RAIL KING™
By MTH Electric Trains

4-6-4 HUDSON
3-RAIL
OPERATING INSTRUCTIONS

(Please Read Carefully Before Operating)

Congratulations on your purchase of the Die-Cast MTH Electric Trains Hudson Steam Engine. The engine's die-cast body and chassis are traditionally sized for operation on any O-27 Gauge track.

Operating and maintenance instructions are included on the following pages. Should the engine need additional service, it should be sent back to the factory located at the address on the back page.

OPERATING INSTRUCTIONS

LUBRICATION

The Hudson has been tested and greased before leaving the factory and is ready-to-run on your layout. The chassis' linkage, pickup roller rivets and leading and trailing truck axles should be lubricated with household oil to prevent squeaks and enhance performance. A drop or two of oil on the linkage, axles and pickup roller rivets should be sufficient (See Fig. 1 and 2). In addition, the tender truck axles should also be lubricated. Avoid over-lubricating as it can spill over onto the track surface and reduce locomotive traction. In addition, the leading and trailing trucks should be greased as per the instructions on page 5 to enhance operation on O-27 curves. See the section on O-27 operation on page 6.

Figure 1: Lubricating The Hudson Locomotive Chassis

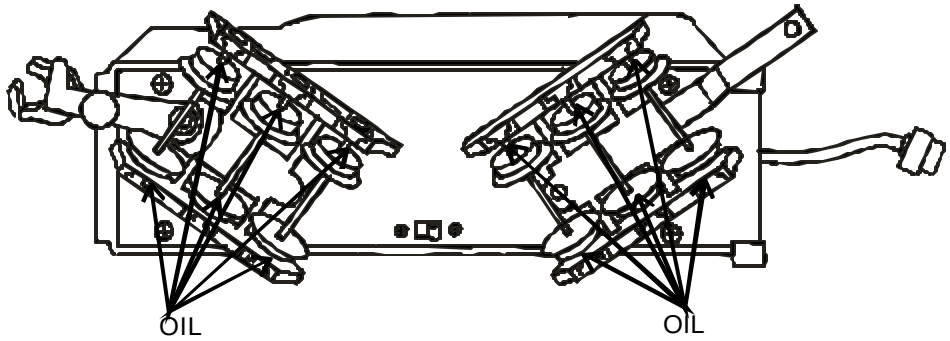

Figure 2: Lubricating The Hudson Tender Chassis

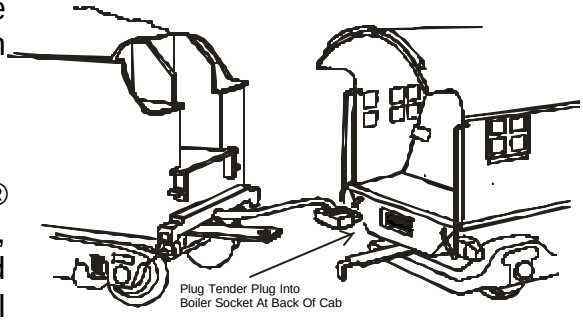

Figure 3: Plugging In The Tender

REVERSE UNIT OPERATION

Each locomotive is controlled by a QSI® DCRU™ electronic reverse unit. The reverse unit, which is located in the tender, must be plugged into the boiler (See Fig. 3) before the engine will run. It operates on a three-sequence loop: Forward-Neutral-Reverse. The next phase in the loop is entered each time the transformer throttle is turned off as the unit enters the next phase in the sequence. A "clicking" sound from inside the tender shell will be heard each time this is done. Because the engine always starts in neutral, the transformer throttle or directional button must be activated in order to get the engine to enter the forward phase. The reverse unit will reset to neutral after power has been

shut down for three or more seconds allowing multiple Hudson or other DCRU-equipped engines to be operated together. If the engines should become unsynchronized during operation, simply turn the power off for three seconds to allow both reverse units to recycle.

The reverse units can be locked into any of the three phases by entering the desired phase using the transformer throttle or directional button and then switching the ON/OFF switch located under the tender chassis (see Fig. 4) to the OFF position. To enter the normal phase again, simply turn the switch to the ON position. After an hour or more of non-use, the reverse unit will cycle into any of the three positions and the ON/OFF switch must be set to ON in order for the engine to operate correctly.

