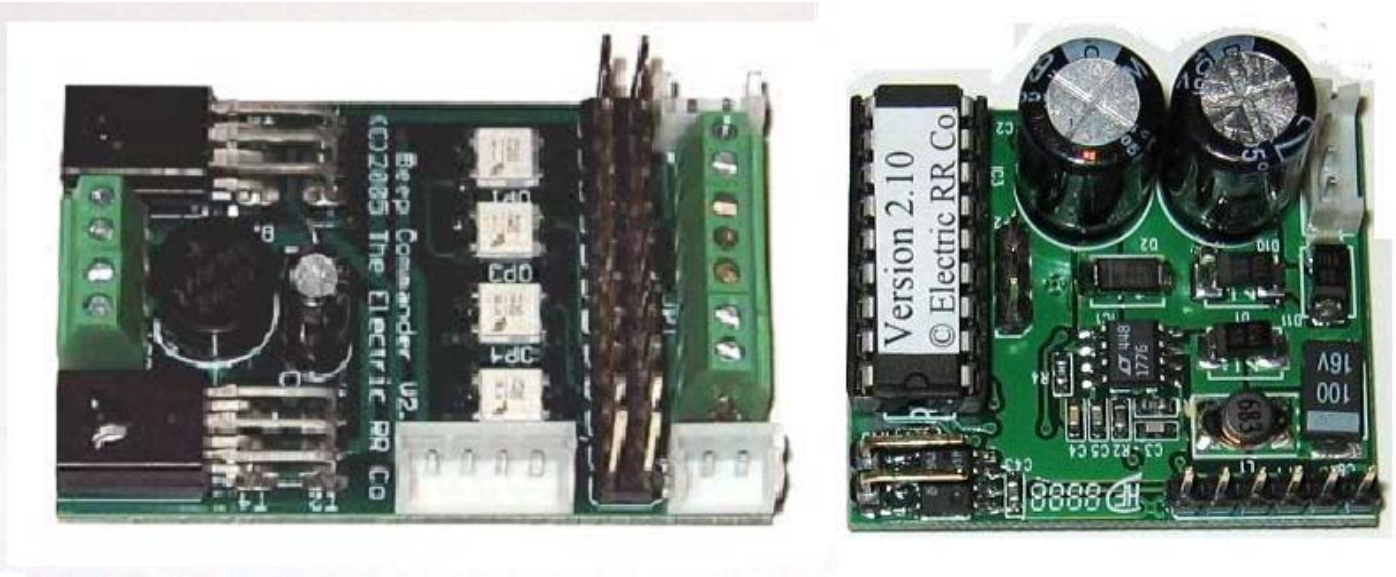
RMT Beep Commander v2 and Sound Commander

Installation & Operation Manual



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939 Wood Duck Avenue
Santa Clara, Ca. 95051
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Beep Commander v2 / Sound Commander Kit

Overview

The Beep Commander v2 with Sound Commander is an integrated kit to add TMCC and Sounds for added realism to the RMT Beep.

The Beep Commander v2 is a DC driver board that works in conjunction with the R2LC receiver board to add TMCC operation. New lamps and sockets are provided to facilitate installation.

The Sound Commander is designed to mate directly to the Beep Commander v2 upgrade, and includes a low-profile speaker and mounting supplies.

Enhanced Features:

- Solder-less connections make installation simple and quick
- Uses Lionel R2LC to be fully compliant with TMCC standards
- Coil Couplers supported, Strobe or Cab / Marker Lamp connections
- Conventional and Command mode operation
- Complete Kit, Simple Installation, Fully Integrated
- Unique “Beep-Beep” sounds with AUX1 + 2 press
- Horn / Bell / Prime Mover Revs (Revs not available in conventional mode)

