

can be activated by briefly moving the controller switch forward once to turn the bell on and again to turn the bell off.

NOTE: If the tender sound system switch or controller bell switch are left on, the batteries will be drained of power even if all connections are not complete.

SMOKE UNIT OPERATION

The Lionel Smithsonian K4 is equipped with a smoke generator. To place in operation make certain that the control switch (located under the left side skirt) is in the on position. Using liquid smoke drops available from your Lionel dealer, half fill the smoke cylinder located in the exhaust stack of the model. If you overfill the smoke generator, you will not obtain desirable results. Should this occur, use a cotton swab to wick out some of the fluid. To preserve the finish of the locomotive avoid prolonged contact of the smoke fluid with the painted surfaces of the model.

LOCOMOTIVE CARE AND MAINTENANCE

The only routine maintenance that should be required is periodic lubrication as outlined under 'Preparing the Locomotive For Operation' and replacement of the sound system batteries. It is advisable to periodically check the tightness of the small fasteners used to assemble the side rods, valve gear and other small detailing to make certain that parts will not be lost.

To install, remove or replace the single 9 volt battery in the sound system control unit follow these procedures:

- 1) Cover your work surface with a piece of foam or a soft towel.
- 2) Place the sound unit control box face down on the padding.
- 3) Remove the four rubber feet from the bottom of the control box.
- 4) Using a small phillips head screw driver, remove the four screws located under the rubber feet.
- 5) Remove the back of the sound unit control box.
- 6) Install, replace or remove the 9 volt battery.
- 7) Reverse above procedure to assemble the control unit.

DISPLAY CASE CARE AND MAINTENANCE

The roller base is manufactured from furniture grade materials and should be cared for accordingly. The wood should be regularly dusted with a soft cotton cloth. Any stains or marks which may not come off during dusting may be cleaned utilizing a residue-free furniture cleaner.

The clear acrylic cover should be regularly dusted with a soft cotton cloth. Extreme care should be taken not to exert undue force on the cover as this can result in scratch marks. Should the cover be scratched or have a difficult stain to remove, plastic polish as is sold for record player 'dust' covers may be used. With care, no cleaning beyond regular dusting should be necessary.

SERVICE

The Lionel Smithsonian K4 comes with a limited lifetime warranty to the original owner. Additional information and instructions outlining this warranty and service is available on the warranty registration card included with this manual.



The Lionel Smithsonian Collection

© 1994 Lionel Trains Incorporated, Chesterfield, MI 48051-2493

PENNSYLVANIA K4 STREAMLINER OPERATING AND MAINTENANCE INSTRUCTIONS

The Lionel Smithsonian Collection Pennsylvania K4 streamlined locomotive model is constructed of formed and fabricated brass and therefore must be handled differently than a traditional diecast Lionel steam locomotive. Although the model is very sturdily built, the body and particularly the details are more susceptible to damage by careless handling than other Lionel models. Care must be exercised when removing the locomotive from the packaging as well as during general handling to avoid damaging the model.

This Lionel Smithsonian Collection locomotive model is designed to operate on Direct Current (DC) electricity. Any application of Alternating Current (AC) as is supplied by most traditional Lionel power supplies **WILL DESTROY THE INTERNAL ELECTRONICS OF THIS MODEL.** The Lionel Smithsonian Collection will not be responsible for damage caused by the application of AC power to the model. Please see your warranty registration card for further details.

The Lionel Smithsonian Collection K4 locomotive model was designed to operate only on two rail track with a minimum radius of 50 inches. Although the track gauge is the same as traditional Lionel three rail track, the locomotive will not operate on any of the various three rail track systems available. Attempting to operate the K4 on three rail track may cause damage to your DC power supply or the locomotive model itself.



UNPACKING THE LOCOMOTIVE

It is recommended that the locomotive and tender be removed from the wooden case while still surrounded by the foam insert, the locomotive and tender can be more easily separated from the foam with less chance of doing damage to the model. It is highly recommended that all of the original packing materials be saved for future use.

PREPARING THE LOCOMOTIVE FOR OPERATION

Although the Lionel Smithsonian K4 is ready to operate, a few preventative maintenance steps may be taken to ensure the smooth operation and longevity of the model. The K4 has been lubricated during assembly and testing, while this will suffice for initial operation and break-in, you may wish to further lubricate the side rod and valve gear assemblies by applying 1 or 2 small drops of good quality fine oil to areas where moving parts are in contact with each other. Your local hobby dealer should be able to guide you in the selection of a suitable lubricant. Care must be taken to avoid soiling the surface of the sound cam located on the rearmost drive axle. Should this occur you will notice an alteration of the chuffing pattern heard during the operation of the locomotive. This may be corrected by carefully removing the lubricant with a cotton swab.