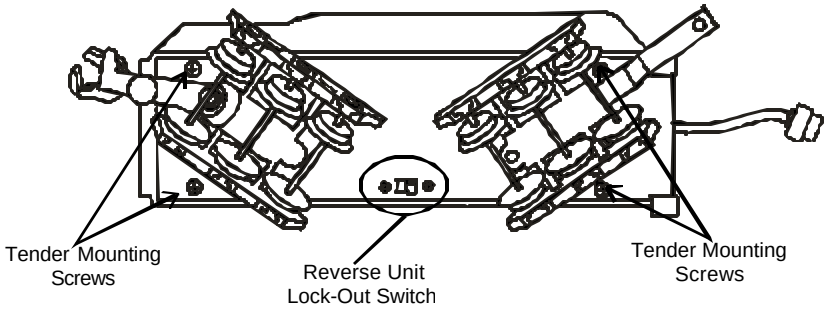

Figure 4: Reverse Unit Lockout Switch Location

WHISTLE OPERATION

The locomotive comes equipped with an electronic whistle located inside the tender body. The whistle is activated by operating the whistle controller on your transformer whenever power to the track is on. If the whistle fails to operate, it may be necessary to reverse the leads from your transformer to the track. If more realistic sounds are desired, the electronic whistle can be removed and a ProtoSound™ Digital Sound and Train Control module can be plugged into the reverse unit. This procedure is described in more detail on the following pages.

SMOKE UNIT OPERATION

The locomotive is also equipped with an operating smoke unit. The smoke output is regulated by the track voltage and the speed of the engine using an intergrated piston drive system. The piston system blows the smoke out of the smoke stack in a puffing action. The faster the engine travels, the more rapid and intense the smoke output becomes. To add smoke fluid, clip the end of the SuperSmoke fluid tube that comes included with your engine with a pair of sissors and pour 6 - 12 drops of fluid into the smoke unit stack. Smoke output may not be strong immediately until the smoke unit wick soaks up the fluid. Do not oversaturate the wick as it will result in poor smoke output.

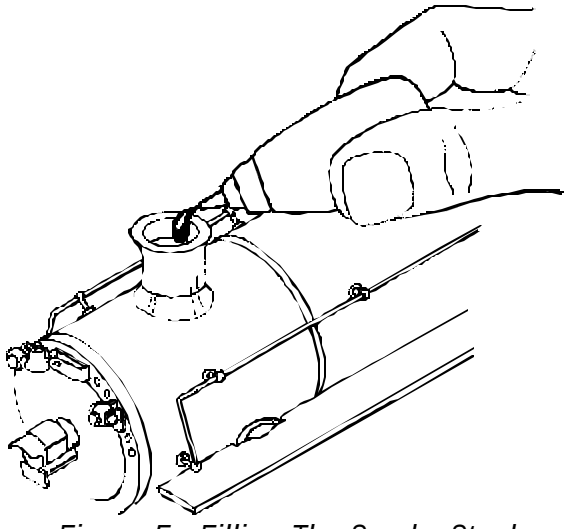

Figure 5: Filling The Smoke Stack

SMOKE UNIT MAINTENANCE

If you operate the engine without smoke fluid for long periods of time, the wick may become hard and unabsorbant. ***We strongly recommend that the smoke unit ON/OFF switch located under the trailing truck (See Figure 7) be turned OFF whenever the engine is operated without smoke fluid.*** Failure to do this may harm the smoke unit wick. When this occurs, it may be difficult for the wick to soak up the heavy SuperSmoke smoke fluid resulting in poor smoke output. You can inspect the wick to see if it needs replacement by removing the smoke unit inspection cover as seen in Fig. 6 . After removing the screws lift the inspection plate away and inspect the wick. If the wick if is darkly discolored and hard, it should be replaced.

Figure 6: Inspecting The Smoke Unit Wick

Note: *Replacement bottles of SuperSmoke are available at most hobby shops. Replacement smoke unit wicks and SuperSmoke can be purchased directly from MTH Electric Trains.*

MAINTENANCE INSTRUCTIONS

The locomotive is designed so that very little maintenance is required from the owner. It is recommended that all moving parts (rods, linkage, pickup rollers and axles) be oiled after every 25 hours of operation. Bearing grease or a similar lubricant should be applied to the motor worm gear and the bronze drive gear inside the locomotive chassis after 50 hours of operation.

