RAILKING 2-8-0
STEAM ENGINE
OPERATING INSTRUCTIONS

Thank you for purchasing this RailKing 2-8-0 Steam Engine. We at MTH Electric Trains take pride in manufacturing quality products like your train, and we hope that you will enjoy it for a long time. The locomotive is easy to operate with any compatible standard AC transformer (see the compatibility chart on page 12), and is completely compatible with most other 3-rail locomotives, rolling stock, and accessories. To ensure the maximum durability and pleasure from this locomotive, please read all the way through these instructions. Remember that a little attention to routine maintenance yields a maximum of trouble-free performance.

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Set Up

There are a few simple steps you must take before operating this RailKing steamer.

• You should prime the operating smoke unit with smoke fluid before operating. Add 15-20 drops of smoke fluid through the smokestack, then gently blow into the stack to eliminate any air bubbles in the fluid. See Fig. 5.

• If you choose not to prime the unit with fluid, turn the smoke unit switch located under the engine to the OFF position (Fig. 6). Running the engine without a primed smoke unit may cause damage. See the "ProtoSmoke Unit Operation" section of this book for more information on smoke unit maintenance.

• You should lubricate all side rods and linkage components and pickup rollers to prevent them from squeaking. Lightly grease the outside idler and drive gears (marked "G" in Fig. 3 on page 7) to prevent them from squeaking. Use light household oil and follow the lubrication points (marked "L" in Fig. 2 on page 6). Do not over-oil. Use only a drop or two on each pivot point.

• Put your engine on the track and insert the reverse unit plug that extends out of the tender into the receptacle at the back of the engine. WARNING: DO NOT CONNECT THIS ENGINE TO A TENDER FROM ANOTHER ENGINE; IT MAY CAUSE SERIOUS DAMAGE.

• Connect the draw bar between the engine and tender. If there are two holes in the draw bar, the hole located closest to the tender is for the minimum track operation, such as O-31 circles of track. The second hole is for O-72 or larger operation.

At this point, you are ready to begin running your engine.

Transformer Operation

Button Functions:

Bell: No Function
Horn/Whistle: Press to activate the mechanical whistle
Direction: Press to stop motion of train and press again to change direction

Operating The Locomotive

Advance the transformer throttle. The locomotive's light will come on and the engine should now proceed in the forward direction. At this point, advancing the throttle further will allow the engine to pick up speed, reducing the throttle will slow the engine down. Turning the throttle OFF and then back ON will park the engine into neutral. Cycling the throttle OFF and then back ON again one more time will allow the locomotive to enter reverse.

Tip: An alternative method to using the throttle to enter the next reverse unit state is to press the direction button. When depressed, the transformer interrupts all power to the track. Releasing the button reapplies power to the track at whatever voltage level the transformer throttle is set at.

*Note: Pressing the bell button will have no effect on your set engine because your locomotive is not equipped with a bell. Only locomotives equipped with full digital sound systems (which feature engine sounds, horns, bells, air-release sound effects, squeaking brakes and many other locomotive related sound effects) can utilize the bell button.

Special Reverse Unit Options

Locking Out The Reverse Unit Into A Single Direction

Your locomotive's electronic reverse unit may be locked out into one of three positions; forward, neutral or reverse. Locking the engine into one of these three positions prevents the locomotive from cycling through the reverse unit phases and is useful for operators employing block signal operations on their layout. Once locked into a position, turning the throttle OFF and then ON again will not allow the engine to enter the next reverse unit phase and instead keeps the engine in the current locked direction

To lock the engine into one of the three positions, simply enter that position using the transformer throttle or direction button. Once in the desired direction, remove the locomotive from the track and slide the ON/OFF switch located on the bottom of the tender (See Figure 1) to the OFF position. This locks the engine into the desired direction. Sliding the switch back to the ON position resets the reverse unit into its normal cycling phases.

Figure 1. Location of the DCRU Lock-Out Switch

Maintenance Instructions

Proper locomotive performance requires regular attention to lubrication. The following guidelines should be followed to ensure that your locomotive lasts for many years of operration

Oil

Before operating the locomotive, apply a small drop of oil to lubricate the side rods and pick up rollers. Use light household oil and apply sparingly only to the points indicated by Figure 2. Wipe away any excess, especially if oil spills onto the finish of the locomotive. To prevent accidental scratches or other damage to the locomotive shell while you are working, you may want to place the locomotive in a repair cradle or an old towel or other cloth folded to provide a firm but soft resting place.

