

Tinplate Traditions®

3243R Electric Engine

Operating Instructions



Thank you for purchasing the M.T.H. Tinplate Traditions 3243R Locomotive. This locomotive runs on Standard Gauge three-rail track and can handle a 72" curve. It runs on 14-20 volts AC (Alternating Current). This Standard Gauge Tinplate Traditions® Electric Engine contains state-of-the-art electronics with many built-in automatic features for exciting operation. Despite these advanced features, the locomotive is easy to operate with any compatible standard AC transformer that is equipped with whistle and bell buttons (see the compatibility chart on page 17), and is compatible with most other 3-rail Standard Gauge locomotives, rolling stock, and accessories.

This locomotive is equipped with Proto-Sound 2.0 with Digital Command System (DCS). This new system will allow you to operate your locomotive in Command mode (when used with the DCS Remote Control System, sold separately) or Conventional mode. Conventional operating features are described in the following pages, while the **DCS operating features are covered in the set of operating instructions that accompanies the DCS equipment.** Conventional Mode operation of this locomotive is much simpler than operation of original Proto-Sound engines. For your own safety and that of your equipment, please read the instructions before you operate this engine.

WARNING: DO NOT LIFT THIS ENGINE BY ITS HANDRAILS. THEY CANNOT SUPPORT THE WEIGHT OF THE ENGINE.



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Initial Lubrication

Use motor oil (10W-40 or 10W-30) for lubrication. Apply oil sparingly, using a toothpick or similar applicator. Before beginning, please be sure to have several toothpicks and cotton swabs handy to apply oil and clean up the excess. Familiarize yourself with the location of the oiling points (see Fig. 2 on page 12) before beginning. **Apply oil before operating and after every seven hours of operation.**

Basic Operation

Throttle – Throttle up the power to your track. Give enough power so that the engine's headlight shines brightly. Then put the engine into motion by either firmly pressing the Direction button on your transformer or remote once or dropping and advancing the throttle to put the engine in forward.

Operation Buttons

Use the operation buttons on your transformer or remote as described below.

Horn/Whistle - To sound the horn, firmly press the Horn/Whistle button. The horn will sound for as long as you continue to depress the button. It will stop when you release the button. The horn has four different endings, depending on whether you hold the button for less than three seconds, three seconds, four seconds, or five seconds or longer.

Bell - To sound the bell, firmly press and release the Bell button. To turn the bell off, press and release the Bell button again. The bell will continue to ring from the time you turn it on until you press and release the button again to turn it off.

Direction – Your train is programmed to start in neutral. The first direction after neutral upon start-up is forward. Firmly press and release the Direction button to allow the engine to move forward. Just as you must stop your automobile between forward and reverse, this engine will not go directly from forward to reverse; it goes into neutral between directions. If the train has been moving forward, the first press of the Direction button will put the train from forward into neutral, the second press into reverse, the third press back into neutral, and the fourth back into forward. To prevent accidental high-speed start-ups, this engine is programmed to restart in neutral each time the track voltage is turned off for 25 seconds or more.

Volume Control – To adjust the volume of all sounds made by this engine, turn the master volume control knob located under the engine clockwise to increase the volume and counter-clockwise to decrease the volume (see Fig. 1).

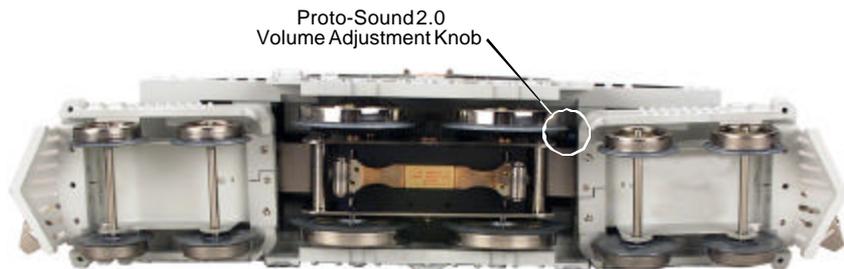


Figure 1. Proto-Sound 2.0 Volume Adjustment Knob

Proto-Sound 2.0 Operating Instructions

This manual contains the operating instructions for Proto-Sound 2.0 in conventional mode only. Instructions for accessing DCS command mode features accompany the DCS Remote Control System equipment.

Because Proto-Sound 2.0 is an all-new system developed by M.T.H.'s own research and development team, it operates differently from original Proto-Sound. Most Proto-Sound 2.0 features are automatically enabled, and the reset state has been eliminated, so there is no need to program features as with original Proto-Sound. Although the new system is easier to operate than original Proto-Sound, you should read these instructions thoroughly before using Proto-Sound 2.0 features in order to prevent harm to yourself or your equipment.

