

pulling a heavy load, yet the prime mover speed can be at almost full RPM's. This is what railroaders refer to as a “**labored sound**”. You can recreate this locomotive laboring sound by entering the program mode, and setting the sound unit for “**manual notch on/off**”, *pressing button # 3 in the program mode*. When this feature is activated, the power packs throttle control will have no effect on the prime mover sound. The sound will remain at idle no matter how fast or slow the locomotive is going with the throttle control. You, acting as the Engineer, control the prime mover RPM. rate by using button # 7 on the transmitter to rev up the prime mover, and button # 8 on the transmitter to rev down the prime mover. This realistic operation lets you simulate the labored sound of a heavy train climbing a hill, moving very slowly, but with its motor at max RPM's. Of course when the train starts speeding up moving downhill the experienced Engineer will push button # 6 on the transmitter to start the dynamic brake sound going, use button # 8 to lower the RPM's, and adjust the power packs throttle control to slow down the traction motors. Once you notch down all the way to idle, the track sanders will kick in with an audible air release, (keep pressing button # 8).

Button	Run	Program	Program (button 6 first)*
Button1	Bell on/off	Change bell	Change bell volume
Button2	Horn	Change horn	Change horn volume
Button3	Air hose firing/uncoupling lever	Manual notch on/off	Change Air hose firing volume
Button4	Coupling	Change Coupling type	Change Coupling volume
Button5	Brake release	Change brake volume	Change dynamic brake volume
Button6	Dynamic brake	Program shift	Program shift
Button7	Air release/notch up	Increasing sensitivity	Change air release volume
Button8	Air release/notch down	Decreasing sensitivity	Bell rate change
Button9	Sound on /off	Change diesel type	Change diesel volume

Note: To enter the program mode hold button # 6 while turning up the power packs throttle knob.

Note: * Press button 6 first and wait two seconds before pressing another button

Note: Press button 6 three times will exit the program mode. An air release will sound to acknowledge exiting programming

Note: Press button 9 three times will disable bell/horn from power pack

RETURN PROCEDURE

This sound unit carries a 6 month warranty against factory defects. This warranty does not include abuse, misuse, neglect, improper installation, or any modifications made to this sound unit. If it should become necessary to return the sound unit for warranty repair/replacement, please include a copy of the original sales receipt. Please include a letter (printed clearly) with your name, address, daytime phone number, and a detailed description of the problem you are experiencing. Please also include a check or a money order for \$8.00 to cover return shipping and handling. If the sound unit is no longer considered under warranty, then please include a check or a money order for \$18.00 to cover the cost of repair or replacement and return shipping and handling. Be certain to return the sound unit only. **Any questions regarding Warranty Policy can be directed to our Customer Service Department by calling 732-225-6360 between the hours of 8:30am and 6:00pm EST, or by emailing: rtech@modelrectifier.com**

Send the sound unit to: Model Rectifier Corporation
Attn: Parts & Service
80 Newfield Avenue
Edison, NJ 08837-3817 U.S.A

Printed in USA



MRC DIESEL AC SOUNDER™

Alco244/SD60/SD70/EMD567B Prime movers

Item 0001815

Thank you for purchasing this product. This sound unit will make your conventionally operated, 3-rail AC locomotives, and your analog DC “G” , or 2 rail “O” scale locomotives come to life. Your power pack controls your locomotives speed and direction, and the synchronized diesel rumble follows along.

Note- this sound unit requires at least 5 volts to start up, some locomotives may start moving at 2 or 3 volts and will have no sounds until it reaches 5 volts. This is normal and not a defect in the product. If you need the locomotive and sound system to start up together, contact MRC at 732-225-6360, to purchase an optional voltage reducer that gets hooked up in parallel between the locomotives pick ups and locomotives motor[s].

With MRC's patented technology brief power outages like dirty track, or directional changes will not affect the sound unit.

Please note that some soldering is required to install this product in a locomotive, and it is not compatible with DCS®, TMCC®, or DCC. Using this sound unit inside of a dummy locomotive, or piece of rolling stock with the aforementioned systems will not harm it. It will still operate properly if it is used with the optional transmitter.

***Tip-** To use this sound module with the aforementioned control systems, set the sound unit for “**manual notch**” on, and use the transmitter to control engine RPM's, [for the prime mover sound will constantly be in a state of high RPM's]. The transmitter can also control the horn, bell, dynamic brakes, etc., of the second locomotive giving you double the sound power when combined with another sound locomotive.

When used with an AC power pack you will have synchronized prime mover sounds, and the bell and horn can be controlled by the activation buttons on your present power pack, (if so equipped). Changing the horn type and prime mover type can be performed with the direction, horn and bell buttons if your present A.C. power pack has these features, without the need for the optional transmitter.

When used with a DC power pack you will just have synchronized prime mover sounds. To access the extra sound functions the transmitter should be purchased.

Installation of this product inside your locomotive may affect your locomotives warranty.

By purchasing the optional radio transmitter, MRC item 0001824, **only one needed**, you can control additional sound functions, (*bell, horn, brake squeal, air releases, coupling and uncoupling for example*). The transmitter also allows you to perform limited programming to change certain features built into this sound unit, (individual sound volumes, choose different prime movers, and horns for example).

The transmitter works with both AC operated locomotives and DC operated locomotives.

The sound unit comes factory pre-set for certain default settings, and we recommend purchasing the transmitter so you can get the most performance from this sound unit.

