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## ***Baldwin VO1000 Owner's Manual***

Thank you for purchasing this new Baldwin VO1000 Diesel locomotive. Our 1/4" scale reproductions are highly detailed and designed for years of operation on your O Scale pike. Weaver locomotives are completely compatible with most other O Scale engines, rolling stock, and accessories. Please note that this manual is for a variety of Weaver diesel locomotives. Refer to this manual for information about all Weaver Baldwin VO1000 locomotives.

All Weaver diesel locomotives are tested and greased before leaving the factory and are ready-to-run on your layout.

### **Maintaining Your Engine:**

As with all our Weaver engines, this locomotive is designed so that very little maintenance is required from the owner. It is recommended that all moving parts (idler gears and axles) be oiled after 25 hours of operation. The locomotive is comprised of two precision can motors and two drive trucks whose outside idler gears should be lubricated with household oil to prevent squeaks and enhance performance. A drop or two of oil on gears

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and pick up rollers should be sufficient.

## **Traction Tires**

Each powered truck of your locomotive has a set of drive wheels that is fitted with traction tires. These traction tires provide for maximum pulling capability of your locomotive.

## **Operating Instructions For EOB Cruise Control**

Engineer On Board Cruise Control is a very complex circuit. However, it is easy to navigate through the features using a Cab-1 remote. One of the best features is the fact that you don't need to touch the locomotive while accessing the many programming features.

While these steps are easy to navigate through, there is a slight learning curve that you will need to go through. This learning curve involves several new commands that have never been used before in any other locomotive. We have included a small quick reference laminated placard for you to keep on the layout (and prevent you from having to carry around these instructions all the time). Please read through this block of instructions so you understand what each command is used for and its purpose.

The most important thing to remember when using these commands is to leave a 1 second delay between each press of the keys. EOB utilizes multiple commands to access various features. You will notice that some of these commands, if not given a delay between the presses of the keys, will activate unwanted commands such as shut down sounds, volume up and down commands and rev up and down commands.

The commands you will use most often will be the selection of the cruise speed step modes. With EOB you can select between 32-speed steps, 128-speed steps and Cruise off. These selections require the locomotive to be stopped when issued, so we have incorporated the Direction key in the commands. Unfortunately speed steps cannot be changed on the fly. To select between these modes follow the key sequences below.

For the 32-speed step mode;

**ENG + ## + DIR + AUX1 + AUX1 + AUX1 + 1**  
**(The horn will sound after the 3rd AUX1 and after 1.)**

The 32-speed step mode works just like any other locomotive with speed control. The red thumbwheel is used to increase the speed up and down. The BOOST key will increase speed, once released it will return to its original speed. The BRAKE key will bring the loco to a stop. When released the locomotive will return to its original speed.

For the 128-speed step mode;

**ENG + ## + DIR + AUX1 + AUX1 + AUX1 + 2**  
**(The horn will sound after the 3rd AUX1 and after 2.)**

The 128-speed step mode works quite differently than any other locomotive control system. This is because the Lionel radio board (R2LC) is fixed at a constant 32 speed steps. The red thumbwheel can be used to get to the 32nd-speed step, but it will not go any higher than that. To circumvent this problem we were forced to use the BOOST and BRAKE key on the Cab-1 remote. Each press of the BOOST key increases the speed one step at a time. Each press of the BRAKE key decreases the speed one step at a time. Pressing and holding either the Brake or the Boost keys will not yield the same results as it does in the 32-speed step mode or the cruise off mode. The Direction key can be used as an absolute stop key as well.

What exactly does 128-speed steps mean? This means there are 128 steps between a dead stop and full speed. 4 times the amount available with any non-cruise equipped locomotive. 128-speed step mode provides much finer control of the speed. With this mode enabled you can actually make a locomotive start out so slow that you will actually hear the coupler slack being pulled out of a long string of cars (instead of being included in the sound system!). The results of this mode are absolutely magnificent for fine slow speed control.

For the Cruise Off mode;

**ENG + ## + DIR + AUX1 + AUX1 + AUX1 + 3**  
**(The horn will sound after the 3rd AUX1 and after 3.)**

The Cruise Off mode will provide 100% lash-up compatibility with non-cruise equipped locomotives. In this mode the response to commands is exactly the same as any other command equipped locomotive without cruise control.