Check the locomotive oiling points periodically to be sure they are moving freely and quietly. If they are not, apply a small amount of oil again. Also check the locomotive wheels for dirt build-up that can cause performance problems. Such dirt build-up can interfere with electrical contacts, reduce traction (especially on elevated track sections), and cause neoprene traction tires to wear out prematurely.

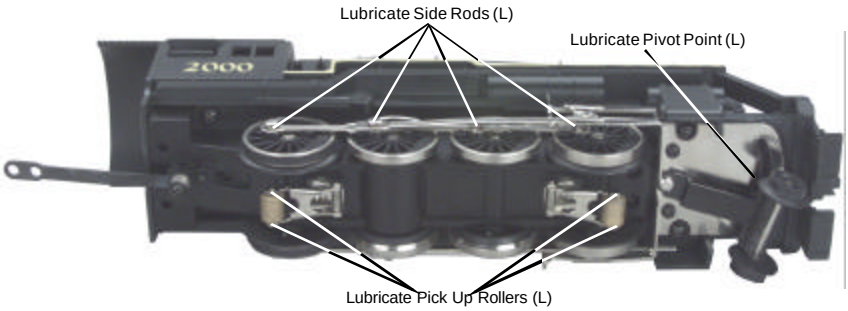

Figure 2. Lubrication Points on the Locomotive

Grease

Grease should be added to the internal drive gears annually or after every 50 hours of operation. Grease can be added by inserting grease into the gear box inside the locomotive chassis. In order to access the gear box, the boiler must be removed from the chassis by unscrewing the four chassis screws as seen in Figure 3 below. Once the boiler is removed, the gear box can be opened up by unscrewing the three screws on the plate located in front of the motor. Grease can then be applied into the gear box using a grease tube dispenser.

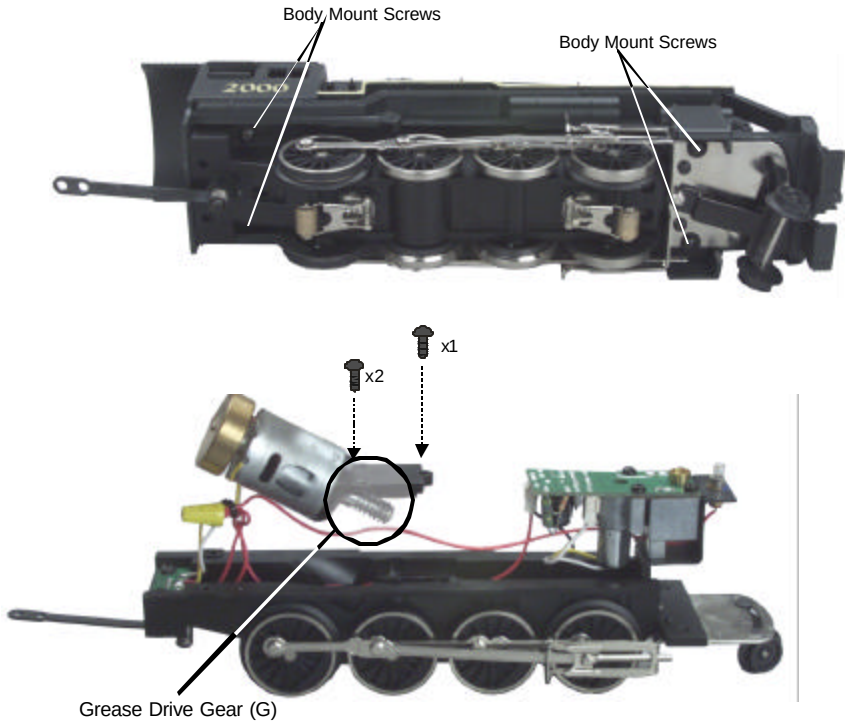

Figure 3. Locations of the Body Mounting Screws and Adding Grease to the Gear Box

Lamp Replacement

The light in your locomotive may occationally burn out during normal operation. Should this occur, you will need to remove the boiler from the chassis in order to replace the burned out bulb.

To remove the 2-8-0 locomotive boiler from its chassis, follow the body removal instructions (see figure 3). Once the body has been removed, rotate the headlight bulb counter-clockwise as seen in Figure 4 to remove.

You can obtain replacement bulbs directly from the M.T.H. Parts Department.