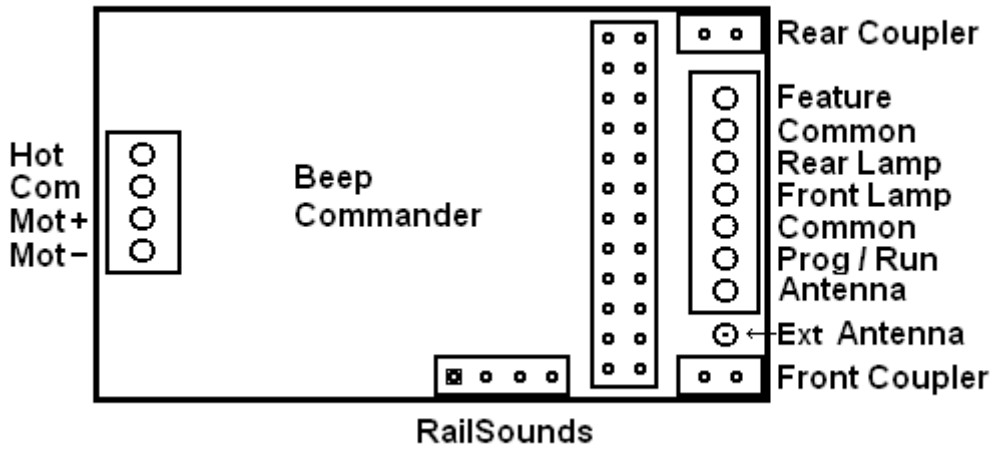
Also included:

Two replacement lamps and sockets, one replacement solder lug for power, extension antenna, and mounting hardware.

Please Note:

Installation pictures of products may vary from actual products received. The Electric Railroad Company reserves the right to improve the products on successive manufacturing cycles.

Beep Commander v2 Connector Pin Designations



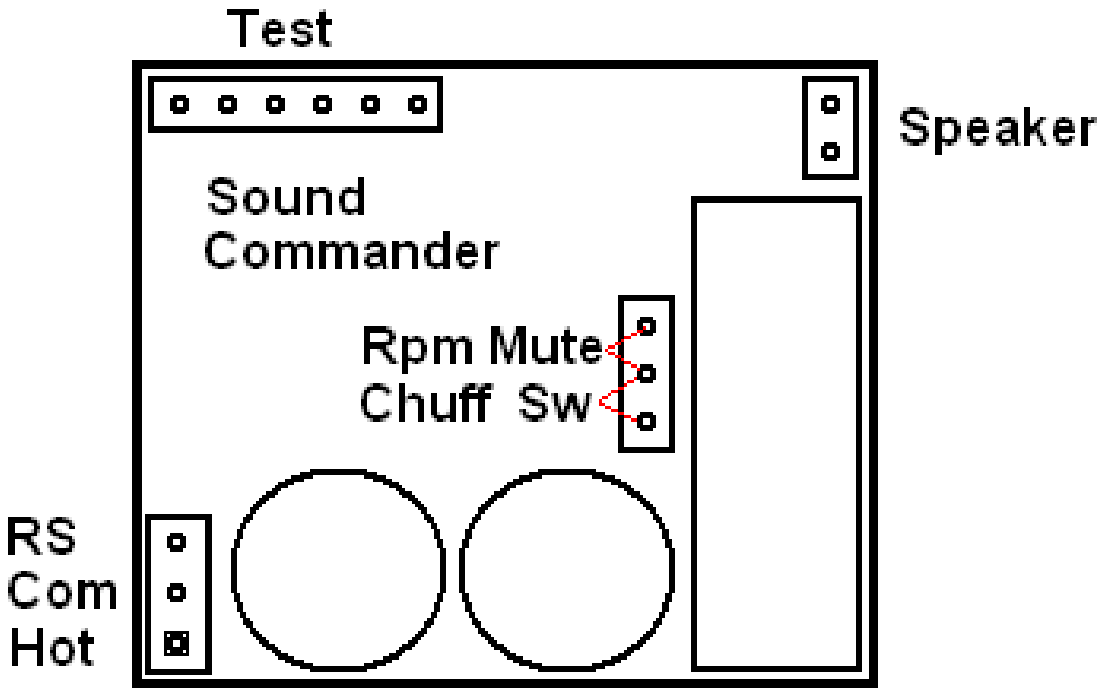
Connector Pin Description

Hot - 3rd rail power connection
Com - Outer rails power connection
MOT + - Motor connection (red wire)
MOT – - Motor connection (black wire)

Prog / Run - Program / Run switch connection
Ext Antenna - External Antenna connector

The **Feature** terminal can be used as a smoke unit, a strobe light, or cab / marker lights.

