Congratulations on your purchase of the #2146WS Berkshire Madison Passenger Set! This set flaunts individual road numbers on each of the passenger cars like the original. Each car also features die-cast metal six-wheel trucks, die-cast metal ends, and interior illumination.

**LIONEL “MAGNE-TRACTION”**

This locomotive is equipped with “Magne-Traction” which means that its driving wheels are magnetized by powerful Alnico magnets inserted in the driving axles in order to grip the track and enable the locomotive to pull heavier loads and climb steeper grades without slipping on the track. Be careful not to let pins, paperclips, carpet tacks or other small iron objects come in contact with the locomotive or they will be attracted to the wheels, gears, or axles and interfere with the action of the locomotive. NOTE: “Magne-Traction” is not effective on aluminum, brass or other non-magnetic rails. The locomotive also includes two traction tires, which will improve traction on both magnetic and non-magnetic rails.
#2146WS STEAM PASSENGER SET INCLUDES:
#726 Locomotive and Tender, #2625 Irvington Car, #2627 Madison Car, #2628 Manhattan Car

**LOCOMOTIVE FEATURES:**
- Electronic E-Unit with Direction Lock
- Transformer controlled forward, neutral and reverse operation
- Electronic whistle and bell with volume control in tender
- Operating coupler
- Powerful Pullmor motor
- Magne-Traction track gripping system
- Traction tires
- Operating headlight
- Minimum Curve: 0-31

**PULLMAN CAR FEATURES:**
- Die-cast metal six-wheel trucks with operating couplers
- Illuminated interiors
- Die-cast metal ends
- Metal frame

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Lionel®, LEGACY™, FasTrack®, TrainMaster®, Odyssey®, RailSounds®, CrewTalk™, TowerCom™, DynaChuff™, StationSounds™, Pullmor®, ElectroCoupler™, Magne-Traction®, CAB-1® Remote Controller, American Flyer®, Lionel ZW®, ZW®, MagniVision®, TMCC®, Lionelville®, Wireless Tether™, Powerhouse™, LionMaster®, Conventional Classics™, Postwar Celebration Series™, TruRail™, PH-1 Powerhouse®, Powermaster®, Powerstation-Powerhouse®, Accessory Motor Controller™, AMC™, Accessory Switch Controller™, ASC™, Action Recorder Controller™, ARC™, Track Power Controller 300™, TPC 300™, Track Power Controller 400™, TPC 400™, Block Power Controller™, BPC™, Operating Track Controller™, OTC™, FatBoy™, Lionel Lines®, Joshua Lionel Cowen Series™, Lockon®, TrainSounds™, MultiHorn™, MultiWhistle™, Choo-Choo™
Transformer operations

RUNNING YOUR LOCOMOTIVE WITH A LIONEL TRANSFORMER

Caution!  Do not power your locomotive with direct current (DC). Damage to sensitive electronic components may occur.

1  PLACE YOUR TRAIN SET ON LIONEL OR LIONEL-COMPATIBLE O GAUGE TRACK.

2  THROTTLE UP YOUR LOCOMOTIVE WITH YOUR TRANSFORMER.

Your locomotive is designed to operate on 8-18 volts alternating current. Virtually all Lionel and Lionel-compatible alternating current transformers are suitable.

Throttle up your locomotive and it will begin to move in the forward direction. Adjust track voltage until your locomotive moves at your desired speed. To increase speed, increase track voltage. To decrease speed, decrease voltage.

Pressing the DIRECTION button on your transformer will sequence the Electronic E-unit to the next operating state in the repeating sequence of: forward, neutral, reverse, neutral, and so on.

To stop the locomotive, cycle the Electronic E-unit to neutral or turn-off track power.
Transformer operations

LOCKING YOUR LOCOMOTIVE INTO FORWARD DIRECTION ONLY OPERATION

When the Electronic E-unit Direction Lock switch is in the RUN position, your locomotive sequences through a repeating pattern of operations: forward, neutral, reverse, neutral, and so on.

To lock your locomotive into forward direction only operation, you can deactivate the Electronic E-unit’s sequencing function. Follow the steps below and refer to Figure 1 for the location of the Electronic E-unit Direction Lock switch.

**Note!** Always turn off track power before removing the locomotive from the track.

1. Turn off track power, wait three seconds, and remove the locomotive from the track. Now slide the Electronic E-unit Direction Lock switch to the LOCK position. Your locomotive is now locked into forward direction only operation.

2. Place your locomotive back on the track. Power up the track and press the direction button on your transformer to confirm that the locomotive is now locked into forward direction only operation.

To restore the forward-neutral-reverse sequence, turn off power and remove your locomotive from the track. Slide the Electronic E-unit Direction Lock switch back to the RUN position. Place the locomotive back on the track and restore track power.

![Figure 1. Switch and volume control locations](image)
Transformer operations

**USING YOUR LOCOMOTIVE’S MAGNETIC COUPLERS**

Your Lionel locomotive’s tender is equipped with an operating magnetic knuckle coupler, a revolutionary design first introduced by Lionel in 1945.

