

# CAUTION – ELECTRICALLY OPERATED PRODUCT

NOT RECOMMENDED FOR CHILDREN UNDER 12 YEARS OF AGE.

AS WITH ALL ELECTRIC PRODUCTS, PRECAUTIONS SHOULD BE OBSERVED DURING HANDLING AND USE TO REDUCE THE RISK OF ELECTRIC SHOCK.

## ELECTRICAL SPECIFICATIONS:

INPUT – 120VAC, 60HZ

OUTPUT – MODE I G SCALE – 20VDC 18VAC, 35VA DC Maximum, Total 60VA

MODE II HO/N SCALE – 15VDC 18VAC, 27VA DC Maximum, Total 52VA

## SOUND GENERATOR SPECIFICATIONS:

1 WATT AUDIO POWER INTO 8 OHMS IMPEDANCE

65db SIGNAL TO NOISE RATIO

STEAM/DIESEL SOUND SELECTION

MODE I = G; MODE II = HO/N

## OPERATING INSTRUCTIONS FOR SOUND & POWER 7000

CONGRATULATIONS! You have just purchased one of the most exciting and advanced train controls on the market. The SOUND & POWER 7000 is designed to fulfill the needs of G Scale models as well as HO and N Scale railroads.

In addition to MRC's well known power pack technology, we now include SOUND. The sound generator is a circuit that responds to the track voltage and can be synchronized for many locomotives. The rate (synchronization) and volume through the included speaker is controllable. A steam or diesel locomotive sound can be selected; and the horn/whistle sound control allows you to create the shriek of a whistle or the blare of a horn as you want to hear it.

MRC has created the SOUND & POWER 7000 for you, the modeler who wants more realism and fun from your layout than ever before. Thank you for purchasing this fine train control and sound system. Welcome to the ranks of model railroaders who purchase the best in Model Railroading Supplies. MRC.

MODEL RECTIFIER CORPORATION  
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## POWER SECTION

### CONTROLS:

**POWER SWITCH:** The power ON/OFF switch disconnects the input power from your Sound & Power 7000 and shuts the unit down completely.

**DIRECTION SWITCH:** The direction switch reverses the polarity of voltage applied to the track and thereby reverses the direction of your locomotive. This switch should only be operated when the locomotive is not moving.

**MOMENTUM SWITCH:** The momentum switch in your Sound & Power 7000 unit allows operation in either of two switch positions. With the switch in the OFF position a change in the throttle setting results in an immediate change in locomotive speed. With the momentum switch in the ON position the locomotive moves slowly and gradually like a real locomotive. This switch can add substantially to your model railroading enjoyment. When a real locomotive is given an increase in throttle setting there is a lag until the pre-set speed is reached. The heavier the load of cars being drawn, the longer the lag time or delay. Similarly, when braking a real locomotive, a considerable distance is needed in order to stop. Since lightweight models do not mimic this delay on their own, momentum circuitry, as in this pack, is used to create it electrically. Different rates of acceleration can be obtained by varying the maximum position of the throttle. Setting the throttle to 100 will produce fairly rapid acceleration, 90 more gradual, and so on.

**PUMP TYPE BRAKE SWITCH:** The brake switch in your Sound & Power 7000 unit is a spring loaded slide switch. To operate the brake, move the switch to the ON position and hold it there. Your locomotive will slow at a steady rate. If your throttle was left at a setting other than 0, releasing the brake will cause the locomotive to gradually accelerate to the speed determined by the throttle setting (as long as the momentum switch is ON). Pumping the brake will allow for more gradual deceleration.

**THROTTLE CONTROL:** The throttle knob is used to set the speed of the locomotive you are controlling. With the momentum switch in the OFF position, your locomotive will respond to the throttle knob movement. With the momentum switch in the ON position your locomotive will not respond immediately to the throttle setting. The brake should be applied to slow the locomotive. If the brake is not applied, but the throttle is turned down, the train will very, very slowly coast to a stop just like a real train. The numbers on the dial do not correspond to a scale speed. Due to the different types of locomotives and motors available, a locomotive may not move (start) until the knob has been turned several degrees.

**NUDGE SWITCH:** The nudge switch in the ON position permits better low speed operation for your locomotive, such as in coupling or uncoupling cars during switching maneuvers. Keep the switch in the OFF position for mainline, medium to high speed operation of your locomotive.

**MODE SWITCH:** (Rear of Cabinet) In the MODE I position, the Sound & Power 7000 will provide more track voltage for G scale locomotives. In the MODE II position, the track voltage is lowered for the operation of HO or N scale locomotives.

