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Congratulations on your purchase of the Lionel non-derailing, remote control O gauge switch. Railroad track switches, also known to railroaders as turnouts, are used to connect two lines of track so that the train can switch over from the main line to a siding, a spur line or to a different line entirely.

Your Lionel O gauge switch is remote controlled. The controller indicates the direction the switch has been thrown using colored lights. Your switch is also non-derailing. Trains approaching an “open” switch (one thrown in the opposite direction) will not derail while passing through. Special wiring ensures the switch will automatically throw itself to the correct position. Whether you are replacing an older switch or creating new pathways for your trains, the Lionel O22 switch is ready for service on your railroad.

No. 6-14062: Left-Hand

No. 6-14063: Right-Hand
Track switches can be used in a variety of ways, some of which are shown below. A pair of switches is generally required in the layout so that the train has a way of getting back on the main line without backing out. The pairs of switches can be installed in a layout together or separately. The layouts below, of course, merely illustrate how switches may be used. Innumerable other layouts can be developed through the use of crossings, additional track and switches.

To install switches in the layout, carefully line up the switch pins to the adjoining track sections and press firmly into the switch. You may find in some layouts that the switch pins interfere with those in the regular track. In this case, remove the pins from the regular track if possible. Do not disturb any of the pins in the switch. Track pins are removed with a pair of pliers. Grasp the pin firmly with the pliers as close to the rail as possible and pry it out gradually by using the rail flange as a lever point.
Connecting your Controller and Operating your O22 Switch

You operate your Lionel O gauge remote-control switch using the Lionel switch controller. The controller’s red and green lamps indicate the direction the switch has been thrown. If the green lamp is illuminated, the switch is straight or “through”; red indicates the switch has been thrown to the curved or “out” direction.

The three-wire cable leading from the controller connects to the screw terminals on the switch’s side. The terminals are marked 1, 2 and 3. Connect the “outer” wires from the controller to the terminals labeled 1 and 3. This is done by unscrewing the nut from the screw post, placing the wire through the hole in the post and tightening the nut back onto the post to secure the wire in place. Connect the center wire from the controller to the middle terminal labeled 2. By powering up your track, track power will electrify the switch. For optimum performance, apply at least 9 volts and no more than 14 volts to your track. For best performance or if you regularly operate trains at low or high voltages, power your switch using the auxiliary voltage terminal. Please see the section labeled Auxiliary/Fixed Voltage Installation for additional information on using the auxiliary voltage terminal.

To change the direction of your Lionel O22 switch using the controller, momentarily push the controller’s metal lever in one direction or the other. Once the switch throws in the selected direction, release the lever. The lever will spring-return to the middle position. To manually change the direction of your switch, you can grasp the lantern on the switch and simply rotate it 90 degrees. Your switch has been designed to be thrown in this manner.
How to Reverse Position of the Motor Unit

If you are constructing a layout in which you find the motor unit of the switch projecting too far from the side of the switch and have room for the motor unit on the other side, you can change the position of the motor unit as follows. Start by removing the two mounting screws indicated by the letter “A” on the diagram below. You can now detach the motor unit from the switch. Insert the motor unit in position on the opposite side of the switch as indicated by the dotted lines. Be sure that the driving pin is inserted in the slot in the swivel rail and replace the mounting screws. If you would like to adjust the lamps on the controller to conform to the position of the switch, it will be necessary to interchange the wires on terminals 1 and 3 when reversing the position of the motor.

Non-Derailing Feature of your O22 Switches

Your switch has two plastic insulating pins installed on the “inside” rails. The pins insulate the switch rails as part of the non-derailing feature. Never replace the insulating pins with metal pins. This will override the non-derailing feature and could harm the switch. The control rails are connected internally to the switch coils. As a locomotive approaches an “open” switch, its wheels and axles bridge one of the control rails to the opposite outside rail. This action completes the electrical circuit of the proper switch coil and throws the switch rails of the switch to the correct position for the train to pass through. For good operation, keep the control rails clean and free of rust or grease.
Connecting your O22 Switch to Accessories

If desired, various track signals and accessories such as the No. 153 Block Signal, No. 151 Semaphore, Gateman, No. 445 Switch Tower and others can be connected to the outside binding posts of the switch boxes so that these accessories are controlled by the control rails of the switches. The diagrams below show the wiring installation for a few of these accessories.
Connecting your O22 Switch to Accessories (Continued)

The control rails and mechanism of the O22 switches can be used for several other interesting applications. If the outside posts of the switches are interconnected as shown in the diagram below, the switches will control each other. A train leaving track section “A” operates the non-derailing device in the “exit” switch, throwing it to the position which allows the train to proceed onto the single track. Simultaneously, the “entry” switch is thrown to the position to allow the train to enter track section “B”. As the train leaves section “B”, it will again throw both switches, but this time to the opposite direction. This will allow the train to go back into section “A” on the next circuit of track.
When the switch is installed in your layout, its power connections are made automatically, so it gets the regular track voltage. In some layouts, this arrangement is quite satisfactory. However, in other layouts it is frequently desirable to supply the switch mechanism with fixed voltage directly from the transformer. With a fixed voltage supply, the switch is independent of the variable track voltage and operates with a snap even though the track voltage is reduced to slow down the train or is turned off entirely. To make fixed voltage connections, the O22 switch is provided with a fixed voltage plug which fits into a socket located on the side of the switch box. Connect a wire from the fixed voltage plug to the proper transformer binding post. The proper binding post is defined as the transformer post which supplies power. If you hook up the fixed voltage plug and turn on your transformer and the light on the switch does not come on, you have connected the fixed voltage plug to the wrong post. Simply switch the wire to the other binding post on your transformer, and it will work. Then firmly push the plug into the socket until the edge of the plug is flush with the switch cover. The plug should fit over the slotted pin, which can be seen inside the switch.

The fixed voltage feature is optional, but when it is not used, the plug should be removed from the socket. The insertion of the plug in the socket automatically disconnects the switch mechanism from its track power supply.

Because of the high track voltages used with TrainMaster Command Control, your O22 switch must be operated using the fixed voltage feature described above. Connect your O22 switch to a power supply that provides a steady 9 to 14 volts of power. Operating your switch from track power in the Command Control environment may cause permanent damage to your switch. You can wire your switch to the SC-1 or SC-2. Please refer to your SC-1 or SC-2 Instruction Manual for wiring diagrams.
There are three bulbs located in your O22 switch, which during the course of normal operation may require replacement. Two of these bulbs are located in the controller, and one is located inside of the lantern on the switch box. All three of these bulbs are the same (Lionel part #600-1445-300). To replace the bulb under the lantern, simply remove the lantern, grasp the bulb, push down lightly and twist it counterclockwise. The bulb is spring-loaded, so it will come right out. Install a new bulb and replace the lantern.

In order to replace the bulbs in the controller, simply unscrew the lens, then twist the bulb out, and install a new one. These bulbs can be found at your Authorized Lionel Service Station or by contacting the Lionel Customer Service Department.
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 merchant.

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 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 __________________

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