



PO BOX 231 ~ 315 Point Township Drive ~ NORTHUMBERLAND, PA 17857

PHONE: 570-473-9434 FAX: 570-473-3293

Web Site: www.weavermodels.com ~ E-mail: customerservice@weavermodels.com

Weaver Diesel Locomotive Owner's Manual

Thank you for purchasing this new Weaver 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 2-Rail and 3-Rail Railsounds 4.0® equipped locomotives, and 3-Rail without sound 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 and pick up rollers should be sufficient.

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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 Weaver locomotive. 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. The BRAKE key, when held down, will bring the locomotive to a stop and activate the squealing brake sounds. 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 TMCC equipped locomotive. The red thumbwheel on the Cab-1 will increase and decrease the speed step 2 at a time. The BOOST key will increase the speed one step at a time and the BRAKE key will decrease the speed one step at a time. Pressing and holding either the BOOST or BRAKE keys will not yield the same results as they do in the 32-speed step mode. The DIR key can be used for an absolute stop 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.

Fine Tuning Your EOB Equipped Locomotive's Performance

In addition to being able to select between the speed step modes you can also tweak your locomotives's performance using two embedded performance settings. These settings are called "pre-pulse" and "background pulse" and they are used to select the amount of voltage applied to the motor and the amount of time that voltage is applied. Your locomotive has been programmed from the factory with the settings required to make the locomotive perform smoothly, however, after excessive operation and break in, it may become necessary to adjust these settings to improve the performance of your locomotive. To access these settings follow the instructions on page 4.

Pre-Pulse Setting

ENG + ID Number + DIR + AUX1 + AUX1 + AUX1 + 5 + # (# = any number 1-8) (The horn will sound after the 3rd AUX1 and after #.)

The lowest setting is 1 and the highest setting is 8. This setting is used to control the amount of power applied to the motor.

Background Pulse Setting

ENG + ID Number + DIR + AUX1 + AUX1 + AUX1 + 4 + # + # (# = any number 1-20) (The horn will sound after the 3rd AUX1 and after the last #.)

The lowest setting is 20 and the highest setting is 1. This setting is used to control the amount of time the motor voltage is applied. The higher the setting (lower number) the faster 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 4.0® 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.

3-Rail With Sound (non-command mode)

This engine is equipped with Railsounds 4.0® 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 4.0® operation, as they are automatic and authentic. For even more authentic Railsounds 4.0® 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 4.0® 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 PROGRAM/RUN switch to the PROGRAM position. This allows you to lock out directional control in conventional mode. The FULL/SIGNAL switch is used to select between full Railsounds 4.0® and simple sounds (horn and bell only).

Lionel® RailSounds4.0®

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.

2-Rail With Sound

Your 2-Rail with sound locomotive is equipped to run on standard AC like a 3-Rail with sound locomotive. For more information on 2-Rail TMCC operation please refer to the sections on pages 5 through 9, the operation is the same as a 3-Rail with sound locomotive. For detailed on 2-Rail AC TMCC operation please visit www.scalecommand.com.

TrainMaster® Command Operations

Lionel® TrainMaster® Command Control is the advanced model railroad control system from Lionel. Your locomotive is equipped (if you chose to do so at the time of purchase) with TASTudios Engineer On Board speed control (non EOB locomotives feature TASTudios SAW Boards) and the modular Lionel R2LC command receiver and Railsounds 4.0®. TrainMaster® Command Control gives you power to operate multiple Command equipped locomotives simultaneously on the same track. To operate in the Command mode you will need a Lionel Command Base and Cab-1 remote control. These items can be purchased together under Lionel part number 6-12969 at any authorized Lionel retailer.

Make sure the power to the track is OFF, then place your locomotive on the track. Make sure your Lionel® Command Base is ON (verify the green light is illuminated) and there is a wire from the Command Base “U” post to the outside rail of your track. Once these are done apply full voltage to the track (approximately 18 Volts AC).

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 9 for information on changing this ID#.

To start the sounds of your locomotive press the HORN key. Your Railsounds 4.0® sound system will come to life. To access all the features of your Railsounds® sound system see the tutorial on page 7.

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 4.0® to automatic RPM. Horn Blows. RPM's return to automatic.

1 Raises the volume of Railsounds 4.0®.

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

3 Raises Railsounds 4.0® RPM level. Starts up Railsounds 4.0®. RPM's increase. Startup sequence commences.

4 Lowers the volume of Railsounds 4.0®.

5 Activates the Railsounds 4.0® 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 4.0®.

6 Lowers Railsounds 4.0® 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 R2LC remembers the setting until you change it. For delayed response, use H. For quick response use L.