To add grease, remove the cab from the chassis by unscrewing its four mounting screws (See Fig. 7). After removing the shell from the chassis, remove the white plastic grease cover over the drive wheels to expose the locomotive gearing. Lightly coat each gear with grease and reassemble. You should use Lubriplate or wheel bearing grease, either of which should be available at most hobby shops.

Figure 7: Removing The Chassis From The Boiler

Figure 8: Adding Grease To The Locomotive Gearing

Figure 9: Lubricating The Leading & Trailing Truck Swivel Points

TRACTION TIRE REPLACEMENT

If it becomes necessary to replace the rubber traction tires on the drive wheels, the following steps should be followed. First, remove the cab from the chassis as indicated in Figure 7. Next, unscrew the main side rods connecting the eight drive wheels together using a 5mm nut driver or a pair of pliers. Cut or pry off the old traction tire (if it hasn't already broken) from the grooved channel in the drive wheel and stretch the replacement tire over the wheel and into the groove. Make sure the tire is not twisted and that there are no edges sticking outside of the groove as these will cause the engine to wobble during operation. It may be necessary to trim the edges of the tire with a razor so that it fits properly. Once the new tires are in place, reassemble the unit.

CONVERTING FOR BOX COUPLER OPERATION

It is possible to replace the standard O Gauge operating die-cast coupler with a tinplate style Box Coupler by following the simple instructions below as seen in Figures 10 and 11. You will need to remove the tender body from the tender chassis before removing the trucks. The tender body is held in place by four Phillips screws. The screws are located in each corner of the chassis as seen in Fig. 4 on page 3.

Once the body mounting screws are removed, the chassis can be pulled away from the tender shell. The electronic whistle speaker must be removed to reveal the truck mounting screw as indicated in Figure 10 and 11.

After removing the speaker, unscrew the trailing truck mounting screw and pull the truck away from the bottom of the chassis. Using a small pair of pliers, slide the "C" clip away from the "T"-Bar being careful to not let the coupler centering spring fly off the T-Bar once the C-Clip is removed. After removing the C-Clip; the centering spring, C-Clip washer and coupler armature should slide off the T-Bar. The T-Bar and coupler itself can be pulled out of the top of the trailing truck coupler mounting hole.

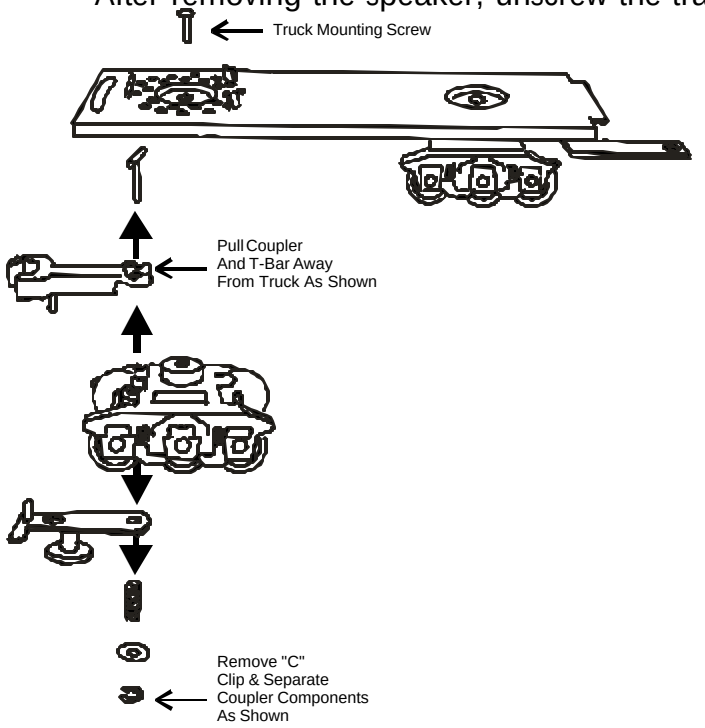

Figure 10: Removing The O Gauge Coupler

Once the original O Gauge coupler is removed, the parts should be stored away for future use. Next, the truck needs to be turned around 180 degrees so that the box coupler mounting hole will be at the back of the tender chassis. The box coupler is simply screwed into place using a Phillips screwdriver as seen in Figure 11.

