

73-8153-250
07/99

LIONEL



*Lionel powered and
non-powered
F3A diesel locomotive set*

featuring **THOMAS** and *Richmond*

Congratulations!

You own one of the most sophisticated model trains ever built—the Lionel TrainMaster Command-equipped F3 diesel locomotive set. From the crisp detail and expert decoration on the out-

side to the advanced technology and brute power under the hood, the Lionel F3 set is ready for duty on your model railroad. Experience the superiority of today's Lionel.

- Two powerful Lionel Pullmor® motors (in powered unit)
- Lionel Command™ reverse unit for use with the Lionel TrainMaster® Command™ model railroad control system
- Railsounds™ diesel sound system—digital samples from a real Electro-Motive Division F3 (in non-powered unit)
- Magne-Traction® (in powered unit)
- Die-cast Electrocouplers™ (cab ends only)
- Directional headlights and illuminated interiors
- CrewTalk™ and Two Part TowerCom™ (in command mode)

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Transformer operations

Running your Lionel F3 set with a Lionel transformer

1

Place your F3 set on Lionel or Lionel-compatible O gauge track.

- **Note the pull of Magne-Traction** between your powered F3A and the steel track. Magnetized wheels and axles increase your pulling power (more than 25 cars on straight and level track) and keep your F3 set on track while passing swiftly through curves.

2

Power up your F3 set with your transformer.

- **Your F3 set is designed to operate on 7-18 volts alternating current.** Virtually all Lionel and Lionel-compatible alternating-current transformers are suitable; we recommend the TrainMaster Command model railroad control system.

Note!

- **DO NOT POWER YOUR F3 SET WITH DIRECT CURRENT (DC).** Damage to sensitive electronic components may occur.
- **When you first power up your track, the F3 set 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 powered F3A’s headlight and cab light will illuminate and the non powered F3A’s Railsounds will fire up. At this point, the F3A set is in neutral. (This occurs when placing the F3As on your railroad for the first time. Thereafter, they start in forward after every three-second power interrupt.)

3

Move ‘em out!

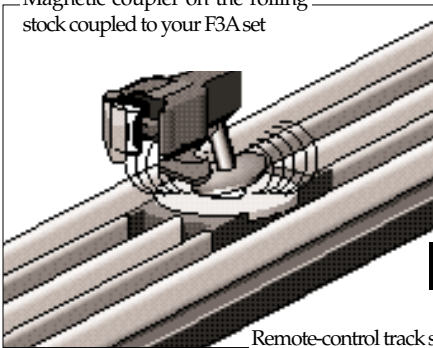
- **Get your F3 set moving.** Press the DIR button on your CAB-1 remote or Lionel transformer. This sequences the Liontech Command reverse unit (LCRU) to the next operating state. The LCRU alternates between three states: forward, neutral, and reverse.
- **Adjust track voltage** until your F3 set moves at your desired speed. To increase speed, increase track voltage. To decrease speed, reduce voltage. To stop the locomotive set, cut track power.
- **To select a single operating state** (example: forward only), you can deactivate the LCRU’s sequencing function. Get your F3 set moving in the desired direction, then slide the reverse unit control switch on the powered F3A’s underside to PROGRAM/LOCK. See page 12 for the switch location and positioning.

Transformer operations

Using your powered and non-powered F3A set Electrocouplers in the non-Command environment

To use your powered and non-powered F3A set Electrocouplers in the non-Command environment, you must first couple a piece of rolling stock

Magnetic coupler on the rolling stock coupled to your F3A set



equipped with Lionel magnetic couplers directly to your powered and non-powered F3A set. 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 powered and non-powered F3A Electrocouplers will NOT open manually or by using a remote-control track section

Using your powered and non-powered F3A set's Electrocouplers in the TrainMaster Command environment

The front of your Lionel powered and non-powered F3A units are each equipped with an Electrocoupler™ that responds to either the COUPLER F (front) or COUPLER R (rear) button on your CAB-1 remote when operated in



the Trainmaster Command environment. Simply press either button on your CAB-1 remote, and that coupler opens.

Note!

Your powered and non-powered F3A set's Electrocouplers are NOT designed to be opened manually.