Lionel magnetic couplers react to the magnetic field generated by a Lionel Remote-Control Track section (available separately, 6-65149 or 6-12746 for O-27 gauge; 6-65530 for O gauge; or 6-12020 and 6-12054 for FasTrack layouts).

Place your tender’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 knuckle opens.

![Figure 2. Magnetic coupler operation](image-url)
Transformer operations

SOUNDING YOUR LOCOMOTIVE‘S ELECTRONIC WHISTLE AND BELL

Use the HORN/WHISTLE and BELL buttons on your transformer to activate the locomotive’s whistle and bell sounds.

If your transformer lacks HORN/WHISTLE and BELL buttons, you will need to install Lionel no. 610-5906-001 Sound Activation Buttons (available separately) to activate the locomotive’s whistle and bell sounds.

Connect the buttons as shown below. Be sure that all track power passes through the Sound Activation Button(s).

FOR AC TRANSFORMERS LACKING A BELL BUTTON

FOR AC TRANSFORMERS LACKING BELL AND HORN/WHISTLE BUTTONS

To adjust the volume of the whistle and bell sounds, use the volume control knob located on the top of the tender deck. See Figure 1 on page 4 for the location of this control.
Operating and servicing your set

LUBRICATING YOUR LOCOMOTIVE

The life and performance of the locomotive depends to a considerable extent upon proper care and lubrication of the motor and other moving parts. Since your locomotive might have been stored on the dealer’s shelves for some time, be sure to lubricate it according to Figure 3 on page 8 before running it for the first time. Lubricate carefully but never to excess. A small amount of oil or lubricant, properly applied, goes a long way. Be careful not to get any oil or lubricant on the running surfaces of the wheels or on the rails, or your locomotive will lose traction and do not lubricate locomotive rollers.

The motor of this locomotive requires occasional lubrication with a few drops of light machine oil. See page 10.

A complete Lubrication and Maintenance Kit No. 927 (6-62927) which contains all the material and equipment necessary to keep your outfit in top notch condition may be obtained from your authorized Lionel dealer or service station.
Help your Lionel 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 locomotive’s wheels, roller contacts, or your track, this will adversely affect operation.

You’ll know your 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 locomotive’s side rods after each 50 hours of operation.

Figure 3. Underside details and lubrication points

Lubricate with Lionel oil sparingly

Lubricate with Lionel oil sparingly on both sides

Lubricate with Lionel grease sparingly on both sides
Operating and servicing your set

**ADDING FLUID TO THE 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 four to eight drops of fluid directly into the stack as shown in Figure 5. Smoke production commences momentarily, faster if you run your locomotive at high speed. When smoke production wanes, add more fluid (four to eight drops). An idle locomotive will not smoke. Always keep a small amount of smoke fluid in the 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.

If you choose to operate your locomotive without smoke, slide the smoke unit switch to the NO SMK position. See Figure 1 on page 4 for the location of the smoke unit switch.

![Figure 5. Adding smoke fluid](image_url)
Operating and servicing your set

LUBRICATING THE PULLMOR MOTOR ARMATURE

With typical use, your locomotive will require occasional lubrication of its Pullmor motor armature. If you hear excess noise during operation, or if the locomotive seems to slow down intermittently, you may need to oil the armature bearings.

Remove the two backhead screws from the underside of the cab and slide the backhead detail off the locomotive. Apply a small amount of Lionel oil (two drops) on the felt pad as shown in Figure 4.

Figure 4. Pullmor motor lubrication
Operating and servicing your set

REPLACING YOUR LOCOMOTIVE’S LAMP

Your locomotive is illuminated by a 14-volt lamp located directly behind the boilerface. During the course of normal operation, the lamp may require replacement.

1. Swing the boilerface open. See Figure 6.
2. Gently remove the expired bulb and grommet from the headlight housing and remove the grommet from the bulb.
3. To disconnect the bulb, gently unplug the bulb from the connector.
4. Place the grommet onto the new bulb.
5. Plug the connector on the new bulb into the mating connector.
6. Insert the replacement bulb and grommet into the headlight housing.
7. Close the boilerface.

Figure 6. Headlamp replacement
Operating and servicing your set

REPLACING THE TRACTION TIRES

Your locomotive is equipped with traction tires to increase the tractive effort of your locomotive and allow it to pull more cars at one time.

During the course of normal operations, the traction tires may become worn out. Replacement traction tires are included with the locomotive. We recommend that you have the traction tires replaced by an authorized Lionel dealer or service station because the drive linkage must be removed to access the wheels. See Instructions for Obtaining Service on page 16 for more information.
Operating and servicing your set

REPLACING THE LAMPS IN YOUR PULLMAN PASSENGER CARS

During the course of normal operations, the lamps inside your Pullman passenger cars may require replacement. Follow these steps and refer to Figure 7 as you replace the lamp.

