolling stock, track and accessories.

I. Atlas Limited Warranty Tips

Here are 3 important tips to help you take advantage of the Atlas limited warranty:

a. Save your receipt/sales slip since you will need these in a warranty claim situation.

b. Save the original locomotive and/or rolling stock display box for storage and shipping to Atlas if needed.

c. Fill out all warranty cards at time of purchase and send to Atlas to activate your product's warranty coverage.

II. Atlas Limited Warranty Introduction

a. Products purchased from an Atlas authorized dealer* are covered for one year by this warranty provided that the 'product arrival date'** was within three years of the date of purchase.

b. This warranty is for the original purchase and is non-transferable.

c. The returned product must include a copy of the original sales receipt.

d. The product warranty must be registered with Atlas.

* Atlas authorized dealers are listed in the back of every Atlas All Scales Catalog and can be found online on the Atlas Dealer Locator.

** The product arrival date is the month and year the product arrived to Atlas from the Atlas supplier.

III. Atlas Limited Warranty Coverage Specifics

a. All Atlas products are warranted against defects in material or workmanship.

b. Atlas, in its discretion, will credit, repair or replace the defective part without charge, for the part and/or labor. Credits are redeemable directly from Atlas only.

c. Product arrival dates of more than three (3) years are not covered under warranty.

d. This warranty does not cover damages caused by commercial use, product modification, customization, improper usage, abuse or handling. It also excludes regular maintenance and parts that undergo normal wear and tear such as batteries, bulbs/LED's, pick-up wires, traction tires, etc.

IV. Atlas Repair/Return Details

a. If warranty repair service is required for this product, first contact Atlas for a Return Merchandise Authorization number, which will be used to track your product once it's been returned to Atlas. Call Atlas at 908-687-0880 or email csdept@atlasrr.com and request an RMA #.

b. Include with your product a description of the problem, a copy of the original sales receipt, and the name of the Atlas authorized dealer from whom it was purchased.

c. Package your product (locomotive and/or rolling stock) in the original display box to help prevent damage in shipment. Remove any non-factory details or electronics prior to shipment.

d. All products must be sent prepaid by a carrier of your choice. We recommend that the package be insured and shipped with a tracking number.

V. Atlas Non-Warranty Repair Details

a. If for any reason an Atlas product cannot be repaired, replaced or credited under the above warranty Atlas, if possible, will provide a parts/labor quote to repair the product. Follow the same procedures as found above for returning your product.

b. Customers will have 14 days to decide if they want Atlas to repair their product. If no decision is made during this time, the unrepaired product will be returned to the customer.

c. No labor or parts will be provided free of charge for a non-warranty repair.

d. Atlas will not be held liable for incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Maintenance and Service

If you have any questions regarding the Atlas limited warranty, contact Atlas Customer Service at 908-687-0880.

This Atlas O product is designed for trouble-free operation. Should you require service within the warranty period, please contact us at 908-687-0880. You may also send this item to the Atlas O Customer Service Department. Make sure the item is packed to prevent shipping damage; make every attempt to utilize the original packaging. Send to:

Atlas Model Railroad Company, Inc.
378 Florence Avenue
Hillside, NJ 07205 USA

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Hillside, NJ 07205 USA