In addition to being able to select the cruise steps you can also select the way your locomotive performs. There are 2 linear scales included in EOB. These scales control how quickly the EOB board provides power to the motor. When set at the lowest position on the scale the slow end speed is amazing, but the high top end is affected. If the scales are set to the highest position on the scale the low end suffers, but the top end is more precise. During the initial testing phase of the instructions you set both scales at their lowest positions. These are the positions we recommend, but, during our testing phases we did find some isolated cases where the lowest speed step was real jerky. To overcome this we simply adjusted these linear scales until the jerkiness disappeared. More often than not any jerkiness that appears in

a locomotive is due to the sensor board not reading the flywheel stripes properly.

To access these linear scales the commands are as follows;

For the Pre-Pulse (affects the low end starting voltage)

**ENG + ## + DIR + AUX1 + AUX1 + AUX1 + 5 + # (# can be any number 1 thru 8)**  
**(The horn will sound after the 3rd AUX1, a coupler sound after 5, a horn after #.)**

The scale is linear, meaning 1 is the lowest setting and 8 is the highest setting. This setting is used to smooth out the slow speed jerkiness if any is apparent.

For the Background Pulse (affects the top voltage)

**ENG + ## + DIR + AUX1 + AUX1 + AUX1 + 4 + # (# can be any number 1 thru 8)**  
**(The horn will sound after the 3rd AUX1, a coupler sound after 4, a horn after #.)**

The scale is linear, meaning 1 is the lowest setting and 8 is the highest setting. The lower the last digit the slower the first speed step will be.

### **3-Rail Without Sound (non command mode)**

All 3-Rail non sound diesels contain an electronic reversing unit (e-unit). The operation of the e-unit is as follows: Each time the power to the locomotive is interrupted, the e-unit changes states. This can be done by moving the transformer control to the off position, or pushing the direction button on your transformer (if the transformer is equipped with a direction button). The sequence of operation is neutral-forward-neutral-reverse. All 3-Rail without sound engines can be upgraded to RailSounds® and TrainMaster® Command Control. Weaver Models also offers Rail Waves as a sound option which includes a diesel horn and bell sound. Contact us today to upgrade your engine. Rail Waves is your simple sounds for your diesel locomotive needs.

### **Lionel® RailSounds®**

All our 3-Rail with sound engines are equipped with RailSounds®, the finest sound system available today, and the industry's premier digital operating control system, TrainMaster® Command Control. This system will operate with a non command control transformer but, the additional sound features which include coupler sound, diesel idle up and down, diesel idle sound, volume control, tower command, and crew talk will not function without the remote control and command base.

### **3-Rail With Sound (non command mode)**

This engine is equipped with RailSounds® and is also TrainMaster® Command Control ready. This diesel features digital samples from authentic diesels for the ultimate in realism. An engine running in a non command mode will have diesel idle sounds, and also diesel horn and bell. Also, listen for incidental locomotive sounds during RailSounds® operation, as they are automatic and authentic. For even more authentic RailSounds® effects, operate in a TrainMaster® Command Control environment. This engine will operate on 7-18 volts alternating current. Virtually any alternating current transformer is suitable to operate your locomotive as well as the Lionel® TrainMaster® Command Control system.

*NOTE: Do not power your locomotive with direct current (DC). Damage to electronic components may occur.*

A 9-volt battery is only necessary when the engine is to be used with a conventional transformer such as the QW, TW, KW, etc. This will enable the locomotive to maintain uninterrupted sound when the voltage drops below 8 volts. To install the battery, there are four body screws, one at each corner of the engine floor. Remove the four screws from the bottom of the floor and the body shell will then remove easily. There are two additional screws in the fuel tank area that also need to be removed from the engine floor. You will find a 9 volt battery connector end wrapped in black electrical tape among the wires. Install the battery, place the shell back on the floor, and reinstall the screws.

When you first power up your track, the engine will wait 3 to 8 seconds as it listens for the digital language from the TrainMaster® Command Base (sold separately). When it's determined that it's on a conventional (non command) railroad, the headlights will illuminate and RailSounds® will fire up. At this point the engine is in neutral. (This occurs when placing the locomotive on your railroad for the first time. Thereafter, it starts in forward after every three second power interrupt).

The e-unit in your locomotive alternates between three states: forward, neutral, and reverse. You may deactivate the operation of the e-unit by moving the "Full - Signal" switch to the "Signal" position. This will put your locomotive in a Forward lock out operating state. This will allow your engine to only run in the Forward position.