Sound Commander Connector Pin Designations



Connector Pin Description

Hot - 3rd rail power connection
Com - Outer rails power connection
RS - RailSounds™ Serial Data input
Speaker - 8 ohm speaker connector

RPM Mute - Jumper to mute Prime Mover Revs
Chuff Sw - Reserved for future use
Test - Factory programming and test connector

Installation

Please take time to plan out your installation. Before you begin, examine the wiring already present in the Beep. Before starting the installation, you will need to change several existing connections and remove the circuit board. The original "direction lock" switch will become the "program / run" switch. Save the masking tape for later fastening down the new wiring. Strip all wires ¼" and twist the ends for attachment to the Beep Commander circuit board to prevent stray stands of wire. Do not over tighten the terminal screws when attaching wires.

Preparation:

Remove the shell, masking tape, and the lamp bulbs and set them aside so they will not be damaged. Follow these preparatory steps carefully. When freeing wires, be careful not to flex the soldered connections excessively – or your install will no longer be solder-less!

Refer to Figure 1 while performing the following steps:

1. Using a flat blade screwdriver, slightly spread open each lamp holder and then pull out the lamp socket. Cut the wires from their attachment point on each motor. Use caution to only cut the wires going to the lamp socket. The sockets will ***not*** be re-used.
2. Remove the circuit board mounting screw, and flip it over. Cut the 6 wires going to the circuit board right at the circuit board to preserve wire length.
3. Remove the black wire going down into the "well" in the middle of the weights by removing the center screw. Replace this wire with the black wire provided. Orient the lug so the wire exits on same side as the red wire.

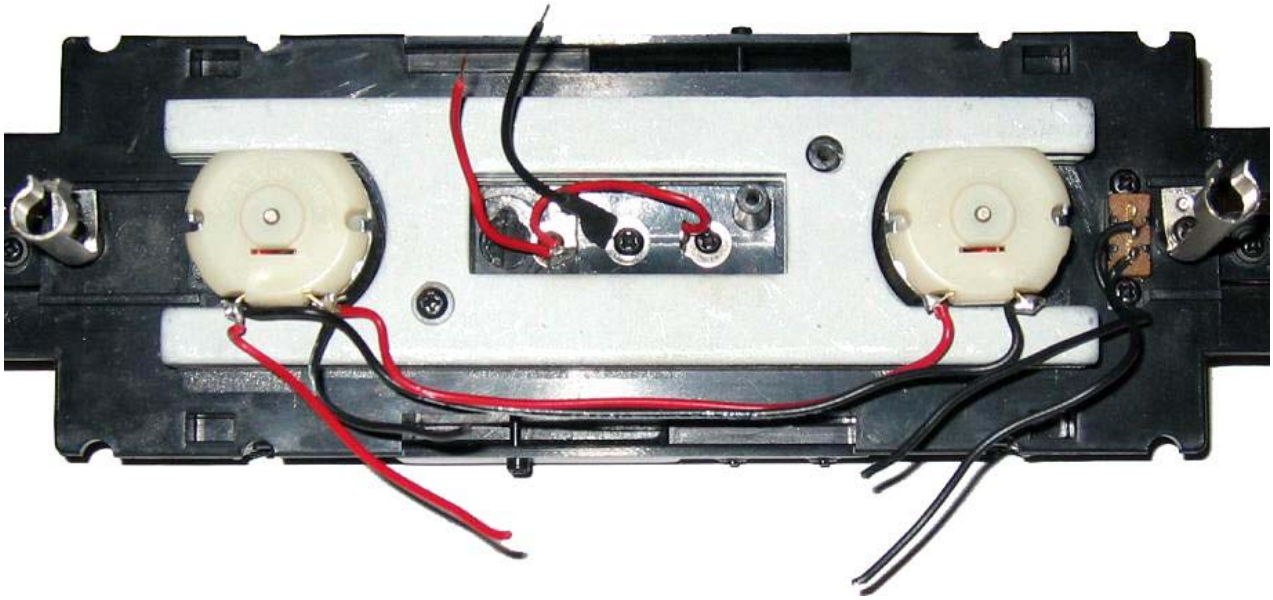


Figure 1

Installing the Beep Commander v2:

1. Looking at figure 2, ***test fit*** the Beep Commander v2 circuit board. Verify the orientation, using the switch as a reference. There is a post that mounted the old electronics that will engage with the backside of the connector on the Beep Commander v2 circuit board, and will help with the positioning. Align with the weights and screw edges as shown.