It is recommended that you operate the locomotive on the roller base during the break-in period. Operate the locomotive at a variety of speeds and in both directions for a period of approximately 30 minutes. This will help the drive system to 'run-in' resulting in smoother running characteristics. **NOTE: Use lubricants sparingly and with care.**

LOCOMOTIVE AND TENDER CONNECTIONS

The Lionel Smithsonian K4 locomotive and tender require that one pair of connectors be joined to allow the operation of the model. The locomotive will not operate without the tender connected. The connection is made by matching the shape of the connectors and firmly pressing them together while holding them by the black housings. With the connection made, the excess wire may be carefully pushed into the locomotive and tender to allow the drawbar connection to be made. When disconnecting the locomotive from the tender, pull only on the housings - **Do Not Pull On The Wires!** It is advised that the wire connections be made with the locomotive and tender in place either on the rollerbase or on the track.

POWER SUPPLY REQUIREMENTS

The Lionel Smithsonian K4 is a Direct Current (DC) electric model train. Do not attempt to use AC power as damage will occur. The following criteria should be followed when selecting your power supply:

- 1) Direct Current (DC) which is filtered
- 2) 0-15volts DC
- 3) Minimum available current should be approximately 2.0amps

Should you choose to use a less expensive power supply or one which does not meet the above criteria, undesirable operating characteristics may result as well as possible damage to the model.

PREPARING THE SOUND SYSTEM FOR OPERATION

The Lionel Smithsonian K4 contains a state-of-the-art sound system which digitally recreates actual locomotive sounds including steam whistle, bell, blowers, air pumps, emergency relief valve and cylinder chuff. While this sound unit requires track voltage to actuate certain sounds, the actual power used to operate the sound system is supplied by two standard 9 volt batteries that are placed in the tender coal bunker

during operation of the locomotive. The batteries are packed separately with the wiring harness already attached and ready for operation. At the end of the wiring harness is a male plug which needs to be inserted into the receptacle on the floor of the tender coal bunker, with this connection made, the coal load can be placed over the batteries to conceal their installation.

NOTE: Your tender and sound control unit come equipped with batteries. If you do not plan to use your locomotive for an extended period of time it is highly recommended that you remove these batteries. Please also note that this system is not compatible with traditional Lionel sound unit controllers. Any attempt to utilize such controllers may cause damage to the sound system.

The supplied sound system controller may be connected to either an operating layout or to the included rollerbase. The sound system controller has two sets of wire leads. One set of leads terminate with a male plug matching the female plug mounted on the bottom of the included rollerbase, while the other set of leads terminate with two bare wire ends.

To hook up the control unit to the rollerbase, first attach the bare wire leads to your power supply's DC terminals. Next, insert the male plug into your rollerbase receptacle. Your power supply and sound controller are now ready for operation.

Due to the infinite variety of model railroading wiring schemes this owners manual will only cover the direct wiring of the controller to a simple layout. First, attach the bare wire leads to your power supply as before. Next, remove the black male plug used for the rollerbase and attach those wires to your track terminals. You are now ready for layout operation.

ROLLERBASE ASSEMBLY

When your supplied rollerbase is unpacked, there is one simple setup procedure required to make the base ready for operation. When the rollerbase is removed from the packing carton you will see a brass pin approximately two inches in length taped to the top surface of the base. This pin needs to be tapped into the predrilled hole located approximately 5 1/2 inches to the rear of the rear roller assembly. With this pin in place, the rollerbase is ready for operation.

OPERATING THE LOCOMOTIVE

Using the procedures already discussed, you are now ready to put the locomotive into operation. You will need to place the model on the rollerbase by positioning the drive wheels directly over the roller assemblies and lowering it on to the base. The retaining pin will project into the rearmost hole of the drawbar to keep the locomotive from moving during operation.

To activate the sound system, locate the sound system switch on the bottom side of the tender. Approximately 10 seconds after turning the system on you will hear the blowers activate. With the locomotive stationary you will hear, in addition to the blowers, the air compressors and pressure relief valves on an intermittent basis. When 'track' power is applied to the locomotive, the blowers will turn off and the brake release will sound. As soon as the drivers begin to turn, the chuffing of the cylinder exhausts will start in synchronization with the drivers. When the loco is brought to a stop, the blowers will again start up while the intermittent sounds continue. The whistle may be sounded at any time, when the system is turned on, using the supplied controller. The bell also