LIONEL

LIONEL
INSTRUCTION SHEET ®

Lionel Dash-9 Diesel Locomotive Owner's Manual

featuring **TRAINmaster** C·O·M·M·A·N·D *and* **Railsounds**

ODYSSEY ™
SYSTEM

Congratulations!

You purchased a tough, durable loco-motive—the Dash-9 diesel locomotive built by Lionel. From the crisp detail and expert decoration on the outside to the brute power under the hood, the Lionel Dash-9 is ready for duty on your model railroad. Experience the superiority of today's Lionel.

- Odyssey™ System Speed Control
- Two powerful flywheel equipped can motors
- Digital TrainMaster Command™ controlled
- RailSounds™ digital — sound system
- Tire-Traction

- Die-cast ElectroCouplers (in command)
- Illuminated headlights/rear light/ interior light/ditch lights
- CrewTalk (in command)
- TowerCom (in command)
- Diesel smoke generator
- Directional lighting

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Transformer operations

Running your Lionel Dash-9 with a Lionel transformer

1 **Place your Dash-9 locomotive on Lionel or Lionel-compatible 0 gauge track.**

2 **Power up your Dash-9 with your transformer.**
- **Your Dash-9 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 Dash-9 with direct current** (DC). Damage to sensitive electronic components may occur.

Note!
- **When you first power up your track, your** Dash-9's headlights will illuminate. At this point, the locomotive is in neutral. This occurs when placing the Dash-9 on your railroad for the first time. When your train is first powered up, the default state will be neutral and the default direction is forward. This means whenever you power up your engine the engine will remain in neutral, and when the power is removed and again applied, the train will move forward. This condition holds true if the engine is being powered up for the first time or if the engine has been powered down longer than five seconds.

3 **Move 'em out!**
- **Get your Dash-9 moving.** Press the DIR button on your CAB-1 remote or Lionel transformer. This sequences the Lionel R2LC reverse unit to the next operating state.
- **Adjust track voltage** until your Dash-9 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 Dash-9 in a single operating state**
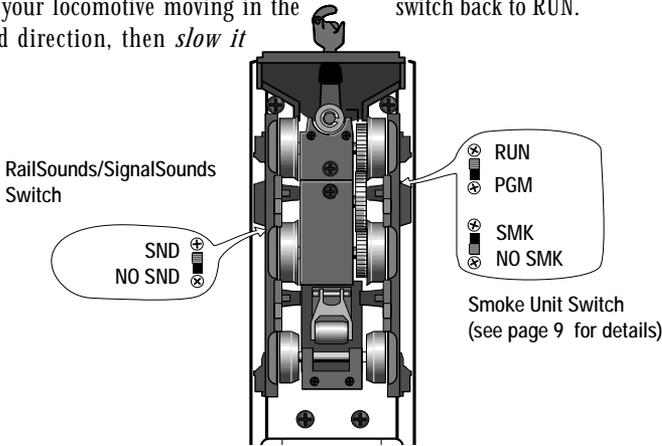
Transformer operations

Locking your Dash-9 into a single operational state

To select a single operational state for your Lionel Dash-9 (example: forward only), you can deactivate the R2LC'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 Dash-9 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.

RailSounds/SignalSounds
Switch

SND
NO SND

RUN
PGM

SMK
NO SMK

Smoke Unit Switch
(see page 9 for details)

Transformer operations

Using your Dash-9 ElectroCoupler in the non-Command environment

To use your Dash-9 ElectroCoupler in the non-Command environment, you must first couple a piece of rolling stock equipped with Lionel magnetic couplers directly to

