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***Lionel
TMCC PowerMaster
Owner's Manual***

Congratulations!

Congratulations on your purchase of the Lionel TMCC PowerMaster! Designed for use with a PowerHouse Power Supply, the TMCC PowerMaster allows you to vary track voltage, change directions, and operate the whistle and bell sounds on your non-Command locomotives using your CAB-1 Remote Controller. The PowerMaster provides the added safety and convenience of a circuit breaker and a remote power switch. Use one PowerMaster to control each block of track.

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The name FasTrack® is used with permission from Pitsco, Inc.

Installing the PowerMaster and PowerHouse Power Supply

Your TMCC PowerMaster receives power from a PowerHouse Power Supply (available separately, 6-12866 or 6-22983). Follow these steps and refer to Figure 1 as you connect the power supply.

1. Attach a wire to each of the rails using a Lionel Lockon for traditional O-27 and O gauge users or a FasTrack power terminal section for FasTrack users.
2. Attach the wire connected to the middle rail to the A terminal on the PowerMaster.
3. Attach the wire connected to the outside rail to the U terminal on the PowerMaster.
4. Insert the Power House Power Supply's connector plug into the PowerMaster's connector jack.
5. On the PowerMaster, set the power selection switch to 135 or 180 watts, depending on the type of PowerHouse Power Supply you are using.
6. Plug the PowerHouse Power Supply into a wall outlet (120 volts, 60 Hertz).
7. On the side of the PowerMaster, set the RUN/PROGRAM switch to RUN.
8. Set the COMMAND/CONVENTIONAL switch to CONVENTIONAL to operate traditional (non-Command) locomotives. Set the switch to COMMAND to operate Command-equipped locomotives.

Note! Track voltage is set to full when the switch is in the COMMAND position.

9. Turn on the PowerHouse Power Supply. At this point, the green light on the PowerMaster illuminates to indicate that the PowerMaster is receiving power.

Note! Always switch off the PowerHouse Power Supply when you are not operating your railroad.

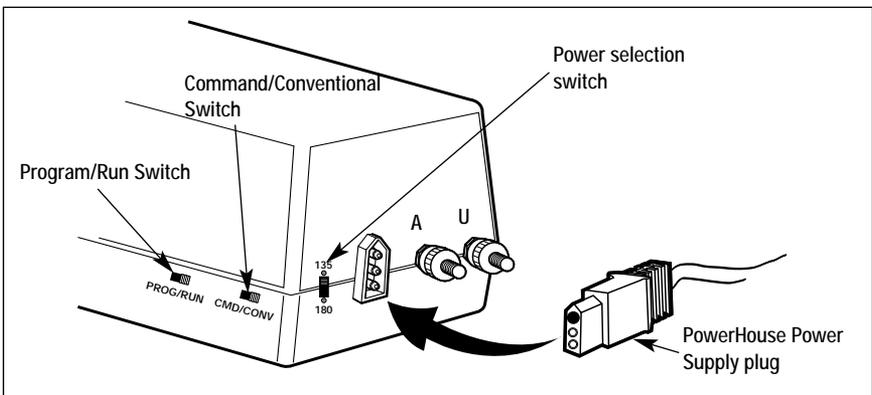


Figure 1. PowerMaster installation

Installing your PowerMaster with a Lionel transformer

You may choose to power your TMCC PowerMaster with any traditional transformer capable of producing up to 19 volts with a circuit breaker of 7-10 Amps. To make the proper connections, you need a Power Adapter Cable (available separately, 6-12983). Refer to Figure 2.

1. Connect the Power Adapter Wire fitted with a fuse to the Power/A terminal on your transformer.
2. Connect the other Power Adapter Wire to the Common/Ground/U terminal on your transformer.
3. Insert the Power Adapter Wire's connector plug into the PowerMaster's connector jack.
4. Plug the transformer into a wall outlet (120 volts, 60 Hertz).
5. On the side of the PowerMaster, set the switches to RUN and CONVENTIONAL or COMMAND, depending on whether you will operate Command or conventional locomotives.

