



Operating Hand Car

Thank you for purchasing the RailKing® Operating O-27 Hand Car. The car's durable ABS body and die-cast power truck are traditionally sized for operation on any O-27 Gauge track. The unit should operate for years with any AC transformer and is completely compatible with most 3-rail locomotives, rolling stock, track systems and accessories.

PLEASE READ BEFORE USE AND SAVE
www.mthtrains.com

Set Up and Operation

- Lubricate the hand car as shown on page 4.
- Place the hand car on the track and apply power to run.

Once power has been applied, the hand car will immediately begin moving. The hand car will reverse direction when the Automatic Reversing Bumper Mechanism (ARBM) in its bumper is depressed. To do this, you may depress the bumper with your hand or run the car into a track bumper or another car. Interrupting the transformer throttle voltage will only affect the hand car's speed; it will not cause the unit to change directions.

If the hand car does not move when you apply power, the reversing switch may be between positions. Gently press in one of the bumpers. If the car still does not move, press in the bumper on the other end of the car.

Exercise caution when running the hand car into a bumper or another car to change its direction. Running the hand car at excessive speed into a bumper or another car could damage the reversing bumpers and thus disable the reversing feature.

Note: The hand car may lose electrical contact with the rails and stall when traveling over a 90 degree or 45 degree crossing at slow speed.

CAUTION: ELECTRICALLY OPERATED PRODUCT:

Recommended for Ages 14 and up. Not recommended for children under 14 years of age without adult supervision. As with all electric products, precautions should be observed during handling and use to prevent electric shock.

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

Read this manual thoroughly before using this device.

- 1 M.T.H. recommends that all users and persons supervising use examine the hobby transformer and other electronic equipment 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 train set should not be used until properly repaired.
- 1 Do not operate your layout unattended. Obstructed accessories or stalled trains may overheat, resulting in damage to your layout.
- 1 This train set is intended for indoor use. Do not use if water is present. Serious injury or fatality may result.
- 1 Do not operate the hobby transformer with damaged cord, plug, switches, buttons or case.

Cleaning The Wheels, Tires, and Track

Periodically check the locomotive wheels and pickups for dirt and buildup, which can cause poor electrical contact and traction and prematurely wear out the neoprene traction tires. Wheels and tires can be cleaned using denatured (not rubbing) alcohol applied with a cotton swab.



To clean the track, use RailKing Track Cleaning Fluid found in Maintenance Kit (30-50010) or denatured (not rubbing) alcohol and a clean rag. Unplug the transformer and wipe the rails of the track, turning the rag frequently to ensure that you are using clean cloth on the rails. Thereafter, keep an eye on the track and clean it when it gets dirty to ensure good electrical contact and to lengthen the life of the tires.

Clean any type of track with this heavy-duty track cleaning block (40-1099). Durable constructed from ABS plastic, the block includes a built-in cleaning pad. For really stubborn track, you can insert sandpaper into the block in just a few quick steps.



Track Cleaning Block (40-1099)



Maintenance Kit (30-50010)

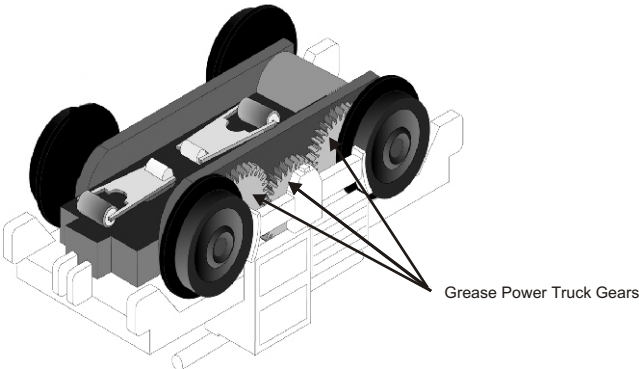
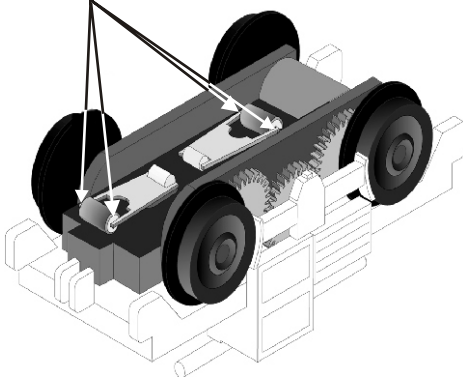
Oil and Lubrication Instructions

In order for the hand car to perform correctly and quietly, it is important that the chassis be lubricated before operation. Lubrication should include all truck block bushings and pickup roller axles to prevent them from squeaking. Use light household oil and follow the lubrication points marked in the figure below.

The hand car's internal gearing has been greased at the factory and shouldn't need additional grease until after 50 hours of operation or one year, whichever comes first. Grease can be added to the internal gearing by lightly coating the motor worm gear and drive gears with grease.

Periodically check the wheels and pickups for dirt buildup as this can significantly affect the hand car's ability to perform properly. Dirty track and dirty wheels can cause both poor electrical contact as well as poor traction, especially on elevated track sections.