Magnetic coupler on the rolling stock coupled to the rear of your Dash-9

Remote-control track section

your Dash-9's ElectroCouplers. The magnetic coupler on the rolling stock will then react to the magnetic field generated by a Lionel 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.
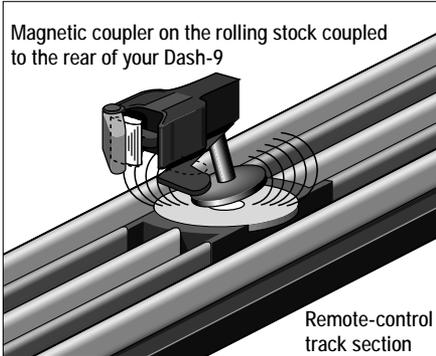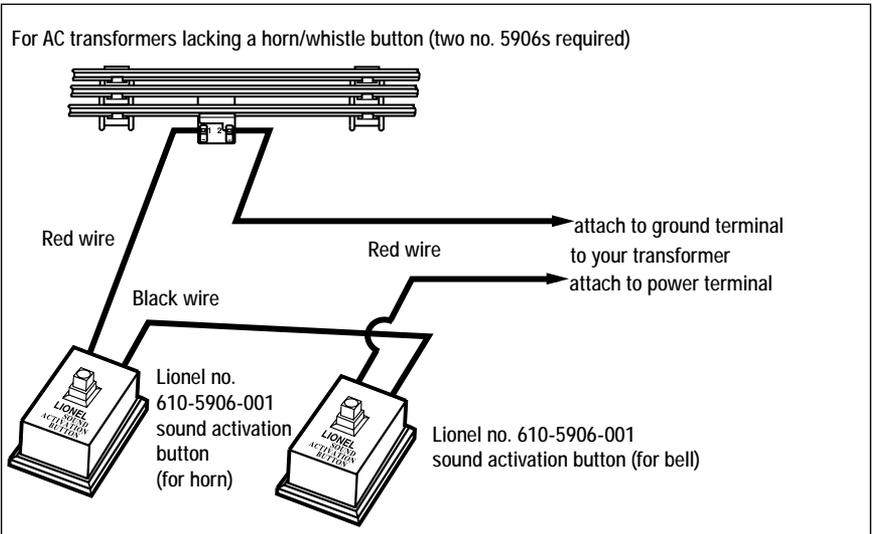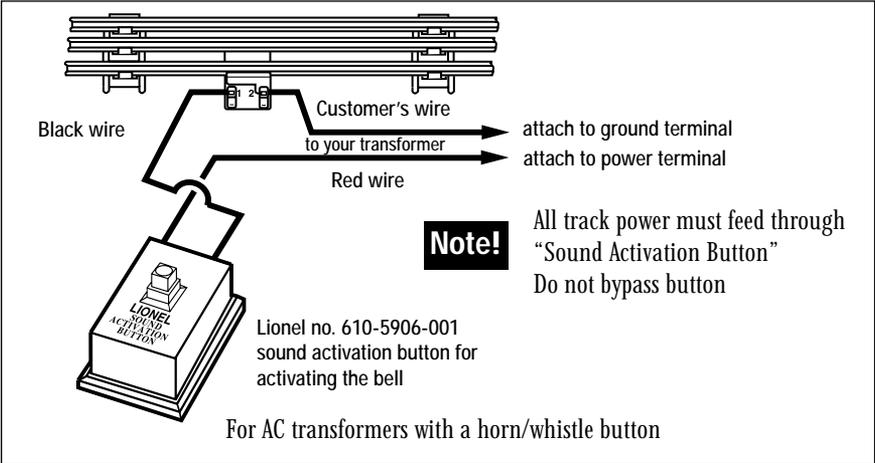
Note!

Your Dash-9 ElectroCouplers will NOT open manually or by using a remote-control track section

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Transformer operations

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

To operate the bell and horn sounds when operating your Dash-9 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.