1. Twist the lamp base and socket assembly counter-clockwise and remove the assembly from the frame.
2. Remove the lamp from the socket and replace it with lamp no. 6000057300 available from your authorized Lionel dealer or service station, or from Lionel Customer Service. See Instructions for Obtaining Service on page 16 for more information.
3. Place the lamp base and socket assembly into the frame twisting it clockwise to secure it in place.

Figure 7. Replacing the passenger car lamps
Operating and servicing your set

**LUBRICATING THE PULLMAN PASSENGER CAR TRUCKS**

Improperly lubricated trucks may increase the drag on your locomotive. Spin the wheels by hand. If they show any signs of drag or binding, remove the old lubricant and the accumulated dust and dirt with Lionel Cleaner and apply a drop of fresh oil at the ends of the axles. The lubrication points are designated as “0”. See Figure 8 below.

**Note!** To keep your Pullman passenger cars trucks lubricated, we recommend that you purchase a Lionel Lubrication and Maintenance Kit (6-62927), available from your authorized Lionel dealer or service station.

![Figure 8. Lubricating the passenger car trucks](image_url)
Notes
Lionel Limited Warranty Policy & Service

This Lionel product, including all mechanical and electrical components, moving parts, motors and structural components, with the exception of LIGHT BULBS, LED’s & TRACTION TIRES are warranted to the original owner-purchaser for a period of one year from the original date of purchase against original defects in materials or workmanship when purchased through a Lionel Authorized Retailer®.

This warranty does NOT cover the following:
- Normal wear and tear
- Light bulbs or LED’s
- Defects appearing in the course of commercial use
- Damage resulting from abuse/ misuse of the product

Transfer of this product by the original owner-purchaser to another person voids this warranty in its entirety. Modification of this product in any way, visually mechanically or electronically, voids the warranty in its entirety.

Any warranted product which is defective in original materials or workmanship and is delivered by the original owner-purchaser (this warranty is non-transferable) to Lionel LLC or any Lionel Authorized Service Station MUST be accompanied by the original receipt for purchase (or copy) from an Authorized Lionel Retailer®, will at the discretion of Lionel LLC, be repaired or replaced, without charge for parts or labor. In the event the defective product cannot be repaired, and a suitable replacement is not available, Lionel will offer to replace the product with a comparable product (determined by Lionel LLC), if available. In the event a comparable model is not available the customer will be refunded the original purchase price (requires proof of purchase from the Authorized Lionel Retailer® it was originally purchased). Any products on which warranty service is sought must be sent freight or postage prepaid (Lionel will refuse any package when postage is due). Transportation and shipping charges are not covered as part of this warranty.

NOTE: Products that require service that do not have a receipt from an LIONEL AUTHORIZED RETAILER® will be required to pay for all parts required to repair the product (labor will not incur a charge) providing the product is not older than 3 years from date of manufacture and is within 1 year from date of purchase. A copy of the original sales receipt is required.

In no event shall Lionel LLC be held liable for incidental or consequential damages.

This 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 LLC product is required; bring the item, along with your DATED sales receipt and completed warranty information (at the bottom of this page) to the nearest Lionel Authorized Service Station. Your nearest Lionel Service Station can be found by calling 1-800-4-LIONEL or by accessing the website at www.lionel.com.

If you prefer to send your Lionel product directly to Lionel, for repair you must FIRST call 586-949-4100 extension 9105 or FAX Lionel at 586-949-5429 or write to Customer Service, 26750 Twenty Three Mile Road, Chesterfield, MI 48051-2493. Please have the 6-digit Lionel product number, the date of original purchase, the dealer where the item was purchased and what seems to be the problem. You will receive a return authorization (RA) number to ensure your merchandise will be properly tracked and handled upon receipt at Lionel LLC.

Once you have your Return Authorization (RA) number, make sure the item is packed in its original Styrofoam inner container which is placed inside the original outer display box (this will help prevent damage during shipping and handling). This shipment MUST be prepaid and we recommend that it be insured with the carrier of your choice.

Please make sure you have followed all of the above instructions carefully before returning any merchandise for service. You may choose to have your product repaired by one of Lionel LLC’s Authorized Service Stations after its warranty has expired. A reasonable service fee should be expected once the product warranty has expired.

Warranty Information

Please complete the information below and keep it, along with your DATED ORIGINAL SALES RECEIPT. You MUST present this form AND your DATED SALES RECEIPT when requesting warranty service.

*A complete listing of Lionel Authorized retailers can be found by calling 1-800-4-LIONEL or by visiting our website at www.lionel.com.

Products that are more than 3 years old, from date of manufacture, are not applicable for warranty coverage, even if they have never been sold prior to this date. (Under no circumstances shall any components or labor be provided free of charge.)

Name ____________________________

Address __________________________

Place of Purchase __________________

Date of Purchase ____________________

Product Number ____________________

Product Description __________________

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