Locomotives equipped with EOB Cruise Control do not respond to momentum settings. Instead, the momentum is built into the EOB software. EOB is designed to gradually increase speed, regardless of how fast you turn the red thumbwheel. This is done to reduce derailments of long trains when starting from a dead stop. Only when EOB is set to the 32-speed step mode, cruise off, will the momentum settings have any affect on the performance characteristics of the locomotive.

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 4.0® effect - the realistic sound of squealing brakes.

You will not experience any performance differences using the BRAKE or BOOST keys when the locomotive is set to the 128-speed step mode, cruise on. Please refer to page 3 for operating instructions for EOB set to 128-speed steps, cruise on.

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 LCRU remembers the stall setting until you change it. To clear stall, press SET twice, holding it for one second each time.

Locomotives equipped with EOB Cruise Control do not respond to “Stall” settings. Instead the stall is built into the EOB software. Only in the 32-speed step, cruise off mode will the stall settings be applicable.

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: Ensure the Command Base is ON (verify green light is illuminated).
- Step 2: Slide the PROGRAM/RUN switch to the PROGRAM position.
- Step 3: Place locomotive on track with power OFF.
- Step 4: Turn track power ON to 18 Volts AC.
- Step 5: Using the Cab-1 remote press ENG + ID number.
- Step 6: Press SET (located under the removable cover on the bottom of the remote).
- Step 7: The horn of the locomotive will sound when the SET key is pressed.
- Step 8: Using the Cab-1 remote press AUX1 + 5 (the horn will sound again).
- Step 9: Slide the PROGRAM/RUN switch back to RUN.

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

Reprogramming R2LC Command Receiver to Restore Auxiliary Output Functions

Your locomotive may or may not be equipped with a smoke unit, marker lights, or strobe light. However, if they are and you reprogram the ID number of the locomotive you may lose control of these functions. To restore these functions please follow the steps below.

- Step 1: Ensure the Command Base is ON (verify green light is illuminated).
- Step 2: Slide the PROGRAM/RUN switch to the PROGRAM position.
- Step 3: Place locomotive on track with power OFF.
- Step 4: Turn track power ON to 18 Volts AC.
- Step 5: Using the Cab-1 remote press ENG + ID number.

Step 6: Press SET (located under the removable cover on the bottom of the remote).

Step 7: The horn of the locomotive will sound when the SET key is pressed.

Step 8: Using the Cab-1 remote press ENG + ID Number (the number you just assigned to the locomotive) + AUX1 + ## (the horn will sound again).

Step 9: Slide the PROGRAM/RUN switch back to RUN.

Step 10: Place locomotive back on the track and operate as usual.

- Denotes one of the codes listed below.

5 = Strobe light (factory default)

7 = Smoke unit on/off, DC polarity. Polarity reversed based on motor direction.

8 = Smoke unit on/off.

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 or FAX Weaver Models, PO Box 231, 315 Point Township Drive, Northumberland, PA 17857, 570-473-9434 (FAX #570-473-3293), 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.



1 Year Warranty Registration



To register your 1 year warranty with us, we ask that you fill in this form (front and back) and return it to Weaver Models. We also ask that you provide us with the following information so that we may better serve you, our valued customer.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Age Group (circle one): 0-18 yrs 19-30 yrs 31-40 yrs
41-50 yrs 51-60 yrs 61 yrs & up

What item did you purchase? _____

What rail did you purchase (circle one):
2-Rail 2-Rail with sound 3-Rail 3-Rail with sound

Where did you purchase your item?

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

What are your average annual train expenses? \$ _____

Do you primarily purchase (circle all that apply):

Diesels Steam Brass Die Cast

Freight Cars All of the above

What size is your track? 0-27 0-31 0-42 0-54
0-72 Other: _____

Is this your first Weaver purchase? _____

Date purchased? _____

Do you read (circle all that apply): Classic Toy Trains
 O Gauge Railroading Railroad Model Craftsman
 Rail Model Journal 48/ft O Scale News
 O Scale Trains Other: _____

Are you a Train Collectors Association member? _____

How can we improve our catalog/web site? _____

What new features would you like to see to help us improve our products: _____

What new products would you like to see us offer? _____

What comments and suggestions do you have for us? _____

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Open Monday thru Friday 8:00 AM - 4:30 PM (eastern time)