A note on Magne-Traction

Your powered F3 is equipped with Lionel Magne-Traction, magnetized wheelsets and axles that help increase tractive effort during operation. Because the wheelsets are magnetized, take care to prevent small

metallic objects from attaching to the wheel sets and working their way into the F3's motor assembly. They can damage your locomotive.

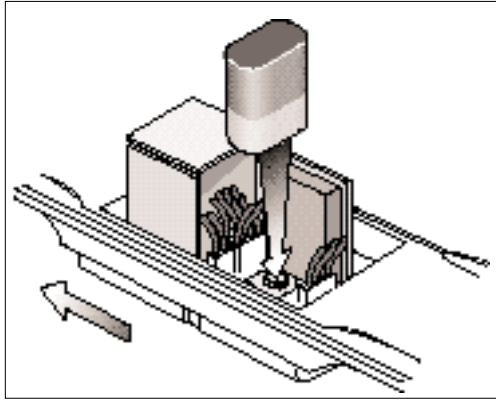
Note!

Magne-Traction is not effective on nonferrous track.

Your F3's Railsounds system—the basics

Lionel Railsounds is the most realistic model railroad sound system in the world. Your F3 features digital samples from an authentic F3 for the *ultimate* in realism.

Begin by installing a 9-volt *alkaline* battery in the non-powered F3A unit. This ensures interruption free operation of Rail-Sounds. Remove the front screw on the underside of the frame and lift the body up slightly, pulling it forward to release the two rear clips from the frame slots. (see page 13) Connect the 9-volt battery to the battery clip on the circuit board. Replace the body and reinsert the screw.



Install a 9-volt alkaline battery in your non-powered F3A unit. Remove the body, and connect the battery to the circuit board. Then reinstall the body on the frame.

Apply track power and the F3's Railsounds system delivers an authentic start-up sequence, followed by sounds of the locomotive at idle. As the F3'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 diesel RPM roar (horn and bell remain unaffected), slide the Railsounds switch to its SIG (signal) position *before*

powering up the locomotive. See page 12 for the non-powered F3A unit's switch location and positioning. To return to the diesel RPM roar, return the switch to the FULL position.

Note!

Although track voltage powers Railsounds, *the battery is required* for uninterrupted operation and shut-down sequences. Use only alkaline batteries; do not use "heavy duty" batteries.

Note!

Discontinue locomotive power for 10 seconds *before* changing the Railsounds on/off switch.

Note!

If Railsounds "drops out" during track power interrupts, replace the battery.

Transformer operations

Experiencing the range of your F3'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 F3's speed determines the level of diesel RPM roar—*automatically, if you prefer*: idle, slow, medium, or full-speed output.
- **MultiHorn™.** A different horn sound *every* time—a Railsounds exclusive.
- **Mechanical bell.** Press BELL on your CAB-1 or transformer to begin the effect; again to discontinue.
- **Full control of RPMs.** Prefer hands-on control of diesel RPM roar? Want to “ramp up” RPMs before pulling out, just like real diesels do? It's *easy* with Railsounds. Place your F3 set in neutral and increase track voltage to maximum. RPMs will continue to increase as long as the F3 remains in neutral, eventually reaching their highest level.

Now, decrease track voltage to the desired speed level. Press DIR on your CAB-1 remote or transformer, and head out with your F3 at full churn, just like the real thing. *RPMs will remain at that level until the locomotive has come to a complete halt.* Experiment with controllable RPMs—it's a blast!

- **Reverse unit reset sound.** Power down your track, wait for 3-5 seconds, and listen for the air-release sound—that's the F3 set telling you its Liontech 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 2 seconds to restart your F3. If you're done with operations, Railsounds will commence with an authentic F3 shutdown sequence about 2 seconds after the air-release reset occurs.

Note!