## INDICATORS:

**POWER MONITOR:** The Power Monitor lamp is used to give an approximate indication of output voltage. You will find this very useful in detecting shorts or opens on your track, etc. If the throttle control is left in an ON position and the lamp light intensity increases, this indicates less current is being drawn. If the light becomes less intense, more current is being drawn. If the lamp goes out suddenly, this indicates a short circuit and will shortly be followed by the circuit breaker cutting off the power. A slight flickering of this lamp during operation or during switching the POWER SWITCH "ON" or "OFF" is normal and does not indicate a problem.

**PILOT LIGHT:** The pilot light is a Light Emitting Diode (LED). The LED will glow when the POWER SWITCH is in the ON position.

**MOMENTUM LIGHT:** Your Sound & Power 7000 is equipped with a Light Emitting Diode (LED) indicator to make you aware of when the momentum switch is in the ON position. The LED will glow whenever momentum is engaged, even if the locomotive is not moving.

**OVERLOAD LIGHT:** Your Sound & Power 7000 is equipped with a sensitive thermal circuit protector. In the event of a short circuit or overload, the circuit protector will trip and begin to cycle on and off. Your overload Light Emitting Diode (LED) will light giving a visual indication of a problem. When this occurs, turn your unit OFF, correct the source of the short circuit or overload, wait 2-5 minutes for the circuit protector to reset, then turn the unit back ON. If the overload indicator is still lit, you have either failed to correct the source of the short circuit or overload, or you have not waited long enough for the circuit protector to reset.

## SOUND SECTION

**SOUND SELECTOR SWITCH:** In the STEAM position, the system produces the "chuffing" sound of a steam locomotive and makes the HORN/WHISTLE SOUND CONTROL produce a steam WHISTLE sound when the slide control is moved. In the DIESEL position, the system produces the "throbbing" sound of a turbo-charged diesel locomotive and makes the HORN/WHISTLE SOUND CONTROL produce a horn "blast" when the slide control is moved.

**RATE ADJUSTMENT:** This knob helps to synchronize the steam or diesel sound with the speed and motion of your particular locomotive. Results will vary with individual locomotives and motors, but we suggest to synchronize the sound by turning the RATE ADJUSTMENT knob fully counter clockwise. Then, with your locomotive on the track, increase THROTTLE CONTROL until your locomotive is moving at a medium speed suitable for your layout. Turn the RATE ADJUSTMENT knob until the sound and the locomotive's motion appear synchronized. Turn the THROTTLE CONTROL to 0 and compare the synchronization of sound as the throttle is increased from 0. If the synchronization is not correct, adjust the RATE ADJUSTMENT until it is satisfactory. NOTE: Not all locomotives will synchronize perfectly with the sound of the pack. NOTE: For diesel sound, do not turn the Rate Adjustment beyond 75% of its motion or else distortion will result when the horn is blown. NOTE: If you wish to run your locomotives without sound, turn the Rate Adjustment and Volume Control fully counterclockwise.

**VOLUME CONTROL:** This knob adjusts the volume of sound. Full volume is achieved by tuning this knob fully clockwise.

**HORN/WHISTLE SOUND CONTROL:** To activate the horn or whistle sound, move the slide control from the bottom position towards the top, with the VOLUME CONTROL turned up. For best results, the slide control should be moved in a fluid continuous motion up and down to achieve the horn or whistle sound that you feel is most like a real horn or whistle. With a little experimentation you should achieve the full effect of the steam whistle or blare of the diesel horn that you prefer.

## TERMINALS

**TRACK DC:** These terminals are for attachment of your Sound & Power 7000 to the main line of your layout. If the direction of your locomotive does not match the position of the Direction Switch, simply reverse the wiring going to these terminals.

**A.C. ACCESSORIES:** These two terminals are for use with AC accessories only, such as switch machine controls, lights, an MRC Tech II Cab Control, etc. Hook-up polarity does not matter.

**SPEAKER TERMINALS:** The speaker is prewired, so you can connect the free ends of the wires to the two speaker terminals. Polarity does not matter.

**CAUTION:** When mounting speaker wires to the speaker terminals, make certain that unit is OFF and unplugged. When connections are completed, reinspect them to make certain that no wires are shorting the terminals.