Black wire

Customer's wire
to your transformer

attach to ground terminal
attach to power terminal

Red wire

Note! All track power must feed through "Sound Activation Button" Do not bypass button

Lionel no. 610-5906-001 sound activation button for activating the bell

For AC transformers with a horn/whistle button

For AC transformers lacking a horn/whistle button (two no. 5906s required)

Red wire

Red wire

attach to ground terminal
to your transformer
attach to power terminal

Black wire

Lionel no. 610-5906-001 sound activation button (for horn)

Lionel no. 610-5906-001 sound activation button (for bell)

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.
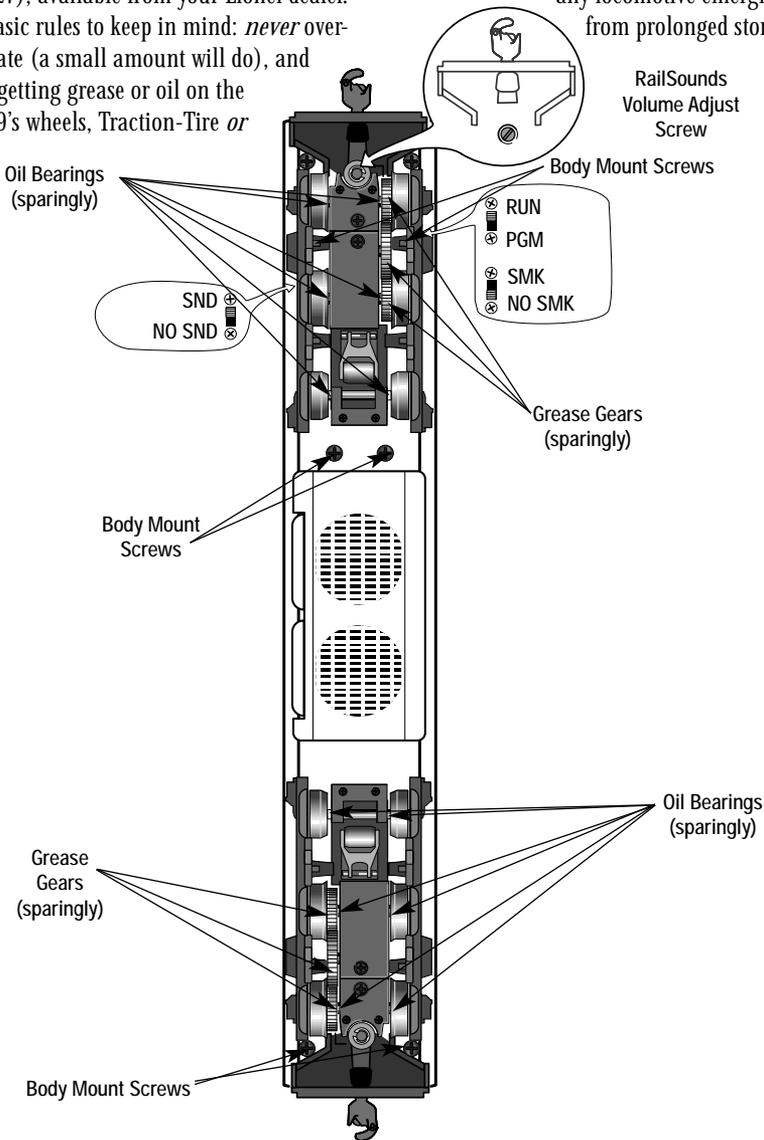
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Maintaining and servicing your Dash-9

Lubricating your Dash-9

Help your Lionel Dash-9 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 Dash-9's wheels, Traction-Tire *or*

your track. You'll know your Dash-9 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.

RailSounds Volume Adjust Screw

Body Mount Screws

Oil Bearings (sparingly)

RUN
PGM

SMK
NO SMK

SND
NO SND

Grease Gears (sparingly)

Body Mount Screws

Oil Bearings (sparingly)

Grease Gears (sparingly)

Body Mount Screws

Maintaining and servicing your Dash-9

### Adding fluid to your Locomotive's smoke generator

Your 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 tube end with a pin, then add 10-15 drops of fluid into the Locomotive's stack. See diagram for location of smoke generator duct. Smoke production will commence momentarily, faster if you run your Locomotive at speed. When smoke production wanes, add more fluid (four to eight drops).

If you prefer to have a *smoke free* locomotive, there is a switch located on the bottom of the engine under the cab marked SMK/NO SMK (see page 5 for location).

Move the switch to NO SMK and your locomotive will stop smoking.