Battery must be installed for shutdown sequence

Notes on Railsounds

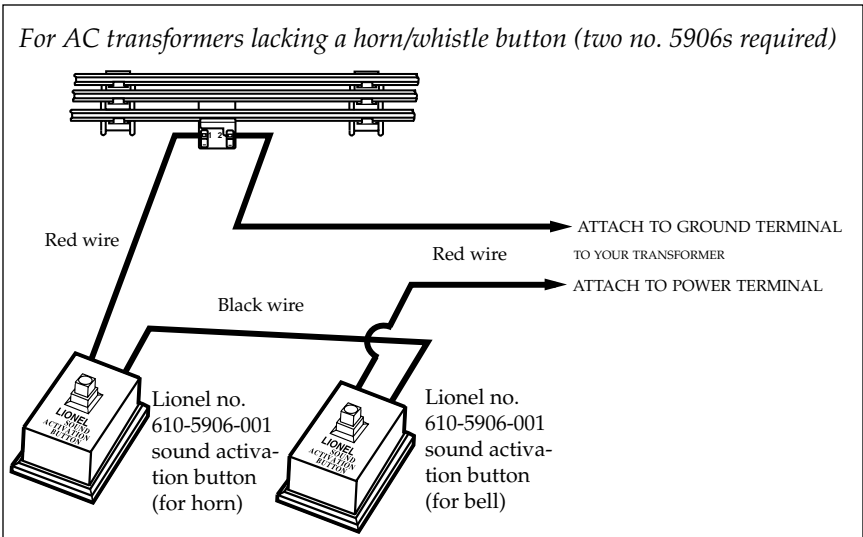
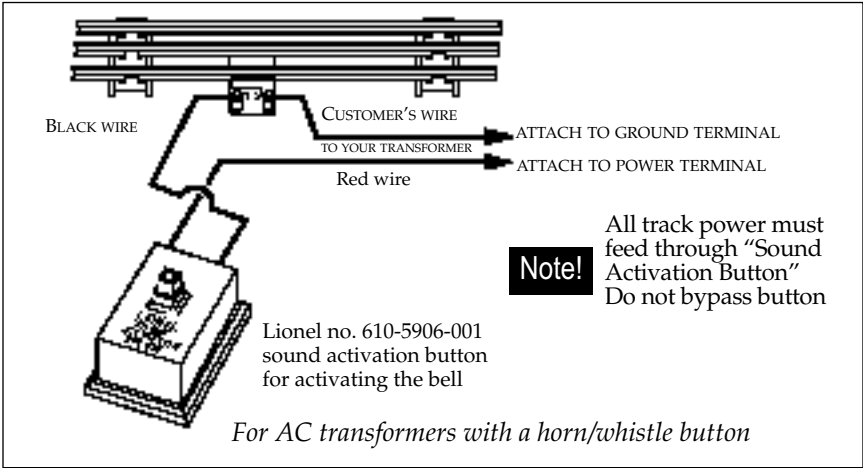
- Use the non-powered F3A unit's roof-mounted “radiator fan” volume control to adjust sound output. (See page 11 for its location.)
- Listen for incidental locomotive sounds during Railsounds operation. They're automatic and, of course, authentic.
- The 9-volt alkaline battery you

installed ensures *continuous* F3 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.

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

To operate the bell and horn sounds when operating your F3 set 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 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.

TrainMaster Command operations

The Command control environment

Lionel TrainMaster Command is the advanced model railroad control system from Lionel. Your F3A is equipped with the Liontech Command reverse unit, and your non-powered F3A unit features an R2LC for digital Railsounds control. 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.

1 Place your F3 set on Lionel or Lionel-compatible O gauge track.

- **Make sure track power is OFF before placing them 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** (on PowerMaster, slide the CMD/CONV switch to CMD).

2 Address your F3 set 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-equipped Lionels come factory-programmed with an ID# of "1."** To change the ID#s of both your powered F3A unit (equipped with an LCRU) and non-powered F3A unit (equipped with an R2LC, designed to control Railsounds digital sound systems), see page 12.

3 Move 'em out!

- Throttle up or press any command button on CAB-1. Your F3 set will respond to your every command. Read on.

Running your F3 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 F3 set comes factory-programmed with an ID# of "1." (Both the LCRU and R2LC are ID#1.) To get your F3 set 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 F3 set is ready for Command operations.

CAB-1 commands for your F3

COUPLER



Powered F3A unit front coupler releases. **COUPLER RELEASE**

COUPLER



Non-powered F3A unit rear coupler releases. **COUPLER RELEASE**



Activates keypad. **DIESEL AIR-RELEASE**



Press AUX2 to turn your F3's headlight on and off.