Activating Proto-Sound 2.0 Conventional Mode Features:

Proto-Sound 2.0 features are activated by sequences of Bell and Whistle button pushes described below. Please read the full descriptions of each feature before using it. To use these buttons to activate features rather than to blow the whistle or ring the bell, you should press the buttons for a shorter time (1/2 second); you may need to practice your timing to make this work smoothly.

Passenger Station Announcements (PSA):

Your engine is equipped with a sound package of passenger station announcements that you can play when you pull into a passenger station. **Each sequence described below will play as long as it is left on, randomly generating sounds, but be sure to allow approximately 30 seconds between the button pushes described below to allow the PSAs sufficient time to run through each sequence.**

1. To cue the sound system to play the PSA, quickly but firmly press the Bell button once followed by 2 quick presses of the Whistle button while the engine is moving. As soon as you have keyed in this code, you will hear the announcement for the upcoming stop and the bell will begin to ring.
2. Press the Direction button or drop and advance the throttle once to stop the engine. This will trigger the first sequence of PSAs. The reverse unit is temporarily disabled so that the train will not move as you use the Direction button to trigger the sounds, and Proto-Sound 2.0 has disabled operator control over the Whistle and Bell buttons until the full PSA sequence is complete
3. After waiting about 30 seconds for that sequence to run, press the Direction button again to trigger the second sequence of PSAs.
4. After about 30 seconds, press the Direction button again to trigger the third PSA sequence.
5. Again, after allowing about 30 seconds for that sequence to run, press the Direction button one more time to trigger the fourth and final PSA sequence. You will know it is the final sequence when you hear the "All Aboard!" call. The bell will begin to chime and within a few seconds, the engine will start and move out on its own at the current throttle setting, in the same direction it was traveling when you began the sequence. Once the bell turns off, the operator regains control of the transformer's bell and whistle buttons and can ring the bell or blow the whistle as usual.

Tips on Using PSA

You can terminate PSA at anytime by turning off power to the track for 15 seconds.

You do not have to be in Forward to use PSA. At the conclusion of the full sequence, the train will pull away from the station in whatever direction you were going when you activated the feature.

You can use PSAs even if you are double-heading with another engine. If the second engine is not equipped with PSAs at all, you must remember not to leave the throttle at a high voltage level once you have stopped the engine to run the PSAs. Otherwise, the engine without PSAs will begin vibrating on the track as its motors strain to move the train, since they cannot be automatically disabled during the PSA cycle. If the second engine is an original Proto-Sound engine equipped with PSAs, you may choose to disable it when used in double-heading operations, so you will not experience competing PSA sounds. To disable PSAs in an original Proto-Sound engine, see the operating instructions for that engine.

PSA can be triggered from Neutral. It will operate the same as if triggered while in motion except that, at the conclusion of the PSA, the engine will depart in the next direction of travel, as opposed to the direction it was traveling before entering neutral.

Speed Control:

M.T.H. engines equipped with Proto-Sound 2.0 have speed control capabilities that allow the engine to maintain a constant speed up and down grades and around curves, much like an automobile cruise control. You can add or drop cars on the run, and the engine will maintain the speed you set.

While the engine is programmed to start with the speed control feature activated, you can opt to turn it off. This means the engine's speed will fall as it labors up a hill and increase as it travels downward. It is also affected by the addition or releasing of cars while on the run.

To turn speed control on and off, put the engine in neutral, then press the transformer's Whistle button one time then immediately press the Bell button two times. Two horn blasts will indicate that the engine has made the change. Repeat the 1 whistle, 2 bells code to return it to the other state. **You will want to do this during the initial neutral upon start-up if you ever couple this engine to another engine that is not equipped with speed control to avoid damaging the motors in either engine.** Each time you shut down the engine completely, it will automatically turn speed control on

Note: When speed control is turned off, the Proto-Sound 2.0 system will limit the volume in order to operate more smoothly at lower voltages. Full volume is restored upon reactivating speed control.

Lock into a Direction:

You can lock your engine into a direction (forward, neutral, or reverse) so that it will not change directions. To do this, put the engine into the direction you want (or into neutral to lock it into neutral), run it at a very slow crawl (as slowly as it will move without halting), and quickly but firmly press the Horn button once followed immediately by three presses of the Bell button. Two horn blasts will indicate that the engine has made the change. The engine will not change direction (including going into neutral) until you repeat the 1 horn, 3 bells code to return the engine to its normal condition, even if the engine is kept without power for extended periods of time.

Reset to Factory Defaults:

To override the settings you currently have assigned to the engine and reset it to its factory defaults, while in Neutral press the Whistle button once, followed immediately by five quick pushes of the Bell button. Two horn blasts will indicate that the engine has made the change.