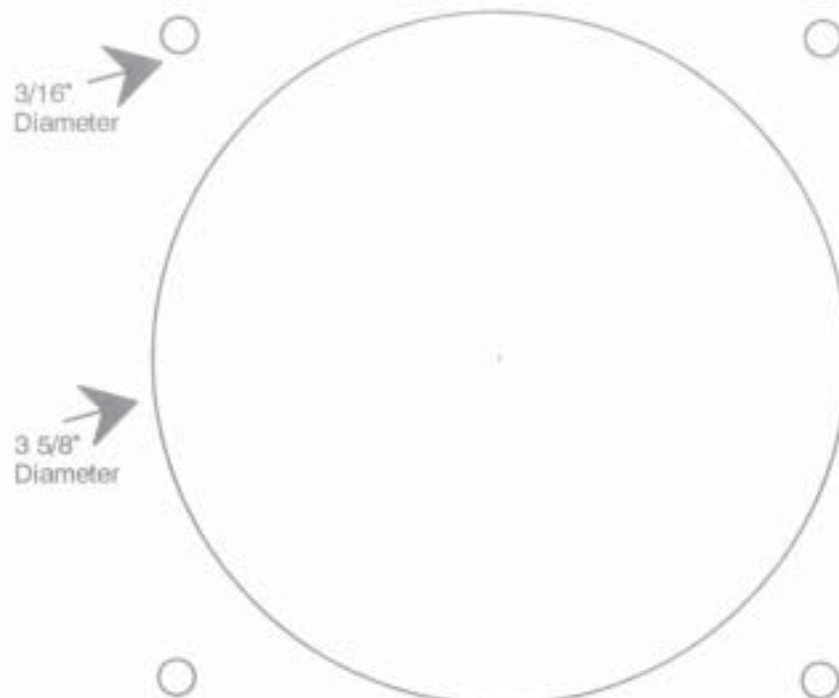
**SPEAKER INSTALLATION:** A drawing is supplied with these instructions so that you can cut out a hole for the speaker and its four mounting holes in your layout. For best sound reproduction and volume, you will need a baffle to enclose the speaker. We suggest to use the unit carton in which your SOUND & POWER 7000 was packed. Use the line drawing to cut out a hole for the speaker and its four mounting holes, preferably in one of the carton's side panels. Install the speaker into the inside of carton with the face of the speaker outwards. Fasten the speaker to the box and your layout with the four screws, nuts, and eight washers supplied. The wires should exit the carton and the edges of the carton sealed with cellophane tape (Scotch™) to prevent air from escaping. An alternative to using the cardboard carton is to use a wooden box of your own design. In any case, use your best judgment in selecting a method of installing and "hiding" the speaker in your layout. When mounting the speaker in your layout, you should choose a location where the sound will not be muffled. The speaker should be firmly mounted for best sound reproduction. Be careful not to allow any debris or material from your layout to touch the speaker cone as this will distort the sound.

The output impedance of the internal speaker amplifier is eight (8) ohms. The furnished speaker is also eight (8) ohms, a perfect match. If you choose to add another speaker, try to keep the speaker impedance as close as possible to eight (8) ohms.

You can add a second eight (8) ohm speaker to the unit but volume levels must be kept below the distortion level. You can hear the distortion first when the horn is sounded against the diesel engine sound.

**NOTE:** When connecting to any terminal, care must be taken that wires do not touch more than one terminal at one time. Loose wires are a danger to your layout; be certain wires are properly wrapped around terminals before tightening screws. 3

## SPEAKER CUT-OUT



**PARENTS, PLEASE NOTE:** As with any electrically operated unit, it is always best to periodically examine it and have repaired or replaced any potentially hazardous part.

## FOR YOUR PROTECTION

1. Never reverse a locomotive without stopping it first. To do so may damage the locomotive engine.
2. Never connect a D.C. locomotive to A.C. terminals of your Sound & Power 7000. This may damage your locomotive motor.
3. Turn the power switch OFF at end of day's operation.
4. When a short circuit or current overload occurs and circuit protector trips, turn the Sound & Power 7000 off and correct the short or overload. Allow 2-5 minutes for the thermal circuit protector to reset before turning your unit back on.
5. Avoid prolonged overloads and short circuits. While your Sound & Power 7000 is equipped with several safety devices to prevent accidental damage due to short circuits and overloads, it is unwise to subject it to these frequently.
6. Do not store in damp area.
7. For best performance, keep wheel and track surfaces clean. Intermittent and jerky operation is often caused by an oxide coating which has formed on the track or wheels.
8. Before returning your unit for repair or servicing, make certain it is defective. Do not shut down your layout unnecessarily.
9. If it is necessary to return your unit, remove the speaker from the carton, repack the unit in its original carton, even if the hole for the speaker has been cut out, and then in an outer carton, placing at least three inches of packing material on each side, mail the unit to:

MODEL RECTIFIER CORPORATION  
200 CARTER DRIVE  
EDISON, NEW JERSEY 08817

Be certain to send the unit Parcel Post insured or United Parcel Service, and include a letter with your name and address printed clearly, describing the problem you are experiencing.

All of us at MRC would like to join in wishing you many happy years of model railroading with your Sound & Power 7000.

## MODEL RECTIFIER CORPORATION

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