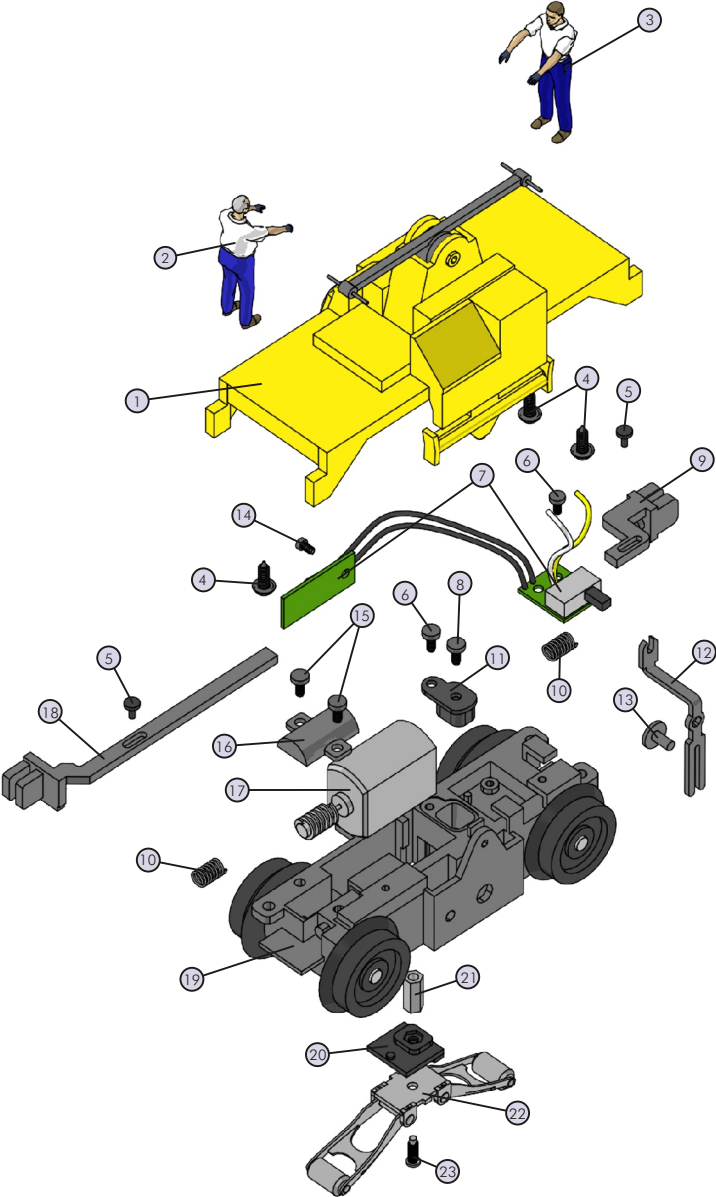
Lubricate Pickup Roller Axles



Hand Car Parts List

Name and Number	Part #
1.) Shell	To order Shell and/or Figure(s):
2.) Figure	Please contact M.T.H. Parts Department and request Shell and/or Figure(s) by description and Item No on box label.
3.) Figure	
4.) Screw (M3X10.0mm)(roundhead)(self-drilling)	IA-0000057
5.) Screw (M2.4X3.0mm)(slotted head)(large head)	IA-0000123
6.) Screw (4/40X6.0mm)(roundhead)	IA-0000003
7.) Boards (switch and bridge rectifier)	BB-0000017
8.) Screw (M3X6.0mm)(roundhead)	IA-0000016
9.) Reverse mechanism arm (short)(Black)(plastic)	FD-4200010
10.) Spring (Nickel) (5.0X12.0 w/ 0.24mm thick wire)	IE-0000032
11.) Insulator (pick-up)(top)	BD-0000047
12.) Lever	FD-4200011
13.) Screw (M2.4X4.0mm) (w/ 3.0X2.0mm oversized shank) (slotted head)(large head)	IA-0000124
14.) Screw (M2X5.0mm)(roundhead)	IA-0000076
15.) Screw (4/40X4.0mm)(roundhead)	IA-0000037
16.) Gear box cover(Black)	BI-0000032
17.) Motor (FK-130SH)(W/ 6.8X11.0mm worm gear)	BE-0000042
18.) Reverse mechanism arm (Black)(long (plastic))	FD-4200012
19.) Truck (Black) (powered)(2 axle)	DA-4200001
20.) Insulator (pick-up)(bottom)(plastic)	BD-0000001
21.) Nut (Nickel) (2.5X5.0X7.0mm)	IC-0000008
22.) Pick-up (Two Rollers)(8.0x10.7mm Roller)(67.0mm long)	BD-0000049
23.) Screw (Nickel) (M3X6.0mm)(roundhead	IA-0000015

Hand Car Parts



Transformer Compatibility and Wiring Chart

Proto-Sound 2.0 is designed to work with most standard AC transformers. The chart below lists the many compatible transformers. 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. In addition, the chart details how the terminals on these transformers should be attached to your layout.