### **2-Rail With Sound**

Your 2-Rail with sound locomotive is equipped to run on standard AC like a 3-Rail with sound locomotive. The locomotive is also equipped to run on conventional DC. This allows the user to change operations from AC to DC at anytime. This feature can be accessed using the four single-pole, single throw switches located between the fuel tank and the rear powered

truck. All four switches thrown in one direction gives access to TrainMaster® Command and RailSounds® operation. All the switches thrown in the opposite direction is for operation on conventional DC. For TrainMaster® Command Control operations refer to the sections on pages 3-6 of this manual. For additional information about 2-Rail with TrainMaster® Command Control please visit [www.scalecommand.com](http://www.scalecommand.com)

## **TrainMaster® Command Operations**

Lionel® TrainMaster® Command is the advanced model railroad control system from Lionel. Your diesel is equipped with the Lionel® Command reverse unit and an LCRX for digital RailSounds® control. TrainMaster® Command gives you the power to operate multiple Command equipped locomotives on the same track, at the same time. To operate in Command mode, you need a Command Base and a CAB-1 Remote Controller®. These can be purchased from your train retailer.

Place your engine on the track. Make sure track power is OFF before placing the engine on the track. Make sure your Lionel® Command Base is ON and its communications wire is connected to the COMMON post on your transformer or the U on any of your installed Powermaster®. Once positioned on the track, increase track voltage to FULL (on Powermaster®, slide the CMD/CONV switch to CMD).

Address your diesel using the CAB-1 Remote Controller®. Press ENG and 1 on the numeric keypad of your CAB-1 Remote Controller®. This command is sent by the CAB-1 Remote Controller® to the Command Base, which then translates your command into digital code. That code is sent around your railroad's outside rails in the form of a digital "halo". All command equipped engines listen to this digital communication, but they do not respond until they hear their individual ID number - in this case, 1. The digital language of TrainMaster™ Command - and not track power - controls the actions of command equipped engines.

All command equipped engines come factory programmed with an ID# of 1. See page 5 for information on changing this ID#.

Throttle up or press any command button on the CAB-1 Remote Controller®. Your engine will respond to every command. Your command equipped engine comes factory programmed with an ID# of 1. To get your locomotive in action, set Powermaster® to CMD or set all power supplies on full. Press ENG and 1 on CAB-1 Remote Controller®. Turn the throttle or press any command button; your engine is ready for command operations.

## CAB-1 Remote Controller® Commands

Press AUX1 to activate numeric keypad



Press AUX2 to turn headlight on and off



Couple F/R buttons will release coupler and produce coupler release sounds.



Press HALT to shut down all Powermaster® electrical outlets on your railroad. Stops all Command equipped engines in operation.



Turn the THROTTLE to the right to accelerate, left to decelerate.



Press WSTL/HRN to activate horn. Release it to discontinue.



Press BELL once to activate the bell, again to discontinue.



Press DIR - the locomotive decelerates to a complete stop; turn the throttle up, and the locomotive will accelerate in the new, opposite direction. There is no neutral state.



Press and hold BOOST for extra power. Release BOOST and return to the engine's previous speed.



Press and hold BRAKE to slow down or stop. Release BRAKE and return to previous speed.

## CAB-1 Remote Controller® Numeric Keypad Commands

When you press the AUX1 on CAB-1 Remote Controller®, you turn the numeric keypad into 10 command buttons. The keypad lets you control extra command features (until you press any top row button).

**0** Stops and resets the engine. Resets the direction to FORWARD. Resets RailSounds® to automatic RPM. Horn Blows. RPM's return to automatic.

**1** Raises the volume of RailSounds®.

**2** CrewTalk™ is the sound of inaudible walkie talkie communication.

**3** Raises RailSounds® RPM level. Starts up RailSounds®. RPM's increase. Startup sequence commences.

**4** Lowers the volume of RailSounds®.

**5** Activates the RailSounds® shutdown sequence. Just like the real thing, your locomotive RPM's must be at idle for shutdown to occur. Press 6 repeatedly to lower RPM's until they won't descend further. Your locomotive is now at idle. Press 5 to initiate the shutdown sequence. Diesel shutdown commences. Remember, the horn, bell and RPM's will not sound until you restart RailSounds®.

