Replacing the Lamp in your Operating Coal Ramp

Your coal ramp is illuminated by one 18-volt lamp (Lionel part #00-1447-300). During the course of normal operation, this bulb may require replacement. To replace the lamp, unscrew the red lens, unscrew the expired lamp and then install a fresh one. Replace the red lens and your replacement is complete.

Limited Warranty/Lionel Service

This Lionel product, including all mechanical and electrical components, moving parts, motors and structural components, except for light bulbs, is warranted to the original consumer-purchaser, for one year against original defects in materials or workmanship when purchased through an authorized Lionel dealer.

This warranty does NOT cover normal wear and tear, light bulbs, defects appearing in the course of commercial use, or damage resulting from abuse or misuse of the product by the purchaser. Transfer of this product by the original consumer purchaser to another person voids this warranty. Modification of this product voids this warranty.

Any warranted product which is defective in original materials or workmanship and is delivered by the original consumer-purchaser to Lionel L.L.C. or an authorized Lionel L.L.C. Service Station, together with proof of original purchase will, at the option of Lionel L.L.C., be repaired or replaced, without charge for parts or labor. In the event the defective product cannot be repaired, and a replacement is not available, a refund of the original purchase price will be granted. Any products on which warranty service is sought must be sent freight or postage prepaid, as transportation and shipping charges are not covered by the warranty.

In no event shall Lionel L.L.C. be liable for incidental or consequential damages.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

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

Instructions for Obtaining Service

If service for this Lionel L.L.C. product is required, bring the item, along with your dated sales receipt and completed warranty information to the nearest Authorized Lionel Service Station. Your nearest Lionel Service Station can be found by calling 1-800-4-Lionel, or by accessing our Website at www.lionel.com.

If you prefer to send your product back to Lionel L.L.C. for factory repair, you must first call 810-949-4100 or FAX 810-949-5429, or write to Customer Service, P.O. Box 748, New Baltimore, MI 48047-0748, stating what the item is, when it was purchased and what seems to be the problem. You will be sent a return authorization letter and label to ensure your merchandise will be properly handled upon receipt.

Once you have received your return authorization and label, make sure that the item is packed to prevent damage during shipping and handling. We suggest that you use the product's original packaging. This shipment must be prepaid and we recommend that it be insured.

Please make sure you have followed all of the above instructions carefully before returning any merchandise for service.

Warranty Information

Please complete the information below and keep it, along with your dated sales receipt. You must present this and your dated sales receipt when requesting warranty service.

| Name | ________________________________ |
| Address | ________________________________ |
| Place of Purchase | ________________________________ |
| Date of Purchase | ________________________________ |
| Product Number | ________________________________ |
| Product Description | ________________________________ |
Congratulations on your purchase of the Lionel #456R Operating Coal Ramp. The operating coal ramp is constructed of die-cast, stamped metal, extruded aluminum, and injection molded plastic and features two electro-magnets and one ElectroCoupler for years of reliable operation. The operating coal ramp can be placed on any Lionel O or O-27 gauge three-rail layout and is designed to operate at 12-18 volts alternating current.

Installation of your Operating Coal Ramp

Your operating coal ramp will require a special spur line since the loading and unloading are done at a different elevation of the track. The first installation, which should be done, is wiring the controller, since it is located on the bottom of the tower. Please see the section labeled Wiring your Controller for your Operating Coal Ramp for wiring instructions.

Now that your controller is wired, you will need to attach a straight section of track to the end of your coal ramp. We recommend that you do not use a curved section of track, because the speed of the operating hopper car coming off of the ramp will cause it to derail due to the sudden curve. To begin, loosen the two screws at the end of the ramp attached to the plastic plate. Please see the diagram at the right. This will give the plate flexibility to attach your track before it is locked into position. Now take the end of your straight track and plug it into the end of the coal ramp. You can now tighten the screws on the plate to secure the track into position. Your track section connected to the coal ramp will have a slight incline. This will help for a smooth transition when backing your hopper car on the ramp. You will need to secure the last tie on your straight track section otherwise the train running up the ramp will tend to push the track section from the end of your coal ramp.

You will notice that you have a bin, two nickel-plated posts, and a bag of coal remaining. The bin is simply placed under the ramp to capture the coal when it falls from the hopper car. Please note that the stamped metal door on the tray should be closed when in this configuration. The two nickel-plated posts are used when connecting your coal ramp to a Lionel #397 Operating Coal Loader (sold separately). Please see the section labeled Operating your Operating Coal Ramp with your Operating Coal Loader for instructions for this configuration. Your coal ramp can be used with any of the operating hopper cars made by Lionel, but only Lionel artificial coal (one bag included) should be used in the ramp. Any other material such as gravel, sand, etc. is not recommended.

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Operation of your Operating Coal Ramp

Now that your coal ramp is installed and wired, you are ready to begin unloading coal from your operating hopper car (sold separately). Begin by backing up your train with the operating hopper car last slowly up the ramp. We recommend that you use at least three cars between the engine and the operating hopper car, since power through the center rail ends at the last track section. If the train tends to stall as it starts going up the ramp, raise the track voltage just enough to keep it moving slowly until the hopper car reaches the top of the ramp and couples with the bumper. Coupling is easiest when the Electrocoupler is open and the coupler on the car is closed. Once the operating hopper car has connected with the ElectroCoupler in the tower, the red light on the top of the tower will turn on. This is your indicator that you can begin to detach the operating hopper car from your train.