Automatic Sounds:

Certain Proto-Sound 2.0 sound effects automatically play in programmed conventional mode conditions:

- **Squealing Brakes** play any time the engine's speed decreases rapidly.
- **Cab Chatter** plays at random intervals when the engine idles in neutral.
- **Engine Start-up and Shut-down** sounds play when the engine is initially powered on or is powered off for five seconds or more.

Maintenance

Lubrication and Greasing Instructions

Use motor oil (10W-40 or 10W-30) for lubrication. Apply oil sparingly, using a toothpick or similar applicator. Before beginning, please be sure to have several toothpicks and cotton swabs handy to apply oil and clean up the excess. Familiarize yourself with the location of the oiling points (see Fig. 2 before beginning. **Apply oil before operating and after every seven hours of operation.**

Lubricating the Wheel Gears (Fig. 2, #1)

Slowly turn the drive wheels by hand and apply oil to the wheel gears until all teeth on all four gears are moist. Wipe away excess oil with a cotton swab.

Lubricating the Intermediate Gears (Fig. 2, #2)

Slowly turn the drive wheels by hand and oil the six intermediate gears until all gear teeth are moist. Note: Four gears are double-gears: both sets of teeth should be oiled. Wipe away excess oil with a cotton swab.

Lubricating the Drive Axles (Fig. 2, #3)

Position one end of the locomotive downward so that you can see one of the drive axles on each motor. Using a toothpick or length of wire, carefully apply two drops of oil to the axles at all four bronze bearings.

Turn the locomotive around so that you can see the other two drive axles. Carefully apply two drops of oil on the axles at the bronze bearings.

Lubricating the Pickup Rollers (Fig. 2, #4)

Apply a small drop of oil at the axles of the pickup rollers. Wipe away excess oil with a cotton swab. The rolling surface should be free of oil.

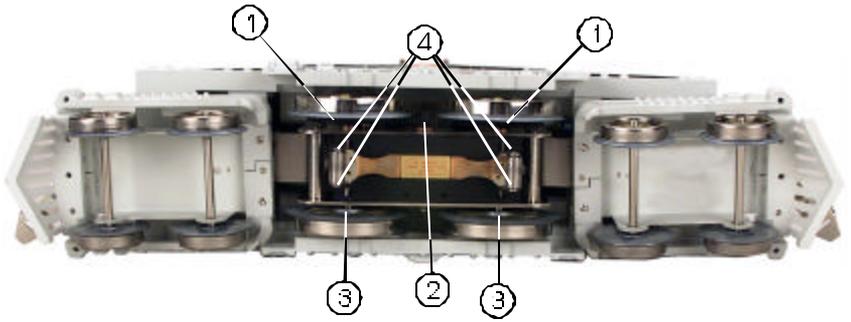


Figure 2. Lubrication Points on the Locomotive

Light Replacement Instructions

The locomotive's lights are controlled by a constant voltage circuit in the engine. They are easy to remove and replace when they burn out. Simply unscrew the bulb that needs to be replaced from its socket and replace it with another.

Replace the headlamps with M.T.H. MS-0000009 clear lamps.

Replacement bulbs are available directly from the M.T.H. Parts Department (phone: 410-381-2580; e-mail: parts@mth-railking.com; mail: 7020 Columbia Gateway Drive, Columbia MD 21046-1532).

Self-Charging Battery Back-Up

The special NiCad 7-cell 8.4v self-charging battery in this engine improves performance at any speed. It ensures that power to the sound system will remain on during directional changes or when travelling over dirty track or switches. The self-charging battery system is automatically turned on or off whenever track power is turned on or off.

Track power (when applied) recharges the battery, which should last for up to five years, and the special NiCad battery is a dry battery that should not leak or cause any damage to your engine. However, even this special battery will eventually wear down and need to be replaced. When you notice that your engine sounds seem distorted or garbled at low voltages or become silent when power from the transformer is turned off, test the battery to determine whether it should be recharged or replaced.

Put the engine in neutral and leave the track voltage at 12 volts for 15 minutes

If the garbled or distorted sounds are reduced, the battery charge has run down and can be recharged. Do this by leaving the engine in neutral with track voltage at 12 volts for 6-7 hours so the battery can fully recharge. Or you can remove the battery (as described below) and charge it in any standard slow charge battery recharger, following the recharger's directions

If the sounds are not improved at the end of the 15 minute test charge, it is time to replace the battery (see directions below). Contact the M.T.H. Parts Department (phone: 410-381-2580; e-mail: parts@meth-railking.com; mail: 7020 Columbia Gateway Drive, Columbia MD 21046-1532) for a replacement battery. A standard 9v alkaline battery can be substituted until your replacement arrives, but since alkaline batteries cannot be recharged, it will eventually wear down. Do NOT use a 6-cell 7.2v battery like those found in most convenience stores.