Turn the THROTTLE to the right to accelerate, left to decelerate. Engine RPMs will increase or decrease with throttle settings.

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 F3 horn, release it to discontinue. **MULTIHORN DIESEL HORN SOUND.**



Press BELL once to activate the bell, again to discontinue. **DIESEL MECHANICAL BELL**



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**



Press and hold BOOST for extra power. Release BOOST and return to the F3's previous speed.



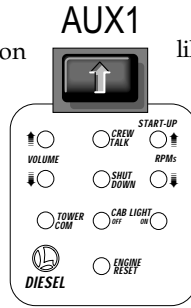
Press and hold BRAKE to slow down or stop. Release BRAKE and return to the previous speed. Engine RPMs decrease once stopped. RPMs will increase once brake is released and train begins moving. **SQUEALING BRAKE SOUNDS.**



TrainMaster Command operations

CAB-1 numeric keypad commands for your F3

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).

The CAB-1 keypad overlays included with your F3 are designed to help you learn the auxiliary features specific to this locomotive. *RAILSOUNDS SOUNDS IN BOLD ITALIC*

0 Stops and resets the F3's. Resets the F3'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. **CREWTALK ANNOUNCEMENT**

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 F3'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. **CREWTALK ANNOUNCEMENT / 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. Your locomotive features the **NEW TWO PART** TowerCom announcement. By following these simple steps you will trigger a unique standby or departure message. There will be a 4 second delay before the message plays. This allows for interactive audio between two TowerCom equipped units. After pressing AUX-1, pressing 7 produces the standby announcement, followed by inaudible CrewTalk. If you press 7 a second time, you will get the departure announcement, followed by inaudible CrewTalk. Also, by inserting any command between AUX-1 and 7, you will get the departure announcement. We suggest BRAKE, since while stationary, this has no function.

8 Turns cab interior lights off. **CREWTALK ANNOUNCEMENT**

Tuning your F3'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 F3's LCRU 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 ultrarealistic sound of squealing brakes.

SOUND QUALITY

To achieve your preferred Railsounds master volume level, we recommend you use your non-powered F3A unit's radiator-fan volume control dial (see below for location). Turn the dial left or right to adjust the

volume to your liking.

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

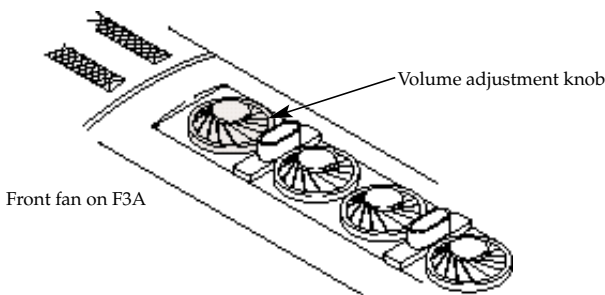
Press SET, headlight will flash. Get your locomotive moving to the maximum speed you want it to run, press BOOST. Use this to keep your locomotive from excess-speed derailling. Turn off the high voltage setting by pressing SET, then BOOST, holding each for one second.

STALL

Make your F3 feel more responsive by setting a "stall" voltage. Get your locomotive moving, then press SET; the F3 will stop. Turn the throttle clockwise to get the locomotive moving, then decrease speed until the locomotive just stops. Then press SET again; the LCRU 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 new engine ID#s.



TrainMaster Command operations

Assigning your powered and non-powered F3A units a new ID#

Example Assign a new ID# to your Command-equipped F3 set

Command Base ON

Place the F3 set on track

PowerMasters set to CMD or traditional power supplies ON FULL

Set the powered and non-powered F3A reverse unit control switches to PROGRAM

Turn track power on (PowerMasters):

Press BOOST

Program the powered and non-powered F3A units with a new ID#:



Press ENG



Press a number you choose (the ID#)