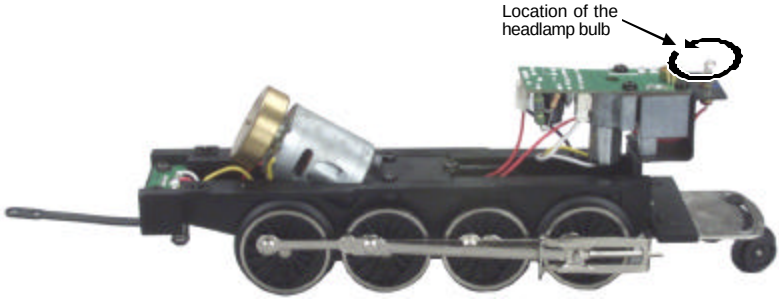

Figure 4. Replacing the Locomotive's Headlamp

Traction Tire Replacement Instructions

Your locomotive is equipped with two neoprene rubber traction tires on the rear set of flanged drivers. While these tires are extremely durable, you may need to replace them at some point.

• R emove the side rods (the rods that connect each drive wheel to the other) from the wheels in order to slip the new tire over the grooved drive wheel. This screw can be loosened with a 5mm nutdriver.

• Make sure the old tire has been completely removed from the groove in the drive wheel, using a razor blade or small flathead screwdriver to pry away any remains.

• Slip the new tire onto the wheel. You may find it useful to use two small flathead screwdrivers to stretch the tire over the wheel.

• If you twist the tire while stretching it over the wheel, you will need to remove and reinstall the tire. Otherwise your engine will wobble while operating.

• Make sure the tire is fully seated inside the groove. Use a razor blade to trim away any excess tire that doesn't seat itself inside the groove properly.

One set of replacement tires is included with the model. Additional tires are available directly from the M.T.H. Parts Department (phone: 410-381-2580; fax: 410-423-0009; e-mail: parts@mth-railking.com; mail: 7020 Columbia Gateway Drive, Columbia MD 21046-1532).

ProtoSmoke® Unit Operation

This steam locomotive contains a smoke unit that outputs smoke through the smokestack on the boiler of the engine. The smoke unit is essentially a small heating element and wick that soaks up and then heats a mineral oil-based fluid that emits a harmless smoke. The smoke is then forced out of the stack by a small electric fan.

With a few easy maintenance steps, you should enjoy trouble-free smoke unit operation for years.

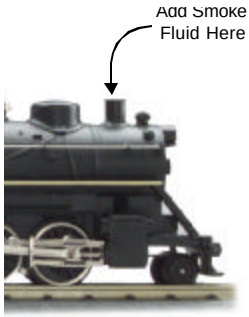

Figure 5. Adding Smoke Fluid to the Engine

• When preparing to run this engine, add 15-20 drops of smoke fluid through the smokestack (see Fig. 5). We recommend M.T.H. ProtoSmoke, Seuthe, LGB, or LVTS fluids (a small pipette of ProtoSmoke fluid is included). Do not overfill the unit or the fluid may leak out and coat the interior engine components.

• If you choose not to add the fluid (or have already added the fluid but choose to run smoke-free), turn off the smoke unit switch located under theengine body (see Fig. 6). Failure either to add fluid to the unit or to turn it off may damage the smoke unit heating element and/or wicking material.

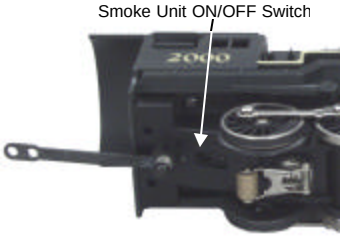

Figure 6. Smoke Unit ON/OFF Swtich

• When the smoke output while running the engine begins to diminish, add another 10-15 drops of smoke fluid or turn the smoke unit off.

• When storing the unit for long periods of time, you may want to add about 15 drops of fluid to prevent the wick from drying out.

• After removing the engine from storage, add another 25 drops of fluid, letting the wick soak up the fluid for 15 minutes prior to operation.

If you experience poor or no smoke output when the smoke unit is on and has fluid, check the wick to see if it has become hard, blackened, and unabsorbent around the heating element. Remove the smoke unit inspection cover from the smoke unit (see Fig. *7*). After removing the chassis and inspection cover screws, lift the inspection plate away and inspect the wick. If it is darkly discolored and hard, it should be replaced.