O-27 OPERATION

While your RailKing Hudson is designed for O-27 track operation, it is strongly recommended that you operate the engine with care when negotiating the tightest O-27 curves as the engine is top heavy and may have a tendency to derail or turn over if operated through O-27 curves at too fast a speed.

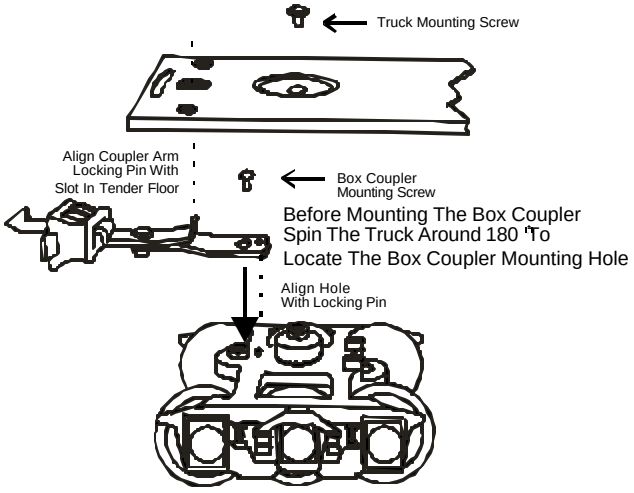

Figure 11: Installing The Box Coupler

Installing ProtoSound Into Your Hudson Steam Engine

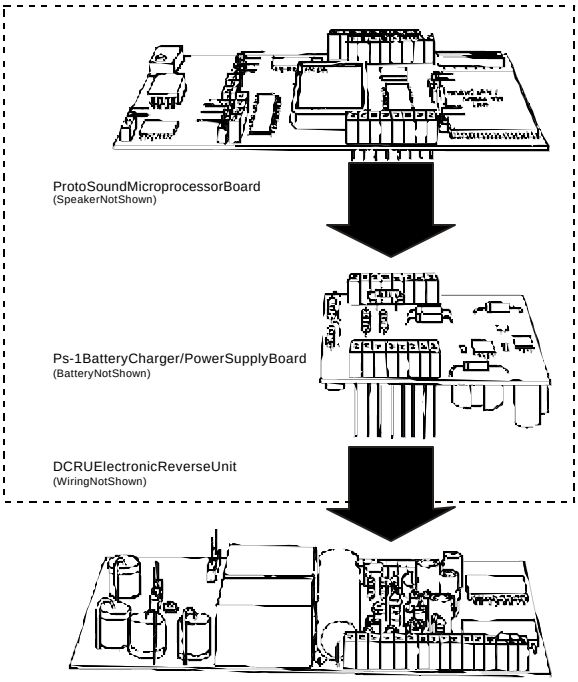

Figure 12: The ProtoSound Digital Sound & Train Control System

You Will Need The Following Tools

Flat Blade Screwdriver, Phillips Screw Driver, Needle Nose Pliers, Sissors, Pliable Adhesive Glue or Hot Glue Gun

1) Remove the steam engine tender body from its chassis by removing the four mounting screws located in each corner of the chassis as seen in Figure 4 on page 3.

2). Remove the electronic whistle circuit by cutting the plastic tie attaching the circuit to the DCRU and lift the circuit out of the DCRU strip socket holes as seen in Fig. 13 .

Figure 13: Removing The Whistle Circuit From The DCRU Reverse Unit

3) Remove the two jumper straps or wires from the socket strips that run along the sides of the reverse unit as shown in Figure 14. In addition, you will also have to remove the lock-out switch and its wires that are connected into two of these socket holes. Remove these wires by simply pulling them out of the sockets and remove the switch by unscrewing it from the tender floor. You will not need a lock-out switch since ProtoSound can lock your engine out by remote control.