RECOMMENDED AC TRANSFORMERS					
Transformer Model	Center Rail	Outside Rail	Min/Max. Voltage	Power Rating	Transformer Type
MTH Z-500	Red Terminal	Black Terminal	0-18v	50-Watt	Electronic
MTH Z-750	Red Terminal	Black Terminal	0-21v	75-Watt	Electronic
MTH Z-1000	Red Terminal	Black Terminal	0-21v	100-Watt	Electronic
MTH Z-4000	Red Terminal	Black Terminal	0-22v	390-Watt	Electronic
Lionel 1032	U	A	5-16v	90-Watt	Standard
Lionel 1032M	U	A	5-16v	90-Watt	Standard
Lionel 1033	U	A	5-16v	90-Watt	Standard
Lionel 1043	U	A	5-16v	90-Watt	Standard
Lionel 1043M	U	A	5-16v	90-Watt	Standard
Lionel 1044	U	A	5-16v	90-Watt	Standard
Lionel 1053	U	A	8-17v	60-Watt	Standard
Lionel 1063	U	A	8-17v	60-Watt	Standard
Lionel LW	A	U	8-18v	75-Watt	Standard
Powermaster	U	A	8-18v	135VA	Electronic
All-Trol	Left Terminal	Right Terminal	0-24v	300-Watt	Electronic
Dallee Hostler	Left Terminal	Right Terminal			Electronic
Lionel LW	A	U	8-18v	75-Watt	Standard
Lionel KW	A or B	U	6-20v	190-Watt	Standard
Lionel MW	Outside Track Terminal	Inside Track Terminal	5-16v	50V.A.	Electronic
Lionel RS-1	Red Terminal	Black Terminal	0-18v	50V.A.	Electronic
Lionel RW	U	A	9-19v	110-Watt	Standard
Lionel SW	U	A	Unknown	130-Watt	Standard
Lionel TW	U	A	8-18v	175-Watt	Standard
Lionel ZW	A,B,C or D	U	8-20v	275-Watt	Standard
Lionel Post-War Celebration Series ZW	A,B,C or D	Common	0-20v	135/190 Watt	Electronic

* Conventional Mode Only

Service & Warranty Information

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

When you suspect an item is defective, please check the operator's manual for standard operation and troubleshooting techniques that may correct the problem. Additional information may be found on the M.T.H. Website. Should you still require service, follow the instructions below to obtain warranty service.

First, e-mail, write, call or fax M.T.H. Electric Trains or a M.T.H. Authorized Service Center (ASC) in your area to obtain Repair Authorization. You can find the list of ASCs on the M.T.H. Website, www.mth-railking.com. Authorized Service Centers are required to make warranty repairs on items sold *only* from that store; all other repairs may-- or may not be done at the store's own discretion. If you did not purchase the item directly from the ASC, you will need to select a National Authorized Service Center (NASC) or contact M.T.H. Electric Trains directly. NASC Dealers are compensated by M.T.H. to perform warranty service for any customer whose repair qualifies for warranty service. A list of NASC retailers can be located on the M.T.H. Website or by calling 410-381-2580. Should the warranty no longer apply, you may choose either an ASC or NASC retailer to service your M.T.H. Product. A reasonable service fee will be charged.

CAUTION: Make sure the product is packed in its original factory packaging including its foam and plastic wrapping material to prevent damage to the merchandise. There is no need to return the entire set if only one of the components is in need of repair *unless otherwise instructed by the Service Center*. **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 (if required by the service center, 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 for your Return Authorization.**

Please make sure you have followed the instructions carefully before returning any merchandise for service. Authorized M.T.H. Service Centers are independently owned and operated and are not agents or representatives of M.T.H. Electric Trains. M.T.H. assumes no responsibility, financial or otherwise, for material left in their possession, or work done, by privately owned M.T.H. Authorized Service Centers. If you need assistance at any time email MTH Service at service@mth-railking.com, or call 410 381-2580.

Limited One-Year Warranty

All M.T.H. products purchased from an Authorized M.T.H. Retailer are covered by this warranty. See our Website to identify an Authorized M.T.H. Retailer near you.

M.T.H. products are warrantied for one year from the date of purchase against defects in material or workmanship, excluding wear items such as light bulbs, pick-up rollers, batteries, smoke unit wicks, and traction tires. We will replace or credit (at our option) any defective item with a manufactured suggested retail price of \$279.95 or less (excluding all motive power and electronic items), if the item is returned to an M.T.H. Authorized Service Center (ASC) or M.T.H. National Authorized Service Center (NASC) within one year of the original date of purchase. For any item with an MSRP greater than \$279.95 (including all motive power and electronics), We will repair, replace or credit (at our option) the defective item without charge for the parts or labor, if the item is returned to an M.T.H. Authorized Service Center (ASC) or M.T.H. National Authorized Service Center (NASC) 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 to ship the product for warranty service 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. Retailer stating the date of purchase. 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. Specific questions regarding the warranty may be forwarded to M.T.H. directly

Service Department
M.T.H. Electric Trains
7020 Columbia Gateway Drive
Columbia MD 21046-1532
410-381-2580
service@mth-railking.com