INSTALLATION

There is a simple two wire hook-up to the power pick up points of your locomotive. The speaker leads have a plug on one end that plugs into the sound unit. You can lengthen these leads if needed between the plug and the speaker.

Remove the body shell from the locomotives chassis as per the manufacturers' instructions and locate the power pick-up points for your type of locomotive that feed the motor[s]. The wires of the sound unit get connected in parallel between the power pick-ups and the motor[s]. Solder the two wires from the sound unit to these points; polarity does not matter as this unit does not supply power output to the locomotives motor[s]. Locate the speaker in an appropriate spot inside the locomotives shell or in the fuel tank area of the chassis. Secure the speaker with hot glue if necessary to prevent rattling and buzzing. A speaker baffle can be made for better sound quality if desired, and if there is enough room in side the locomotive. If your locomotive already has a speaker installed you can opt to use that one, instead of the supplied speaker.

DC locomotives- find the right and left side wheel pickups and solder the wires to these two points. That's it!

AC locomotives- one wire goes to the center roller of the loco, the other wire goes to either the chassis ground or the grounded wheel sets of the locomotive. These wires are soldered before the E-unit and motor[s]. If you press the horn button on your power pack and the bell sounds, reverse the two wires on the power pick-up points. Also most AC locomotives come from the factory with a horn, or a horn and a bell sound unit. We highly recommend that you disable the factory horn and bell, and use the pre-installed speaker. The easiest installation of this sound unit would be to place it in a dummy locomotive or box car that already has power pick ups installed in it.

To change the prime mover type sound and horn type with a conventional A.C. power pack that has a horn, bell, and direction button use the following steps:

- 1- Place the locomotive on the track
- 2- Hold the direction button down, while increasing track power with the throttle to approx. 30% throttle setting.
- 3- Rapidly tap the direction button, [interrupting track power], until you hear the sound unit say "program" two times. now you are in the program mode.
- 4- If you have your sound unit wired correctly so the horn button operates the horn, and the bell button operates the bell; pressing the horn button will change the horn type with each press. Stop pressing the horn button when you hear a horn you like or is correct for the locomotive. Pressing the bell button will change the prime mover type. Stop pressing the bell button when you hear the correct prime mover sound for the type of locomotive the unit is installed in. ***If you have the sound unit wires to the track pick ups' wired backwards, the above procedure will be reversed.***
- 5- To exit the program mode, just turn off track power and let the capacitor in the sound unit fully discharge to lock in your settings.

Note- If the locomotive that you are installing this sound unit in defaults to forward when first applying track power, please use care so the locomotive does not fly off the track while attempting to change the horn or prime mover sounds in the above procedure. We recomend using stationary rollers to do this if you have them, or prior to installing the sound unit inside the locomotive, simply attach the hook-up wire wires of the sound unit directly to the power pack outputs or track rails.

TRANSMITTER

The optional transmitter item no. 0001824 will let you access additional sound functions, and lets you perform programming different parameters into the sound unit. Follow the chart included. Button number 6 in the run mode lets you turn a dynamic brake sound on and off. Button 6 serves additional functions, by letting you gain access into the programming mode, and then acts as a "**shift**" key between the two programming sets. You need to wait a few minutes after shutting off power to the track to let the capacitor fully drain down before trying to enter the program mode. Once the capacitor drains down, press and hold down button 6 and slowly turn up the throttle. You will hear some engine sounds and the word "**Program**". This lets you know you are now in the program mode.* Follow the supplied chart to change the parameters of the sound unit in the two columns dealing with programming.

Note: When entering the program mode, **if the sound unit is installed in a powered locomotive that defaults to forward motion, or if it is in a dummy loco being pulled by that powered locomotive, when track power is applied the train will start to move.** Do not drop power to enter the locomotives neutral state or you may exit the program mode. You can program the sound unit to change parameters while the train is moving. Of course, if the sound unit is installed in a dummy loco, programming can be done on a seperate section of powered track.

While you are in the run mode, if you do not want to control the bell or horn from the power pack, pressing button 9 three times will disable the power packs control buttons and only let you operate the horn and bell via the transmitter's button. If you want to resume control of the bell and horn with the power pack, and the transmitter, shut the track power down, let the capacitor fully discharge, then resume operation. This resets the sound unit back to full power pack operation without having to enter the programming mode.

If you notice that dirty track or arcing of the locomotives wheels causes the horn or bell to operate without your control, enter the program mode and use the "**decrease sensitivity**" programming option to limit this. Decreasing the sensitivity all the way, will disable the power packs horn and bell buttons, although the horn and bell buttons on the transmitter will still work. To resume normal operation, use the "**increase sensitivity**" programming option. Each time you press button number 7 or button number 8 during this programming option you will hear the word, "**program**". Every press of button number 7 is one step down of sensitivity adjustment, and every press of button number 8 is one step up. We recommend that you try decreasing the sensitivity one step at a time, exit the program mode, and test your locomotive around your layout over to see if the horn or bell stops operating on its own. Also keeping the wheels and track clean is a good idea.

The sound unit is set to the factory default as a synchronized prime mover sound. This means as the throttle is turned up from zero the sound will rev higher to maximum voltage, and when the throttle is decreased the sound will rev down to minimum voltage. Real locomotives do not operate like this; the speed of the prime mover is not necessarily set to the locomotives speed. A real locomotive can be traveling very slowly