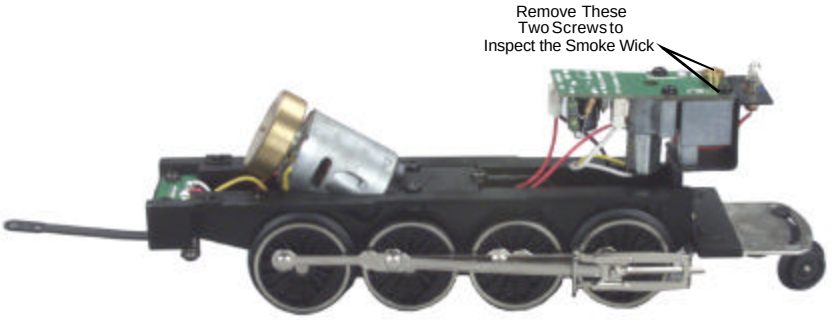

Figure 7. Removing the Smoke Unit Cover

You can obtain replacement parts directly from the M.T.H. Parts Department.

Compatibility

This engine will operate on any traditional O-31 or larger O Gauge track system, including M.T.H.'s RealTrax® or ScaleTrax™ or traditional tubular track. It is also compatible with most standard AC transformers. (See page 12 for a complete list of compatible transformers and wiring instructions.)

Transformer Compatibility and Wiring Chart

The 2-8-0 locomotive reverse unit is designed to work with any standard AC transformer. The chart below lists many of the compatible transformers and how the terminals on these compatible transformers should be attached to your layout.

CAUTION: Electrically Operated Product:

Not recommended for children under 10 years of age. M.T.H. recommends adult supervision with children ages 10 - 16. As with all electric products, precautions should be observed during handling and use to reduce the risk of electric shock.

WARNING: When using electrical products, basic safety precautions should be followed including the following:

- Read this manual thoroughly before using this device.

- M.T.H. recommends that all users and persons supervising use examine the hobby transformer periodically for conditions that may result in the risk of fire, electric shock, or injury to persons, such as damage to the primary cord, plug blades, housing, output jacks or other parts. In the event such conditions exist, the transformer should not be used until properly repaired.

- As with all electrical appliances, this product should not be left in operation when unattended.

Service & Warranty Information

How to Get Service Under the Terms of the Limited One-Year Warranty

For warranty repair, do not return your product to the place of purchase. Instead, follow the instructions below to obtain warranty service as our dealer network is not prepared to service the product under the terms of this warranty.

1. First, write, call or FAX M.T.H. Electric Trains, 7020 Columbia Gateway Drive, Columbia, MD 21046, (Tel 410-381-2580; FAX No.: 410-423-0009; e-mail: service@mth-Railking.com), stating when it was purchased and what seems to be the problem. You will be given a return authorization number to assure that your merchandise will be properly handled upon its receipt.

2. CAUTION: Make sure the product is packed in its original factory packaging including its foam and plastic wrapping material so as to prevent damage to the merchandise. The shipment must be prepaid and we recommend that it be insured. A cover letter including your name, address, daytime phone number, e-mail address (if available), Return Authorization number, a copy of your sales receipt and a full description of the problem must be included to facilitate the repairs. Please include the description regardless of whether you discussed the problem with one of our service technicians when contacting M.T.H. for your Return Authorization number.

3. Please make sure you have followed the instructions carefully before returning any merchandise for service.

Limited One-Year Warranty

All M.T.H. products purchased from an Authorized M.T.H. Train Merchant are covered by this warranty.

See our website at **www.mth-railking.com** or call 1-888-640-3700 to identify an Authorized M.T.H. Train Merchant near you.

M.T.H. products are warrantied for one year from the date of purchase against defects in material or workmanship, excluding light bulbs and traction tires. We will repair or replace (at our option) the defective part without charge for the parts or labor, if the item is returned to M.T.H. Electric Trains within one year of the original date of purchase. This warranty does not cover damages caused by improper care, handling, or use. Transportation costs incurred by the customer are not covered under this warranty.

Items sent for repair must be accompanied by a return authorization number, a description of the problem, and a copy of the original sales receipt from an Authorized M.T.H. Train Merchant, which gives the date of purchase. Call 410-381-2580, fax 410-423-0009, or e-mail the Service Department at **Service@mth-railking.com** to obtain a return authorization number.

This warranty gives you specific legal rights, and you may have other rights that vary from state t o state.

Service Department
M.T.H. Electric Trains
7020 Columbia Gateway Drive
Columbia MD 21046-1532