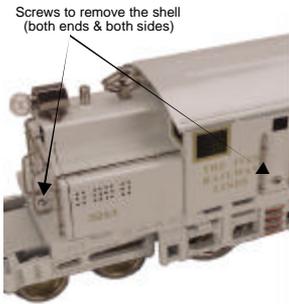


Figure 3a. Screws to Remove to access the inside of the engine.

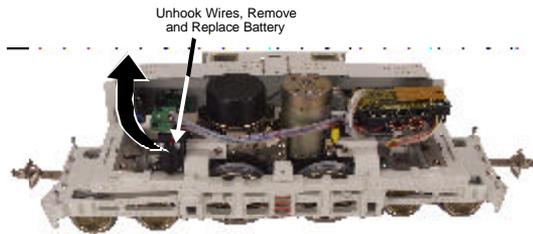


Figure 3b. Replacing the Battery

Troubleshooting Proto-Sound® 2.0 Problems

Although Proto-Sound 2.0 has been designed and engineered for ease of use, you may have some questions during initial operation. The following table should answer most questions. If your problem cannot be resolved with this table, contact M.T.H. for assistance (telephone: 410-381-2580; fax: 410-423-0009; e-mail: service@mth-railking.com, mail: 7020 Columbia Gateway Drive, Columbia MD 21046-1532).

Compatibility

This engine will operate on any traditional Standard Gauge track system, including M.T.H.'s or original Standard Gauge track. It is also compatible with most standard AC transformers. (See page 17 for a complete list of compatible transformers and wiring instructions.)

Transformer Compatibility and Wiring Chart

Note that many of the operational commands described in these instructions require a bell button, so if your transformer does not have its own bell button, you should consider adding one to get the full benefit of the system.

Additional Features Accessible with the DCS Remote Control System:

While conventional mode operation of a Proto-Sound 2.0 engine yields wonderfully realistic sound and several train control features, command mode operation allows the user to access a world of command functions never before accessible to O Gauge railroaders. With the addition of the DCS Remote Control System (including a DCS remote handheld and Track Interface Unit) users gain many advanced features, including:

- **DCS Proto-Speed Control**-Establishes desired locomotive speed in scale miles per hour increments via a thumbwheel control and allows operator to set maximum speed and acceleration/deceleration rates.
- **Locomotive Lighting Control**-Independently controls locomotive headlights, marker and interior lights, and ditch lights.
- **Emergency Stop**-Single button push stops your trains (but does not turn off track power).
- **One Touch Global Mute/UnMute**-Single button mutes or unmutes all DCS-controlled locomotives' user-defined actions, including sound, lights, and smoke.
- **Proto-Dispatch Operation-Public Address**-like feature allows users to speak through locomotive speaker during operation.
- **Proto-Cast**-Allows users to play audio recordings through locomotive speaker during operation.
- **Proto-Doppler Sound Effects Set Up**-Users can configure locomotive for Doppler Operation, including setting distance points for Doppler start, repeat, and stop modes.
- **Independent Volume Control of Engine Sounds, Bell, Horn & Whistle** for each Locomotive .
- **Control up to 50 different DCS-equipped locomotives at one time** with multiple TIUs .

- Proto-Effects™ Set Up-User can select individual Proto-Effects™ operations to be active or inactive, including cab chatter, train wreck sounds, coupler sounds, and wheel clickety-clack sounds.
- Direction Control Set Up-User can set initial individual start-up direction (start in forward or reverse) for double-heading operations.
- Locomotive Consist Set-up-User can determine locomotive values for consist make-ups, allowing multiple locomotives belonging to a consist to operate together.
- Query Locomotive Information-User can query locomotive programming to learn locomotive address and engine data information, including scale miles traveled.
- User Can Query, Set and Operate Track and Accessory Interface Units for Programming Digital Command Operations for up to 250 Accessories and 250 Individual Switches .
- User Can Script, Record and Playback Train Routes.

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, follow the instructions below to obtain warranty service.

1. First, e-mail, write, call or fax an Authorized M.T.H. Service Center in your area or M.T.H. Electric Trains to obtain Repair Authorization. You can find the list of Authorized Service Center s on the M.T.H. website, www.mth-railking.com. Otherwise, contact M.T.H. (at e-mail: service@mth-railking.com; 7020 Columbia Gateway Drive, Columbia, MD 21046; tel: 410-381-2580; fax: 410-423-0009), stating when the item was purchased and describing the problem. If you contact M.T.H., 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 a service technician when contacting the Service Center or M.T.H. for your Return Authorization.***

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 warranted 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 an Authorized M.T.H. Service Center or 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. If you are sending the item to M.T.H., 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. If you are sending this product to an Authorized Service Center, contact that Center for their return authorization.

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