

8 - When you have completed the wiring of the Constant Lighting Lamp or LED, we suggest that you visually check your connections and then position the Lamps or LEDs carefully. Do not short out the two leads on the Lamp or LED.

9 - With the Constant Lighting Accessory in position we suggest the you electrically test the Lamp or LED that you have just installed. Connect the Model 9000 to your test track and place the throttle at the zero position and be sure that the power switch is in the off position. Turn the unit on and off quickly. The Constant Lighting Lamp or LED should light. The reason for quickly turning the unit on and off is to prevent damage to the Accessory if the leads are touching each other.

If the Accessory did not light, try it again. Turn the unit on and off quickly. If the light did not come on, the circuit is either shorted (wires touching) or open (one or more connections not made.)

10 - Carefully inspect your connections, make any corrections that are necessary, and repeat step 9.

11 - Once you have tested your electrical connections and the Lighting Accessory is working properly, you can now replace the locomotive or car body parts. We suggest that you retest the Constant Lighting Accessory when the body has been completely reassembled.

If the Constant Lighting Accessory functions with the locomotive or car reassembled, you have completed the installation of your Constant Lighting Accessory.

ORDERING ADDITIONAL LAMP AND LED ACCESSORIES

Constant Lighting Lamps are specially designed and use low voltage. DO NOT REPLACE THEM WITH STANDARD LAMPS.

Extra Constant Lighting Lamps and LED Accessories can be ordered through your hobby dealer or purchased directly from MRC. These items are packaged two to a kit and are sold at a cost of \$4.98 per kit. See below for ordering information.

ORDERING INFORMATION FOR CONSTANT LIGHTING ACCESSORIES

For Lamps ORDER NUMBER:	AT905	2 PIECES FOR \$4.98
For LEDs ORDER NUMBER:	AT910 FOR RED	2 PIECES FOR \$4.98
	AT915 FOR GREEN	2 PIECES FOR \$4.98

Add \$2.00 to the prices shown for postage and handling. Send check or money order (no cash) to:

MODEL RECTIFIER CORPORATION
PO BOX 267
EDISON, NEW JERSEY 08818

Allow 2 to 5 weeks for delivery.

Thank you for purchasing the **SOUND & POWER & LIGHT 9000** and best of luck in your model railroading hobby!

SOUND & POWER & LIGHT 9000 OPERATING INSTRUCTIONS

Congratulations! You have just purchased one of the most exciting and new concepts in Model Railroading Train Controls on the market. **THE SOUND & POWER & LIGHT 9000** is the first Train Control of its kind. You have **SOUND** and **POWER** and **LIGHTING** (*Constant Lighting*) in one power supply.

The Model 9000 is designed to fulfill the power needs of G, HO and N Scale railroads. The Constant Lighting feature will work on any DC scale Locomotives and Cars where space for the installation of the Constant Lighting Accessory is available.

In addition to MRC's well known power pack technology, we now include **SOUND** and **CONSTANT LIGHTING**. 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 and 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.

The constant lighting is a specially designed circuit that creates the **CONSTANT** illumination of MRC'S special incandescent lamps.

This **SOUND & POWER & LIGHT Model 9000** incorporates all the features that are found in our Sound & Power 7000 which includes the 4" speaker with 12' of cable. In addition, this Model 9000 has MRC's **CONSTANT LIGHTING** feature with two constant lighting accessory lamps. The instruction manuals that are included with this Model 9000 are:

THE INSTRUCTION MANUAL for the MODEL 7000 (which is similar to the Model 9000 controls and describes all the of the Model 9000 Controls and Sound functions and:

THIS INSTRUCTION MANUAL which covers the constant lighting installation and all the necessary information concerning the **CONSTANT LIGHTING FEATURE** in the Model 9000.

All of us at MRC want to express our thanks for purchasing an MRC Product. If this is your first purchase of an MRC product, we wish to welcome you to the ever growing ranks of those who purchase and use the best in Model Railroading Power Supplies: MRC

SPECIAL INFORMATION: This circuit should not have any adverse effects on existing sound systems that your layout or locomotive may have or any other operating features your locomotive or layout may contain. It is the responsibility of the layout operator to test for compatibility before permanently installing this equipment.

INSTRUCTIONS FOR THE SOUND & POWER & LIGHT 9000

Your Model 9000 is equipped with a special constant lighting circuit. This circuit allows your model railroad locomotives and cars to have a constant light even when the throttle is turned to zero. A locomotive or car equipped with MRC's Constant Lighting Lamp or LED will now be illuminated all the time that your layout is in operation, adding to the realism and enjoyment of your model railroad.

The Model 9000 is supplied with 2 Lamp Accessories. Additional Lamp and LED accessories are available from your hobby dealer or from MRC directly. See page 4 of this manual for further information.

MODEL RECTIFIER CORPORATION
200 CARTER DRIVE, EDISON, NEW JERSEY 08817
908 248-0730

INSTRUCTIONS FOR THE INSTALLATION OF THE CONSTANT LIGHTING ACCESSORIES

The changeover from standard lamps to the MRC Constant Lighting Lamp or LED will be easy for most locomotives. In many models, only the body or a few parts need to be removed to gain access to the original lamps; other models may require more work. In any case, read these instructions thoroughly before installing any Constant Lighting accessories in your locomotive or car.

WHAT SCALE MODEL TRAINS CAN BE USED WITH THIS MODEL? Any DC-powered scale model that has room for the Constant Lighting Accessories can be used. The Lamp Accessory will fit easily into G and HO scale models. For N scale, some care in positioning is necessary to make the lamp fit properly.