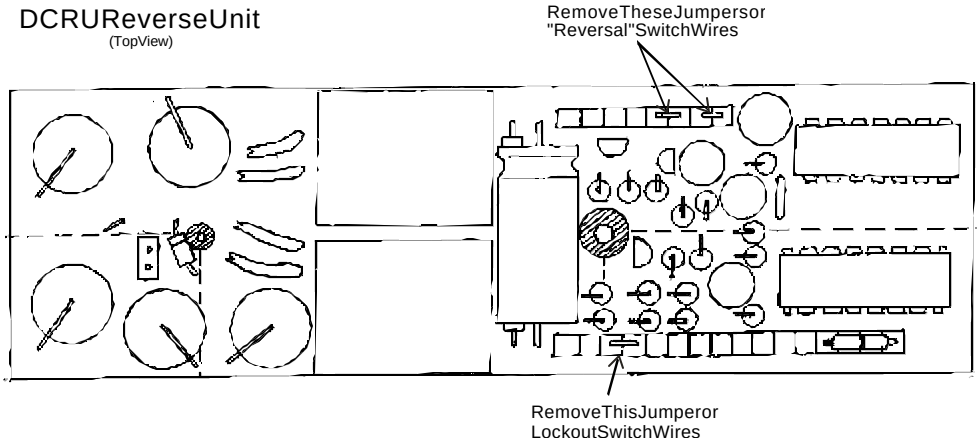

Figure 14: Prepping The DCRU Reverse Unit For ProtoSound Installation

4) Carefully align the pins from the combination ProtoSound and PS-1 board into the socket holes on the reverse unit. Be sure that the pins line up in the holes and are correctly centered in each socket as shown in Figure 15. Center the pins on one side of the board, hold in place and then align the pins on the other socket strip. Do not press the boards together yet.

Before you actually press the boards together, check to see that the transformer component on the PS-1 board (shown in Figure 16), will not interfere with the components on the DCRU reverse unit. If it does, gently push the components on the DCRU reverse unit to one side. Also, you need to be aware that the sockets on the reverse unit will be quite tight and it will take some gentle force to press the two boards together. The best way to insert the pins into the

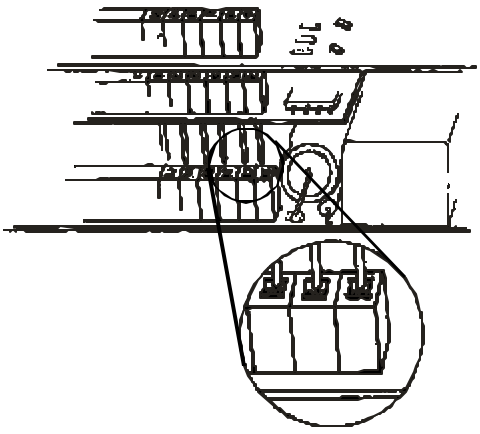

Figure 15: Lining Up The Pins Before Pressing The ProtoSound Boards Together

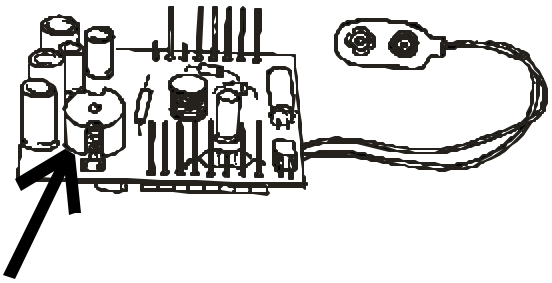

Figure 16: Transformer Component

reverse unit is to press the boards together with both hands, one hand on each side of the boards. You should hear a snap from each side as the two boards go together. The PS-1 board should sit just above the reverse unit as shown in Figure 12. If you are having difficulty, separate the PS-1 board from the ProtoSound board and press together as shown in Figure 17.

