

As many of you know, Proto-Sound and Proto-Sound 2.0 engines are equipped with a rechargeable battery to enhance sound system operation. It is thanks to this battery that your realistic sound effects keep playing as you interrupt track power, and the battery allows for the realistic shut-down sounds at the end of an operating session. While the battery recharges automatically as you run your trains, even rechargeable batteries do not last forever.

A survey of our service calls suggests that many of you are not familiar with some easily solved problems like the signs of an undercharged battery or of an engine that has been locked into a direction.

Fully 1/3 of all engines returned to M.T.H. for service could easily be serviced at home by charging or replacing the battery or by checking to see whether your engine is locked into a direction. We know you would much rather keep your engines at home where you can enjoy them, and to help you do that, we are publishing a list of symptoms and tests to see if your engine ails from nothing more than a low battery. Please see the attached sheet (*also available at [www.mth-railking.com](http://www.mth-railking.com)*) for tips to help you maintain your battery's and engine's health. Your engine's operating instructions contain all you need to know to unlock an engine that has been locked into a direction.

Until this winter, M.T.H. has been able to provide routine battery maintenance and even basic operational assistance like an unlocking service for free. However, as part of our effort to streamline our service and reduce turnaround times, we now charge customers for recharging or replacing a battery and for simply unlocking engines as described in the operating instruction. We encourage you to perform these simple forms of maintenance for yourselves, allowing us to spend our time on engines in more serious need of our professional service.

***The charges for battery maintenance and unlocking engines are as follows:***

If the battery is uncharged and must be replaced (*i.e. it will not hold a charge after recharging*), the customer will be liable for a \$50 charge. This covers the expense of assigning an RA number, receiving and logging the engine, labor spent testing and replacing the battery, re-packing the engine, return shipping, and the cost of the battery itself.

If a returned engine is diagnosed with a low battery and that is the engine's only problem, the customer will be liable for a \$25 charge. This covers the expense of assigning an RA number, receiving and logging the engine, labor spent testing the battery, re-packing the engine, and return shipping. We will not recharge batteries.

If a returned engine is simply locked into forward, neutral, or reverse, and has no other problems, the customer will be liable for a \$25 charge. This covers the expense of assigning an RA number, receiving and logging the engine, labor spent diagnosing and unlocking the engine, re-packing the engine, and return shipping.

The customer who returns an engine for a low battery can opt to have the engine returned as-is (*for the \$25 diagnosis fee*), or to buy a battery for \$10 and have it shipped with the engine for him or her to install (*for a total of \$35*), or can have us replace the battery (*for a total of \$50, see above*).

In addition to the attached tip sheet, your engines' Operating Instructions and a troubleshooting section of the M.T.H. website contain information that will help you find the information you need to charge and replace your batteries as well as perform other easy maintenance and basic operational checks at home.

Of course, when you have problems you cannot resolve yourself, we want you to feel free to contact any M.T.H. Authorized Service Center or M.T.H. Service. You can find an Authorized Service Center near you online at [www.mth-railking.com](http://www.mth-railking.com) or you can contact M.T.H. Service by filling out the Service Contact form in the Service Section of [www.mth-railking.com](http://www.mth-railking.com); sending US mail to 7020 Columbia Gateway Drive, Columbia MD 21046-1532; telephoning 410-381-2580 or faxing 410-423-0009.

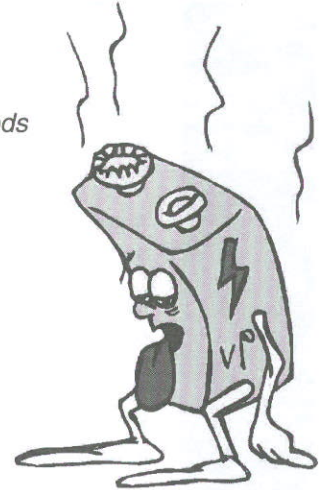
***As always, we sincerely appreciate your support and continued interest in M.T.H. Electric Trains.***



## How to Detect A Low Battery

Even rechargeable batteries sometimes lose their charge (*especially if they are stored for long periods of time*) and eventually need replacing. A bit of routine maintenance can keep your engine running properly. The following symptoms are indicative of an undercharged Proto-Sound battery:

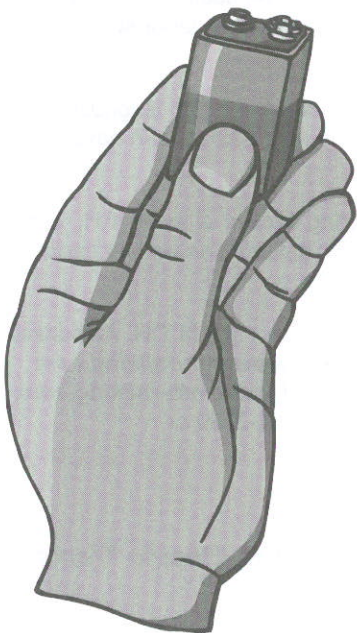
- When track power is interrupted, the sounds stop abruptly in less than the normal 10 to 15 seconds. There is often a sputter.
- While running with less than 10 volts on the track, the whistle or horn sounds distorted when activated.
- When attempting to shift from either forward or reverse into neutral, the sound sputters and the engine will not shift properly.
- When attempting to program in Reset (*original Proto-Sound only*), the engine will not lock the changes.
- When the engine locks itself into forward, neutral, or reverse, it will not unlock following the unlocking procedures in the operating instructions.\*
- When shifting between directions, no sounds are heard during the brief power interruption.



## How to Test the Battery

**If you are experiencing any or all of the above problems, test the battery as follows:**

Try a quick charge. Place the engine in neutral with the throttle set at 15v and the smoke unit turned off for one hour. Alternately, you can 1) plug the M.T.H. Battery Charger (*Item No. 50-1005*) into the battery charging port (*if your Proto-Sound 2.0 engine is equipped with one*) and charge for one hour or 2) remove the battery and charge it in a battery charger that recharges at the rate marked on the battery (*11 mA*) for 1 ½ hours. After the quick charge, test the engine. If it performs better, continue to charge the battery as described above for a total of 14-16 hours to ensure a full charge.



If the quick charge does not seem to improve engine performance, test the engine with a different battery installed.

Install a regular 9V battery (*follow the operating instructions for that engine*) and test the locomotive to determine if the battery is the cause of the problem; if the engine runs properly with the 9V battery installed, the NiCad battery has lost its charge. Charge the original battery for 14 - 16 hours as described above or order a replacement battery. You can continue to run your engine with the 9V battery in the short-term while you await delivery of your new battery. However, because the engine will try to recharge the non-rechargeable 9V battery the whole time it runs, we do not recommend this as a long-term solution.

If the battery does not work after a full 14-16-hour charge, you must replace the battery. To do this, follow the engine's operating instructions.

You can purchase a new NiCad battery from MTH or buy a 8.4V 150 mAh Nickel Metal Hydride battery suitable for use in M.T.H. engines from Radio Shack (*stock number 23-529*). It can be found online at [www.radioshack.com](http://www.radioshack.com).

**Note:** The cadmium in NiCad batteries is a heavy metal harmful to the earth if thrown into a landfill. Please be sure to recycle the batteries you replace at home. You may return used batteries to M.T.H. for recycling, take them to your local Radio Shack for their battery recycling program, or look for other programs in your area.

**\*Note for Locked Engines:** If your engine is locked into a direction and you cannot quick charge it in neutral as described above, run the engine in the direction it's locked into for an hour at 15 volts, then attempt to unlock the direction. This quick charge should be enough to unlock the engine, so you can then give it a full charge in neutral.