Note! It is possible to run Command-equipped locomotives when the switch is in the CONVENTIONAL position. This is useful for limiting the top speed. Set the voltage high enough to run your locomotives, then use your CAB-1 Remote Controller to address locomotive to vary its speed.

6. Set the power selector switch to 135 watts if you are using a transformer with an output of up to 7.5 Amps or to 180 watts for transformers with outputs of up to 10 Amps. Refer to the specifications printed on the unit or in the instructions.
7. Turn on the transformer and set the throttle to full power. At this point, the green light on the PowerMaster illuminates to indicate that the PowerMaster is receiving power.

Note! Always turn off or unplug your transformer when you are not operating your railroad.

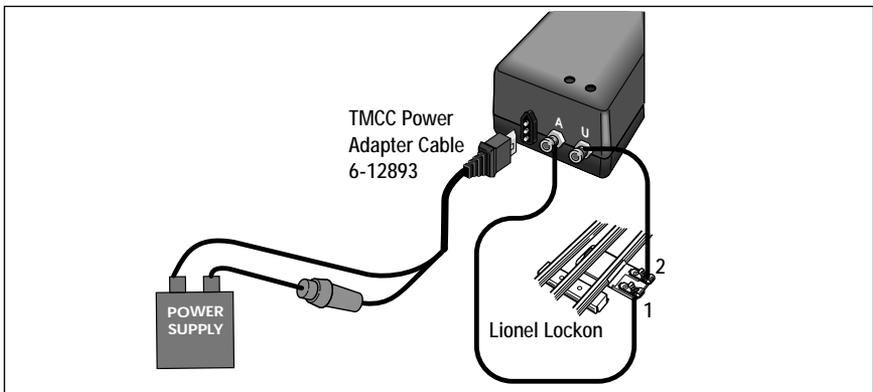


Figure 2. Transformer connections

Assigning an ID number to your PowerMaster

Your PowerMaster is factory-programmed as track (TR) 1. If you are using a number of PowerMasters to control different blocks of track, keep in mind that each PowerMaster must have its own ID number. No other product—including Track Power Controllers, multiple locomotive lash-ups that are addressed as “trains,” or other PowerMasters—can share that ID number. Assign a unique ID number (any number between 1 and 9) to each PowerMaster.

Note! Follow this procedure one unit at a time. Only one PROGRAM/RUN switch should be in the PROGRAM position at a time.

1. Slide the RUN/PROGRAM switch on the side of the PowerMaster to the PROGRAM position.
2. Press **TR** on your CAB-1 Remote Controller.
3. Use the CAB-1 Remote Controller’s numeric keypad to enter the unique ID number (from 1 to 9).
4. Press **SET** under the front panel of the CAB-1 Remote Controller. At this point, the red light on the PowerMaster will flicker to verify your setting.
5. Return the RUN/PROGRAM switch to the RUN position. The PowerMaster will operate with the new ID number until you change it, even if the unit is turned off.

Operating the PowerMaster with conventional (non-Command) locomotives

Use your CAB-1 Remote Controller to operate the PowerMaster. Press **TR** and enter the ID number to select the PowerMaster for operation.



Addresses the PowerMaster.



Varies track voltage to operate your trains. Turn the throttle clockwise to increase track voltage, counter-clockwise to decrease it.



Activates the whistle or horn sound effect in locomotives equipped with that feature. Press the button to begin the sound; release the button to end it.



Starts or stops the bell in any RailSounds sound system-equipped locomotive. Press the button once to begin the sound, again to stop it.



Sequences your locomotive's reverse unit to the next operational state.



Provides increased voltage for as long as you press and hold the button. Release it, and the power returns to the previous level.

Note!

Be sure to use the red throttle knob to set sufficient track voltage.



Reduces voltage for as long as you press and hold the button. Release it, and the power returns to the previous level.



Immediately stops all PowerMaster operations. To resume operations, press **TR**, enter the ID number, and turn up the throttle.

Note!

Use HALT only in emergency situations.



Turns off power to the selected track. Turn the throttle to restore power.



Sets the PowerMaster to low momentum. Simulates a lighter consist. In this setting, the locomotive will increase speed faster.