When the smoke unit is on *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.

Add fluid here
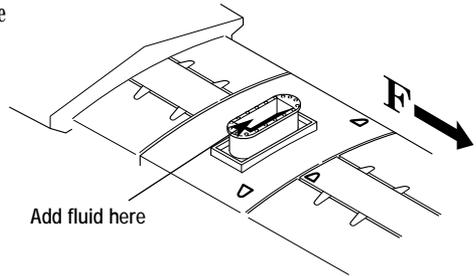
Replacing your Dash-9's lamps

Your Dash-9 is illuminated by several 18-volt lamps. During the course of normal operation, they may require replacement.

Begin by removing the Dash-9's shell; see page 8 for screw location. After removing the six screws, carefully lift the shell away from the frame.

Locate the wire harness containing the expired lamp. Carefully remove the lamps from the clear plastic lens. Next route the wires through the retaining clips and unplug the connector from spring housing (Note the manner in which the wires are routed, this makes reinstallation easier.) Refer to the diagram on the next page for the part number of the wire harness to be replaced. The wire harnesses are available from your authorized Lionel Service Center or Lionel Service. See Lionel Service section on page 20 for more information. Reinstall the shell.
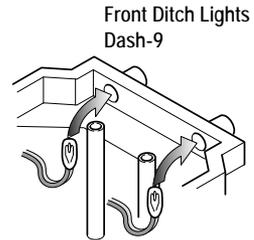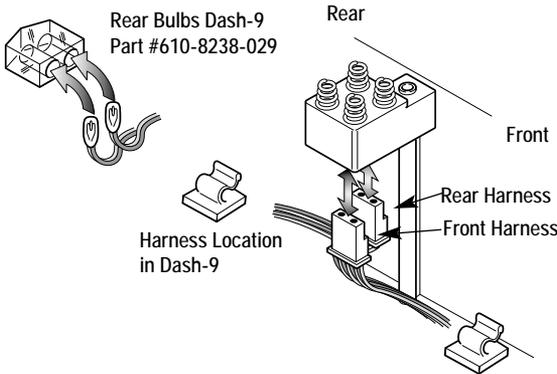
Note! Make sure the headlight was not turned off by pressing AUX2 before replacing bulb.
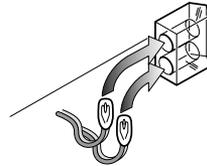
Maintaining and servicing your Dash-9

Replacing your Dash-9's lamps

To replace your Dash-9's interior lights, cut the two leads of the expired lamp and remove it from the lamp holder in the motor shroud. Route the two leads from the new lamp up and through the lamp holder, reversing the path taken to remove the expired lamps. Cut approximately 1/4˝ of insulation off of each lead, twist the two leads together. Wrap this connection with insulated tape to ensure a secure connection. Before you reinstall the cab, put your Dash-9 on the track and power it up to verify that the connection you made is a good one. When you have verified that your mission was a success. Reinstall the cab and get back on the track!

Rear Bulbs Dash-9
Part #610-8238-029

Rear

Front Ditch Lights
Dash-9

Front

Rear Harness

Front Harness

Harness Location
in Dash-9

Front Lights Dash-9's
Part #610-8241-019

Note! The ditch lights and the front lights are in the same harness, part no. 610-8241-019.

Interior Lights
Part #610-8238-039

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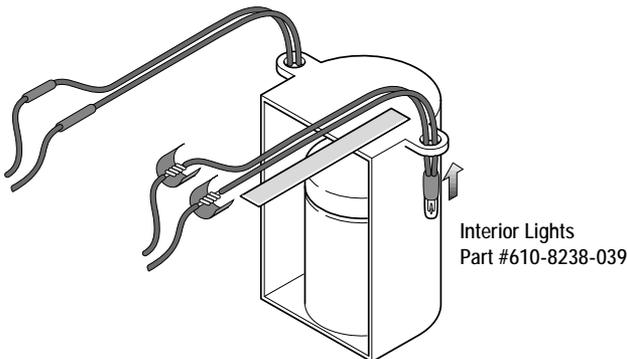
Odyssey™ System operations

Basically, the Odyssey System is a "cruise control" for your engine. Once the speed is set (see below), your engine will maintain a constant speed, no matter what loads or grades you have on your layout. This digitally controlled system also allows for extremely slow movement that will amaze any "scale" enthusiast.