**6** Lowers RailSounds® RPM level.

**7** TowerCom™ is an audible announcement from the tower.

**8** Turns the smoke unit off (only diesels with smoke).

**9** Turns the smoke unit on (only diesels with smoke).

### **Turning Your Locomotive's Performance Momentum**

TrainMaster® Command's momentum feature simulates the labored performance of a locomotive pulling a heavy load. Press L,M, or H (located under the CAB-1 Remote Controller's® removable panel) for light, medium, or heavy momentum. The LCRU2 remembers the setting until you change it. For delayed response, use H. For quick response use L.

### **Braking and Boosting**

There's more to starting and stopping than just turning the CAB-1 Remote Controller® throttle. Use the BOOST and BRAKE command buttons - they give you incremental control of speed and are the superior way to handle grades, gradual stops-and-starts and more. Plus, using BRAKE in the Command environment gives you a bonus RailSounds® effect - the realistic sound of squealing brakes.

### **Stall**

Make your locomotive feel more responsive by setting a stall voltage. Get your locomotive moving, then press SET; the engine will stop. Turn the throttle clockwise to get the locomotive moving, then decrease the speed until the locomotive just stops. Then press SET again; the LCRU2 remembers the stall setting until you change it. To clear stall, press SET twice, holding it for one second each time.

### **Assigning Your Locomotive A New ID#**

As your fleet of command equipped engines grows, new engines require a different ID#. Choose from any between 2 and 99. Remember, all command equipped engines ship as ID#1.

We recommend that you choose an easy to remember ID# for your engine. Some possibilities are part of the engine road number, your age, or any two digit number that is not used by another engine. If you like, write the number on a small piece of tape and put this on the bottom of the engine chassis to aid in remembering.

Step 1: Turn the Command Base ON and set the engine on the track.

Step 2: Power up, then slide the PROGRAM / RUN switch to PROGRAM.

Step 3: Turn track power on (Powermaster®).

Step 4: Press BOOST.

Step 5: Press ENG and new ID#.

Step 6: Press SET located under the removable cover.

Step 7: See the headlight flash and hear the horn blow; that's your signal that programming has been accepted.

Step 8: Set the PROGRAM / RUN switch to RUN.

Your engine remembers its ID# forever, change it any time with these steps.

## **Reprogramming LCRU Circuit Boards To Restore Features**

Due to the inevitable derailments, static and the nature of electricity, it is possible that your LCRU could someday lose its setup program. The symptoms of this condition would be unresponsiveness in command mode. This can easily be remedied by "reprogramming" your LCRU using the following steps.

Step 1: Move switch on locomotive from RUN to PROGRAM.

Step 2: Turn on Command Base.

Step 3: Place locomotive on track, then turn on power to track.

Step 4: Press ENG, then input locomotive ID#. Press SET.

Step 5: Press ENG, then the ID#, AUX1 then press 43.

Step 6: Turn off power to track, wait ten seconds.

Step 7: Remove locomotive from track, move switch from PROGRAM to RUN.

Step 8: Place locomotive back on track, turn power on to the track.

Step 9: Press ENG and ID#, then operate normally.

## **Service And Warranty Information**

This item is warranted for one year from the date of purchase. We will repair or replace (at our option) the defective part without charge for parts or labor, if the item is returned in the manner listed below within one year of the original date of purchase. This warranty does not cover items that have been abused or damaged by careless handling. Transportation costs incurred by the customer are not covered under this warranty.

For warranty repair, DO NOT return your product to the place of purchase. Instead, follow the instructions below to obtain warranty service as our dealer network is not prepared to service the product under the terms of this warranty.

1. First: WRITE, CALL, FAX or E-MAIL Weaver Models, PO Box 231, 315 Point Township Drive, Northumberland, PA 17857, 570-473-9434 (FAX

#570-473-3293) customerservice@weavermodels.com, requesting a Return Authorization Number and stating when the unit was purchased and a description of the problem.

2. **CAUTION:** Make sure the product is packed in its original factory packaging including its foam and plastic wrapping material so as to prevent damage during shipping. The shipment must be prepaid and we recommend that it be insured. **A cover letter, including you name, address, daytime phone number and a full description of the problem MUST be included to facilitate the repairs. Please include the description regardless of whether you discussed the problem with one of our service technicians when contacting Weaver Models.**

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