Sets the PowerMaster to medium momentum. Simulates a moderately heavy consist. In this setting, the locomotive will increase speed at a moderate rate.



Sets the PowerMaster to high momentum. Simulates a heavier consist. In this setting, the speed of the locomotive will slowly increase.



Use SET to program the PowerMaster's ID# and stall setting.

Operating TMCC-equipped locomotives with the PowerMaster

When operating Command-equipped locomotives with the PowerMaster, the PowerMaster serves as a circuit breaker and a remote power switch. To operate your Command-equipped locomotives, you will need to install a TMCC Command Base (available separately, 6-12911). Keep in mind that you are actually addressing the Command-equipped locomotive. The speed of the locomotive may be limited by the voltage setting of the PowerMaster, especially if you are also operating conventional locomotives.

1. Set the **COMMAND/CONVENTIONAL** switch to **COMMAND**.
2. Press **TR** and enter the unique ID number for the PowerMaster.
3. Press **BOOST** to set the track power to full when you are operating a Command-equipped locomotive and the **COMMAND/CONVENTIONAL** switch is in the **COMMAND** position.

Hint! You may choose to limit the top speed of your locomotives by reducing the voltage. Set the **COMMAND/CONVENTIONAL** switch on the PowerMaster to the **CONVENTIONAL** position, then set the voltage to your desired maximum speed.

Note! To operate both Command-equipped and conventional locomotives, set the **COMMAND/CONVENTIONAL** switch to **CONVENTIONAL**.

4. Press **AUX1, 0** to turn off track power.

Setting the stall voltage

You may choose to set a minimum, or “stall,” voltage to make your locomotives feel more responsive. The stall voltage is the lowest voltage at which your trains will move.

1. Press **TR** and enter the unique ID number for the PowerMaster.
2. Press **SET** on the CAB-1 Remote Controller.
3. Adjust the voltage. Increase the voltage until the train begins to move, then reduce the voltage until the train just comes to a stop.
4. Press **SET** on the CAB-1 Remote Controller.

The minimum voltage is now set. When you begin to throttle up, the voltage will jump to this setting. To clear the stall voltage, press **TR**, enter the ID number, and press **SET, SET** (two times).

Using multiple blocks

To run multiple conventional (non-Command) locomotives, you will need to create electrically isolated blocks of track around your layout. Each block will require a separate PowerMaster to vary the track voltage independently.

To create an isolated block of track, you must remove the center pin from both “ends” of the block. In other words, remove the center pin at the beginning and ending points of the isolated stretch of track. Replace the steel pins with insulating Fibre Pins (available separately, 6-65041 for O-27 gauge, 6-65543 for O gauge).

Next, connect a PowerMaster to each of the blocks. Refer to the first section in this manual for additional information. We recommend that you plug each PowerHouse Power Supply, transformer, and PowerMaster into the same power strip (available at most hardware and discount stores).

Finally, be sure that each block of track is “phased” or connected the same way. Perform this simple test. Start by removing all of your locomotives and powered rolling stock from the track. Set the COMMAND/CONVENTIONAL switches on each PowerMaster to COMMAND for full power. As illustrated in Figure 3, connect a test light (18-volt bulb) or a voltmeter (available at an electronics supply store) to the center rails across the insulating pin. If the lights are dim or the voltmeter shows low AC voltage, the power supplies are properly in phase. If the light is bright or the voltmeter measures 30 volts or more, reverse the wires at the A and U terminals on one of the PowerMasters. Repeat this procedure for each isolated block.