Odyssey System operations

Conventional Operation

- Setting Speed Control
    1. Run the engine at the desired speed for approximately 5 seconds.
    2. Press and hold the horn button.
    3. While holding the horn button, increase the track voltage by at least 3 volts (at least 1/4 turn).
    4. Speed control is set. (NOTE: Engine speed will increase slightly then return to set speed.)
- Turning Off Speed Control:
    1. While the engine is in <u>neutral</u>, turn the Controller up to the maximum power, wait 1 second then press and hold the horn button.
    2. While holding the horn button <u>slowly</u>, reduce track voltage to 1/4 the full power.
    3. Release horn.
    4. Cycle the engine to forward/reverse. The engine is now out of speed control mode.

    <u>CAUTION</u>: In conventional operation, the smoke unit and lights are connected directly to track power. Do not exceed 14-16 volts for extended periods. Doing so will cause damage to the locomotive.

Command Operation

While in the command control environment, the speed control feature of the Odyssey System is always on. When turning the throttle, the speed of the engine will respond to each flash of the command Base. Example: Address the engine, slowly turn the throttle. The first light flash corresponds to the first speed step, this is the slowest speed of the locomotive.

TrainMaster Command operations

Your Dash-9's RailSounds system—the basics

Lionel RailSounds is the most realistic model railroad sound system in the world. Your Dash-9 RailSounds features digital samples for the *ultimate* in realism.

When you first apply track power, the Dash-9's RailSounds system delivers an authentic start-up sequence, followed by the sounds of the locomotive at idle. As the Dash-9's speed increases, the RPMs move through four levels of roar. Sounds return to idle *only* after the locomotive has come to a complete halt.

To silence the diesel roar (horn and bell remain unaffected), slide the RailSounds switch on the underside of the locomotive to NO SND (see page 5), *before powering up the locomotive.*
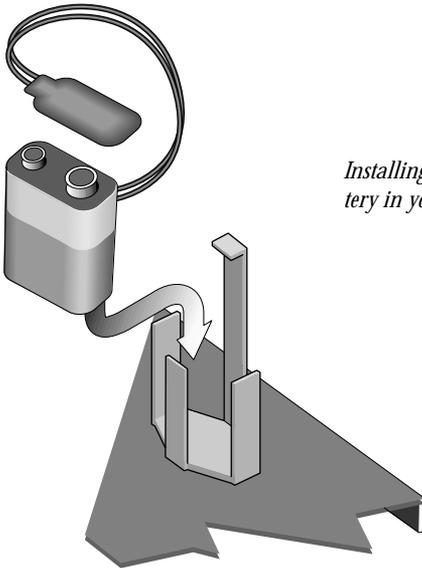
Installing a 9-volt alkaline battery in your Dash-9.

Note! After removing the shell, please remove the protective cover from battery clip.

Note! Although RailSounds is powered by track voltage, *the battery is required* for uninterrupted operation and shutdown sequences. Use only <u>alkaline</u> batteries.

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

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

TrainMaster Command operations

Experiencing the range of your Dash-9'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 Dash-9'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 CAB-1 or 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 Dash-9 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 Dash-9. If you're done with operations, RailSounds will commence with a realistic diesel shutdown sequence about two seconds after the air-release reset occurs. (Battery installation required.)

Notes on RailSounds

- Turn the volume knob clockwise or counter clockwise in the location shown on page 8 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* Dash-9 diesel roar.

- 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.

TrainMaster Command operations

The Command control environment

Lionel TrainMaster Command is the advanced model railroad control system from Lionel. Your Dash-9 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 Command Base and a CAB-1 remote. Find them both at your authorized Lionel retailer.