To detach your operating hopper car from your train, press the UNCOUPLE button on your controller and at the same time operating the direction control on your transformer. This will energize the first electromagnet to open the coupler on your operating hopper car. Once this coupler is open, reverse the locomotive and your train is free to continue on. We recommend that you remove it from the spur line completely, since the hopper car will travel through the spur line.

You now have the operating hopper car sitting on the top of the ramp with the tower light on. Your next step is to empty your coal from your hopper. This is simply done by pressing the UNLOAD button on your controller. Please make sure that the bin (included) is located under the hopper car with its stamped metal door closed. You may need to press this button several times to empty out all of the coal in your hopper. Please note that each time you energize the electromagnet without some time between each trigger the strength of the magnetic field decreases a little. If your electromagnet does not trigger the plunger on the hopper car after triggering it several times, give the electromagnet a little time to cool.

Once you have emptied all of the coal from your hopper car, you can now release it through the spur line. To do this, simply press the RELEASE button to trigger the ElectroCoupler to open. Your hopper car will freely roll down the ramp and through your spur line. You now have all of your coal collected in the bin below the ramp. For complete loading and unloading with the use of your coal ramp, please see the section labeled Operating your Operating Coal Ramp with your Operating Coal Loader for complete installation and operation configurations.

Note: As in real-life railroading, this operation requires skillful handling of the train, so don’t expect to do it perfectly without a little practice.

Wiring your Operating Coal Ramp

Your operating coal ramp will operate best from 12-18 VAC. It can be powered with track power or a separate accessory power supply. It is possible to operate your operating coal ramp any number of ways. Your coal ramp will operate with an SC-2. Your SC-1 cannot handle the amperage requirement. When hooking up your coal ramp to an SC-2, the controller (included) is not required. Please see the section labeled Operating your Operating Coal Ramp in Command Control for complete wiring instructions.

To connect your included controller to your coal ramp, simply follow the following color-coded system.

<table>
<thead>
<tr>
<th>Connector</th>
<th>Spring Clip A</th>
<th>Spring Clip B</th>
<th>Spring Clip C</th>
<th>Spring Clip D</th>
<th>Spring Clip E</th>
<th>Transformer Post</th>
<th>Transformer Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Color</td>
<td>White</td>
<td>Red</td>
<td>Blue</td>
<td>Yellow</td>
<td>Green</td>
<td>Black</td>
<td>Black/White</td>
</tr>
</tbody>
</table>

All of these wires come from the controller. The wires have been pre-stripped, so you will need to simply connect the wire to the spring clips. To connect the wires to the spring clips, press down on the springy upper half of the metal loop until the lower part projects through the slot. Insert the bare wire end into the loop and release the upper part of the clip. Spring tension will hold the wire tight.

You will also notice that we gave you a long length of wire. If you would like to reduce the length, start by removing the shrink-wrap from around the wires. Once this is removed, then you can cut and strip the wires to your desired length. Your coal ramp is now wired for operation in a conventional environment. To operate your operating coal ramp in a Command Control environment, please see the section labeled Operating your Operating Coal Ramp in Command Control.
Operating your Operating Coal Ramp with your Operating Coal Loader

If desired, your coal ramp can be used in conjunction with the Lionel #397 Operating Coal Loader as shown in the image below. Please note that in this installation, the bin of the coal ramp is mounted onto two nickel-plated posts inserted into the rubber grommets located on the base of the coal loader. This is done so that the coal from a hopper car on top of the coal ramp can be dumped directly into the bin of the coal loader. The posts can be found in your packaging of the coal ramp.

To begin the installation of your two accessories, simply plug one nickel-plated post into one of the two grommets. Place the second post into the other grommet. Place the bin from the coal ramp onto the top of the posts. Please note that the orientation of the bin should be so that sliding metal door on the coal ramp's bin is facing the bin of the coal loader. Now slide this assembly right up to the edge of the coal ramp so that the coal ramp's bin is located under the location of the hopper car on the coal ramp. Now slide the stamped metal tray up so the coal is free to flow out this door.

You will notice that the space required between the two lines of track for the coal loader under this configuration is approximately 7 3/4". Shown below are two typical layouts suitable for the joint installation of your two accessories. One is shown for an O gauge configuration, and the other is for an O-27 configuration. You are now ready for continuous loading and unloading action of these two great Lionel accessories. For more information on operating your operating coal loader, please see your #397 Operating Coal Loader Owner's Manual.

Operating your Operating Coal Ramp in Command Control

Your coal ramp can be used in a Command Control environment with the use of an SC-2. For wiring your coal ramp to an SC-2, please follow the instruction below.

In order to run your coal ramp in a Command Control environment with the use of an SC-2, start by connecting the controller to the bottom of the base as noted in the wiring section. Next, connect the black lead from the controller to the Accessory 1 position (or the next available position on the SC-2). Please see the diagram at the right. Connect the black and white lead from the controller to the "A" terminal of your accessory power supply. Finally, run the last wire from the "U" terminal of your accessory power supply to the common (ground) post on your SC-2. You can now use the AUX 2 button on your CAB-1 remote to turn the coal ramp on or off.

For the more advanced user of the SC-2, please note that the controller can be replaced with the SC-2. The spring clip labeled A is for the Electrocoupler. The spring clip labeled B is the first electromagnet. The spring clip labeled C is for middle electromagnet. The spring clip labeled D is for common (ground). The spring clip labeled E is for the light. For more information regarding the use of the SC-2, please refer to your SC-2 Switch and Accessory Guide (672-2980-250).