Press SET

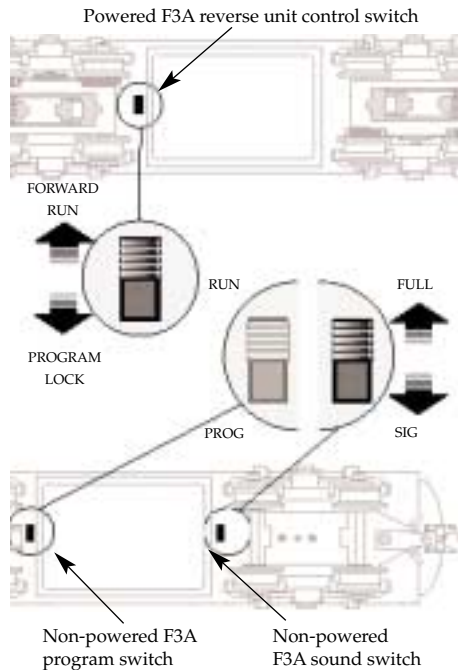
Set BOTH reverse unit control switches to FORWARD/RUN

Your F3 set remembers its ID# forever; change it any time with these steps

We recommend that you chose 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.

As your fleet of Command-equipped Lionel's grows, give your F3 set its own ID#. Choose from any between 1 and 99. **For ease of use, give both the powered and non-powered F3A units the same ID#.**

Turn the Command Base ON and place the F3 set on track. Power up, then slide **BOTH** the powered and non-powered F3A reverse unit control switches to PROGRAM.



Using CAB-1, press ENG, the locomotive ID#, then press the SET button located under CAB-1's removable panel. See the powered F3A's headlight flash and hear the non-powered F3A's horn honk; that's your signal that the programming has been accepted. Slide **BOTH** control switches to FORWARD/ RUN. Your F3 set is now programmed to respond to the number you entered.

Maintaining and servicing your powered and

Replacing your powered/non-powered F3A unit's lamps

Your F3A units are both illuminated by two 14-volt lamps. One illuminates the headlamp and the other illuminates the cab interior. During the course of normal operation, they may require replacement.

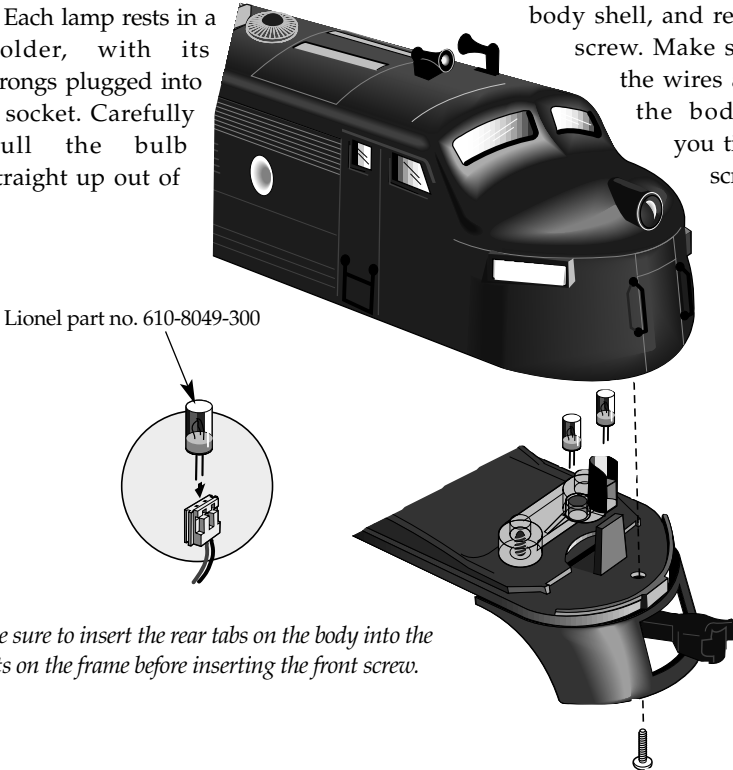
Start by separating the plastic body shell from the frame; remove the front screw on the underside of the frame and lift the body up slightly, pulling it forward to release the two rear clips from the frame slots.

Each lamp rests in a holder, with its prongs plugged into a socket. Carefully pull the bulb straight up out of

the holder to remove it. Replace the expired lamp with Lionel part no. 610-8049-300, available from your local Lionel Authorized Service Center or Lionel Service. (For more information, see Lionel Service on page 16.)