THE BASIC TOOLS & EQUIPMENT REQUIRED: You should have on hand a 25 watt soldering iron, electrical solder, pliers, cutters, electrical tape, scissors, a container for small parts, a pad and pencil for making notes and a device to hold the model while it is being worked on.

THE MAXIMUM AMOUNT OF LAMPS THAT CAN BE LIGHTED: Your **SOUND & POWER & LIGHT 9000** will be able to power 4 lamps with sufficient brightness simultaneously. Extra lamps may cause the lamps to be dim.

A WORD ABOUT GOOD ELECTRICAL CONTACTS: Your Constant Lighting Accessories are powered by the electrical pickups on the locomotive or car. The correct operation of the Constant Lighting circuit is dependent on the following conditions:

- 1) - THE METHOD USED TO MAKE THIS ELECTRICAL PICKUP
- 2) - THE WHEEL CONTACT TO THE TRACK AND
- 3) - THE ELECTRICAL CONDUCTIVITY CONDITION OF THE TRACK.

Any intermittent electrical contact due to dirty track or poor electrical contact on the wheels or track may cause the Constant Lighting Lamps to blink and be dimmer than normal while the train travels on the layout; or may cause dimness while the train is motionless. This blinking and dimness of the lamps is due to poor electrical contact. *You must have good electrical pickups for the Constant Lighting Accessories to work properly.*

TESTING YOUR CONSTANT LIGHT ACCESSORIES

Your Constant Lighting Accessories have been factory tested. However, we suggest that you test your Accessories first before installing them. Place the two leads of the Accessory on the two track DC terminals of the Model 9000 unit while it is turned on. Be careful not to short the leads. The lamp should light.

A WORD ABOUT YOUR WORK AREA AND PLANNING AHEAD: It is recommended that you plan your installation of the Constant Lighting Accessories before you actually perform the installation. You should physically trial fit the parts to prevent any problems. Select a clean work surface and maintain it.

PRESOLDERING LEAD WIRE ENDS: It is recommended that you presolder all lead wires before making your final connections. This makes the wires easier to solder together. Avoid heating the wires excessively because this will melt the insulation from around the wire, exposing more wire.

COMPONENTS THAT MAKE UP THE CONSTANT LIGHTING ACCESSORY: The components that make up the Constant Lighting Accessories are soldered together. Do not apply excessive heat as they may disconnect or become damaged. If the parts become unsoldered, carefully resolder them. It may be necessary to relocate the capacitor in the Constant Lighting Accessory in order to install the lamp or LED in a particular model. It is suggested to unsolder the capacitor from the circuit and move the capacitor to a spot in the loco or car body that will permit the Accessory to be mounted easily. The capacitor can be remounted in the circuit without regard to polarity. If you have to move other parts in the circuit, you can do so as long as they are reconnected to the original mounting points in the circuit. It is suggested that you make a drawing of the circuit before you unsolder any part.

THE USE OF TUBING AND TAPE FOR INSULATION: Keep your soldered connections as small as possible. With a smaller area of exposed wire there is less chance for a short circuit. Use electrical tape to cover all soldered connections and the provided insulating tubing to cover exposed wires.

IMPORTANT INFORMATION ABOUT YOUR SOUND & POWER & LIGHT 9000

RUNNING A LOCO OR CAR WITH CONSTANT LIGHT FEATURE ON A STANDARD PACK: The locomotive or car equipped with the Constant Lighting Accessory can be operated with any power supply; however, only the Model 9000 will give you the Constant Lighting feature. Other type of power supplies will operate the locomotive or car but the Accessory will not light.

RUNNING OF LOCOS OR CARS WITHOUT CONSTANT LIGHTING USING THIS SOUND & POWER & LIGHT 9000: A locomotive or car with standard lighting will operate normally using the Model 9000 unit. In some instances the regular lights may glow slightly when the throttle is turned off. This is normal and will not affect the life of the lamps.

A LOCOMOTIVE WITH DIRECTIONAL LIGHTING: Some locomotives have directional lights; for example, a headlight on a loco will light up only in the direction it is traveling. The Constant Lighting Accessory will not function in these locos unless you remove or bypass the directional lighting circuit.

INSTALLATION OF YOUR CONSTANT LIGHTING ACCESSORY

1 - The Constant Lighting Lamps or LEDs will require connection to the electrical contact points in your locomotive or car. Remove the body of the loco or car as necessary to gain access to the electrical connections. Be careful; some of these body parts may be glued and the manufacturer did not intend for these parts to come apart easily.

2 - Before attempting to disassemble parts from the locomotive or car, you may wish to check with your hobby dealer or the manufacturer of the model for guidance in removing the parts that give you access to the electrical connection to the lamp to be changed. An instruction sheet that came with the model may also help you to disassemble the model easily.

3 - Once you have removed the locomotive or car body parts and have access to the original lamp and input wires you can start to install your Constant Lighting Accessory.

4 - Note the position of the lamp that you are removing. Next, disconnect the lead wires. Remove the plastic insulation on these wires approximately 1/8 of an inch. Presolder both of the lead wire ends. With the original lamp removed you can now position your Constant Lighting Lamp or LED for a proper fit. If your locomotive or car uses a lamp that has a screw-in or plug-in socket, these will have to be removed.

5 - When connecting the Constant Lighting Lamp Accessory, please make certain that you use a piece of the provided insulation tubing to avoid the lamp leads from touching each other when the Lamp Accessory is placed in its final position.

6 - Connect one lead on your Constant Lighting Accessory to one of the input wires. Make certain it is soldered properly so that the connection is strong and will not break free when you place the Accessory into its final position.

7 - Move the Lamp or LED to fit into the lighting position. Now connect the other lead wire on the Accessory to the other input lead wire. It is always best to stagger the soldered connections. Do not have the connections positioned side by side.