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1 | ### Place your Dash-9 on Lionel or Lionel-compatible O gauge track.

- **Make sure track power is OFF before placing on the 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 on any of your installed PowerMasters.
- Once positioned on the track, **increase track voltage to FULL**.

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2 | ### Address your Dash-9 using 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 command 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 individual ID number—in this case, "1."
- **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 upgrades come factory-programmed with an ID# of "1."** To change the ID# of your Dash-9, see page 18.

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3 | ### Move 'em out!

- Throttle up or press any command button on CAB-1. Your Dash-9 will respond to your every command. Read on.

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TrainMaster Command operations

Running your Dash-9 in the TrainMaster Command environment

Example   *address Locomotive #1*

PowerMasters set to CMD or traditional power supplies ON FULL

ENG   **Press ENG**

1   **Press 1 (the ID#)**

Throttle up/press any command button

Your Command-equipped Dash-9 comes factory-programmed with an ID# of "1." To get your Dash-9 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 Dash-9 is ready for Command operations.

RailSounds in bold italic.

CAB-1 commands for your Dash-9

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

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

AUX 1 Activates keypad.

AUX 2 Press AUX2 to turn your Dash-9'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 Lionels in operation.

Press WSTL/HRN to activate the Dash-9 horn. release it to discontinue. ***MultiHorn diesel horn sound.***

Press BELL once to activate the bell, 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 for extra power. Release BOOST and return to the Dash-9's previous speed.

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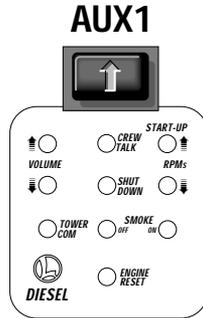
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TrainMaster Command operations

CAB-1 numeric keypad commands for your Dash-9

AUX1

When you press AUX1 on CAB-1, 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 Dash-9's. Resets the Dash-9'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* Dash-9'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 that includes that engine's road number and/or name. *There is a Four second delay in this function.*

8 Smoke off ***CrewTalk sounds***

9 Turns on the smoke generator. Press and hold 9 (10 seconds maximum) to initiate Smoke Boost™ — it superheats the smoke generator and enhances smoke output when you start running your steam locomotive. See notes on filling or turning off the smoke generator on page 9. ***CrewTalk sounds***

Note! AUX1-9 only works if the smoke unit switch is in the on position.

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TrainMaster Command operations

Tuning your Dash-9'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 Dash-9's R2LC 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 Dash-9 volume control set screw (see page 8 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 CAB-1 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 Dash-9 feel more responsive by setting a "stall" voltage. Get your locomotive moving, then press SET; the Dash-9 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.

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TrainMaster Command operations

Assigning your Dash-9 a new ID#

Example   *Assign a new I D# to your Command-equipped Dash-9*

Set the Dash-9 reverse unit control

  switch to PROGRAM

Command Base ON

Place the Dash-9 on track

PowerMasters set to CMD or

  traditional power supplies ON FULL

Turn track power on (PowerMasters):

       Press BOOST

Program the Dash-9 with a new ID#:

     ENG Press ENG

     ? ? Press a number you choose (the ID#)

     SET Press SET

Set the reverse unit control switch

  to FORWARD/RUN

Your Dash-9 set remembers its ID# forever; change it <u>any</u> <u>time</u> with these steps

As your fleet of Command-equipped Lionels grows, you'll want to give your Dash-9 a more individualized number. Choose from any between 1 and 99. To make things easy, use a portion of your Dash-9's cab number.

Set the Dash-9's reverse unit control switch to PGM (see the illustrationon page 5), then power up. Turn the Command Base ON and place the Dash-9 on track. Using CAB-1, 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 Dash-9 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.

TrainMaster Command operations

Reprogramming R2LC 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

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.

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, 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.

Note! To program your R2LC as a diesel locomotive with smoke, follow these steps. (These steps will also restore programming which is accidentally lost due to static, numerous derailments, etc.)

Limited Warranty/Lionel Service

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

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_____

_____