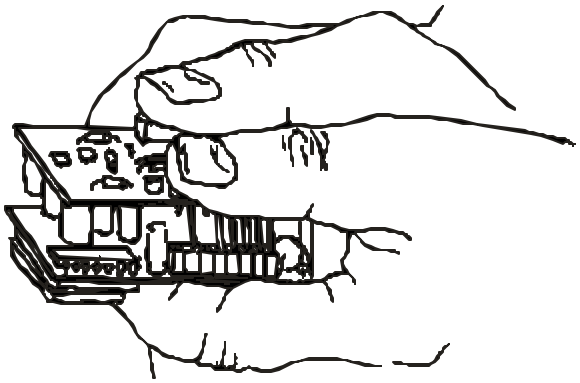

Figure 17: Pressing The Boards Together

5) If you separated the ProtoSound board from the PS-1 board, carefully press the ProtoSound top board into the socket pins on the PS-1. This should also be a snug fit, but a little easier to insert since the socket holes were already spread. Make sure that the ProtoSound board is correctly positioned since it can be inserted incorrectly in the socket in a backwards position (rotated 180°). The ProtoSound board is in the correct position if the ProtoSound board lines up with the DCRU reverse unit as shown in Figure 12. Also watch to see that all the connector pins are in their own socket; *you do not want the ProtoSound board to be offset by one or two pins since this would cause damage to the circuit board.*

Note: *You may want to tie all three boards together using the cable-tie provided. This prevents the boards from becoming separated during handling or shipping. Run the cable-tie around all three boards, slip the pointed end into the hole on the other end and pull until snug, do not overtighten. Make sure you do not bend any electronic parts and that you do not cover the mounting hole on the reverse unit. Once the cable has been pulled tight, it cannot be loosened.*

6) Attach the battery with the double sticky foam tape provided. Mount the battery next to the reverse unit as shown in Figure 18.

Bottom View Of Hudson Tender With
ProtoSound, Speaker, Battery & Proto-Coupler Locations

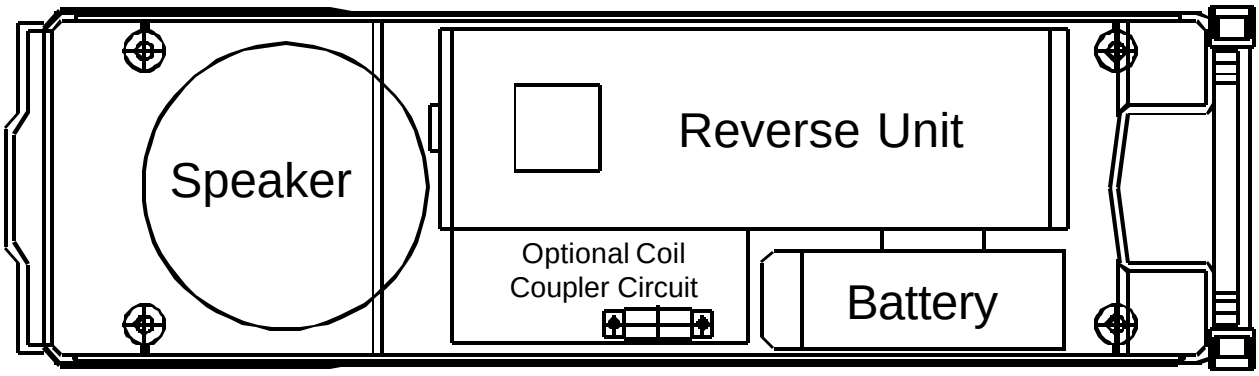

Figure 18: Component Locations In The Tender Shell

7) The speaker and resonator cone normally mounts vertically inside the tender shell. Normally, this would be above the speaker perforation holes where the current electronic whistle speaker sits. Because the electronic horn speaker is not compatible with ProtoSounds, it will have to be removed and the ProtoSound speaker installed in its place. To remove the electronic whistle speaker, take either a flat blade screwdriver or a pair of needle nose pliers and bend the tabs securing the speaker to the chassis away from the speaker frame. Once bent away from the speaker lift the speaker away from the chassis. Insert the new speaker and resonator cone over the speaker perforations and bend the tabs into the resonator cone to hold the speaker and cone in place. It may be necessary to further secure the new speaker with either pliable adhesive (like Walters® GOO™) or a hot glue gun.