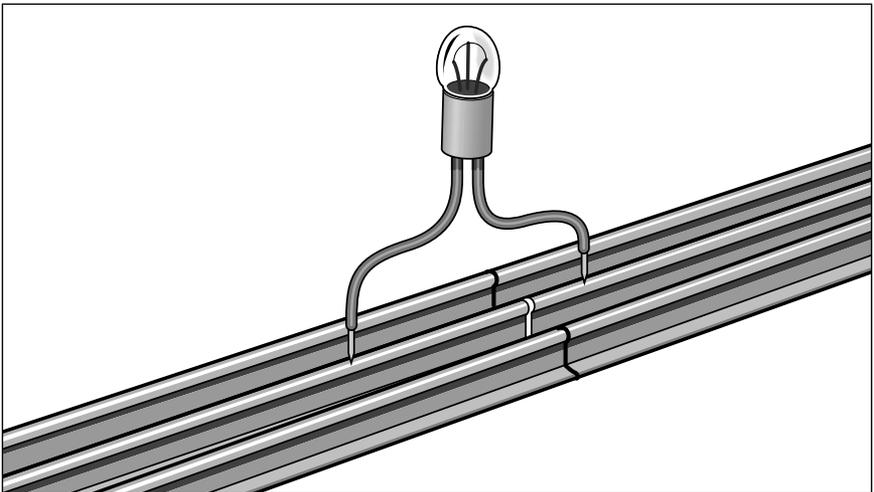


Figure 3. Testing for phase

Troubleshooting

The green light is off.

- Plug in the PowerHouse Power Supply. Check the PowerHouse Power Supply's circuit breaker, and push it in if it has been triggered. Make sure that the PowerHouse Power Supply's connector plug is fully plugged into the PowerMaster receptacle.

The green light is flashing.

- Check for short circuits and derailments along the track that the PowerMaster is controlling. Reset the PowerMaster by pressing **BOOST**.

The red light doesn't flash.

- Be sure that there are fresh batteries in the CAB-1 Remote Controller. The Controller should "beep" each time a button is pressed.
- Extend the antenna completely.
- Be sure that you have addressed the PowerMaster. Press **TR** and enter the unique ID number.
- Press **BOOST** to reactivate the PowerMaster.
- Turn off any interfering electronic devices around your layout, including CBs, radios, televisions, and computers.
- Relocate the PowerMaster around your layout.
- Set a new ID number. To reprogram the unit see page 5.
- Be sure that the frequency crystal is installed with a snug fit.

I want to operate another locomotive on the track (in the Command Control environment only).

- Address the block of track your locomotive will occupy, pressing **TR** and entering the ID number. Deactivate the track by pressing **AUX1, 0**. Restore power by pressing **BOOST**. Track power is set to FULL for Command operations. The stall voltages should be checked as necessary.

The locomotive will not move.

- Press **BOOST** or use the red throttle knob to power up the PowerMaster.
- Check the connections between the PowerMaster and the track. The A terminal goes to the center rail; the U terminal goes to the outside rail.
- Be sure that there are no derailments. Short circuits will eventually cause the PowerMaster's circuit breaker to trip. If the unit senses an overload, it waits a moment before shutting down, allowing you time to fix the problem. If the short circuit remains, the unit will turn off and the light will flash. Correct the short circuit, then press **BOOST** to turn on the PowerMaster.

Power is temporarily interrupted.

- The power limit of your PowerMaster has been exceeded. Immediately unplug the PowerMaster, then correct any derailment and remove any locomotives or rolling stock that over-load the system. Plug in the PowerMaster and turn on the power supply to resume operation.

FCC Statement

The TMCC CAB-1 Remote Controller and the TMCC PowerMaster comply with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept all interference, including interference that may cause undesired operation.

Changes or modifications made to the TrainMaster Command Control system that are not expressly approved by Lionel L.L.C. for compliance could void your authority to operate this equipment.

The TMCC CAB-1 Remote Controller and the TMCC PowerMaster have been tested and found to comply with the limits for Class B digital device and Class C transmitter, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The CAB-1 Remote Controller generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If your TMCC CAB-1 Remote Controller does cause harmful interference to radio or television reception (determined by turning the equipment off and on), correct the interference by trying one or more of the following measures:

- Reorient or relocate the receiving antenna (PowerMaster)
- Increase the separation between equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Contact Lionel Service for additional information

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 Center, 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 Center. Your nearest Lionel Service Center 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 repair in Michigan, you must first call 586-949-4100 or FAX 586-949-5429, 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. You may choose to have your product repaired by one of our Authorized Lionel Service Centers after its warranty has expired. A reasonable service fee will be charged.

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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