Insert the replacement lamp's prongs into the socket, making sure of a tight connection. To reinstall the shell, first insert the rear tabs on the body into the slots on the frame. Line up the screw holes on the frame and

body shell, and reinsert the screw. Make sure all of the wires are inside the body before you tighten the screw.



Make sure to insert the rear tabs on the body into the slots on the frame before inserting the front screw.

Note! Press Aux2 to make sure headlamps were not accidentally turned off, before replacing bulb

Note! Press Aux1-9 to make sure cab lights were not accidentally turned off, before replacing bulb

Maintaining and servicing your powered and

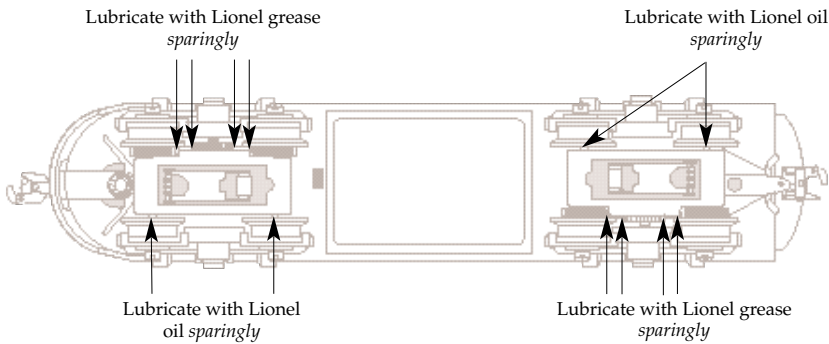
Lubricating your powered and non-powered F3A set

Help your Lionel powered and non-powered F3A set lead a long and productive life on your railroad by maintaining it properly.

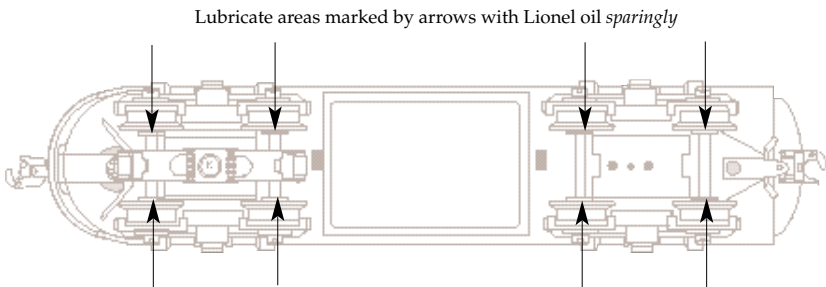
We recommend you purchase a Lionel 929 Lubrication and Maintenance kit (no. 6-62927), available from your Lionel dealer. Two basic rules to keep in mind: *never* over-lubricate (a small amount will do),

and avoid getting grease or oil on the F3's wheels, contact rollers, *or* your track.

You'll know your F3 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.



Underside of powered F3A unit



Underside of non-powered F3A unit

Lubricating your F3's Pullmor motor armatures

Your powered F3A unit will require occasional lubrication of its Pullmor motor armatures. If you hear excess noise during operation, or if the locomotive slows down intermittently, you may need to oil the top armature bearing.

Start by separating the body shell from the frame; remove the front body screw and unclip the rear shell tabs from the frame slots. Apply a *small* amount of Lionel oil (two drops) in the armature shaft hole.

Finish the job by reinstalling the body shell. Reinsert the rear tabs into the frame slots, then line up the screw holes in the front, and reinsert the screw.

Note!

The Liontech Command reverse unit is a sophisticated electronic device and is extremely sensitive to static electricity. Please avoid all physical contact with the LCRU.



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 the term specified in the enclosed warranty card, against original defects in materials or workmanship when purchased through an authorized Lionel merchant.

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 center, 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 Center.

Your nearest Lionel Service Center can be found by calling 1-800-4-Lionel, or by contacting our Website @ www.Lionel.com

If you prefer to send it 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 assure 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 products 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. You may choose to have your product repaired by one of our Authorized Lionel Service Centers after its warranty has expired. A reasonable service fee will be charged.

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 _____