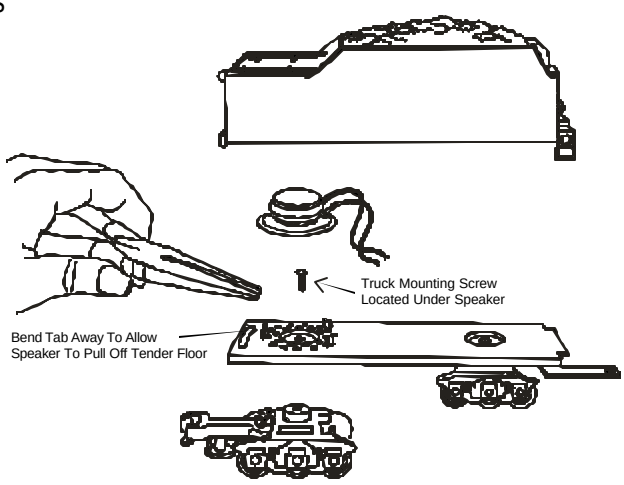

Figure 19: Removing The Old Speaker

After you have installed the speaker, connect the speaker plug to the ProtoSound board as shown in Figure 20. It does not make any difference which way the plug goes. If you are installing the coil coupler, the circuit board should fit directly in front of the speaker resonator.

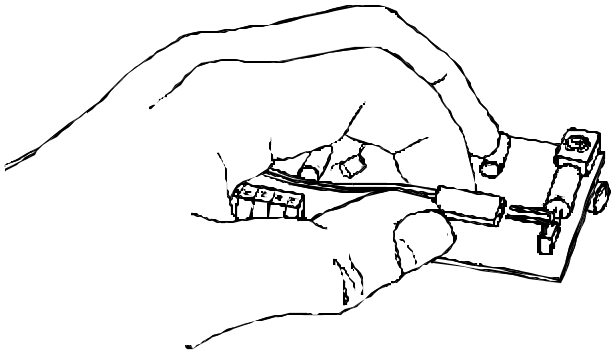

Figure 20: Plugging The Speaker Harness Into The ProtoSound Board

Adjusting the Volume:

On the top ProtoSound board there is a small square component with a screw driver slot to adjust the volume. Turn the slot clockwise to reduce the volume or counter clockwise to increase the volume (see Figure 21). After the volume is adjusted, replace the shell but do not install the screws. The tender shell will tend to amplify the sound so it is good to test the unit to see if the setting is correct by placing the shell on the chassis. Install the mounting screws when you are satisfied.

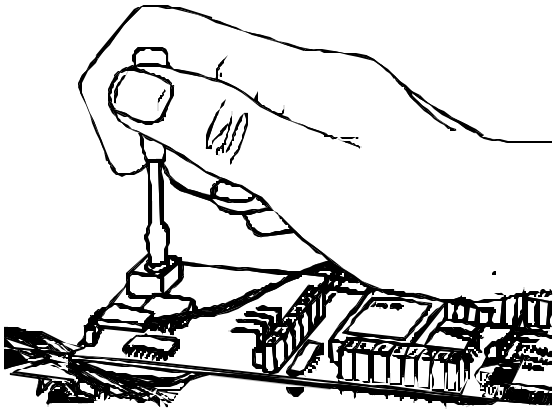

Figure 21: Adjusting The Volume

SERVICE AND WARRANTY INFORMATION

HOW TO GET SERVICE UNDER THE TERMS OF THE LIMITED WARRANTY

Do not return your product to the place of purchase unless you bought the item directly from Mike's Train House in Columbia, MD as our dealer network is not prepared to service the product under the terms of this warranty.

1. First, write, call or FAX MTH Electric Trains at 9693-A Gerwig Lane, Columbia, MD 21046, 410-381-2580 (FAX 410-381-6122) to obtain a return authorization number. You will need to provide the date of purchase and a general description of 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 indicating the reason for the return and a brief description of the problem should be included to facilitate the repairs. Please don't forget to include your return name and address.

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

LIMITED ONE YEAR WARRANTY

This item is warranted for one year from the date of purchase against defects in material or workmanship. We will repair or replace (at our option) the defective part without charge for arts or labor, if the item is returned to the address below within one year of the original date of purchase. This warranty does not cover items that have been abused or damaged by careless handling. Transportation cost incurred by the customer are not covered under this warranty.

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

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