2. Take your time, and when ready use a piece of double stick tape to mount the Beep Commander to the Beep chassis weights. Use only one layer of double stick tape.

Mounting overview…

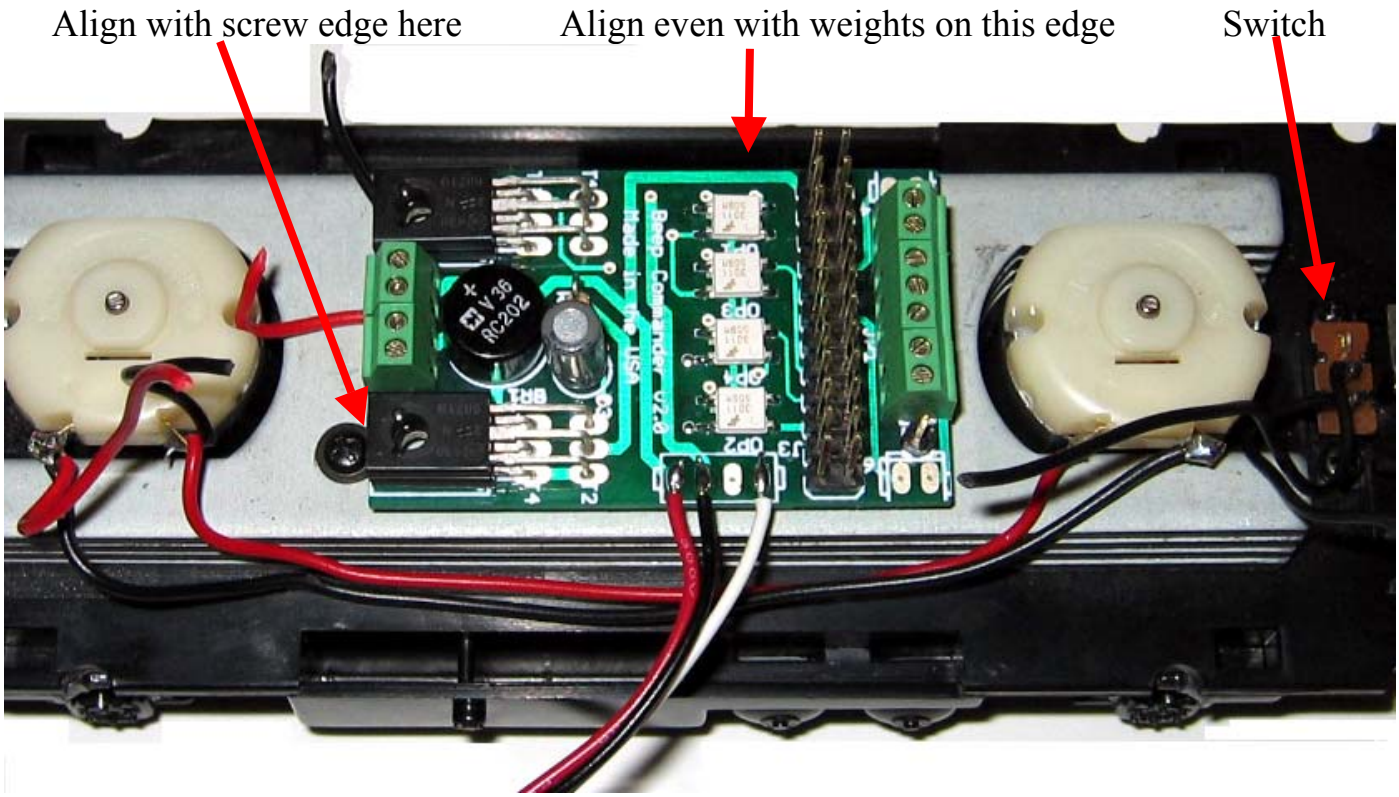


Figure 2

Schematic overview of the Beep Commander v2 wiring…

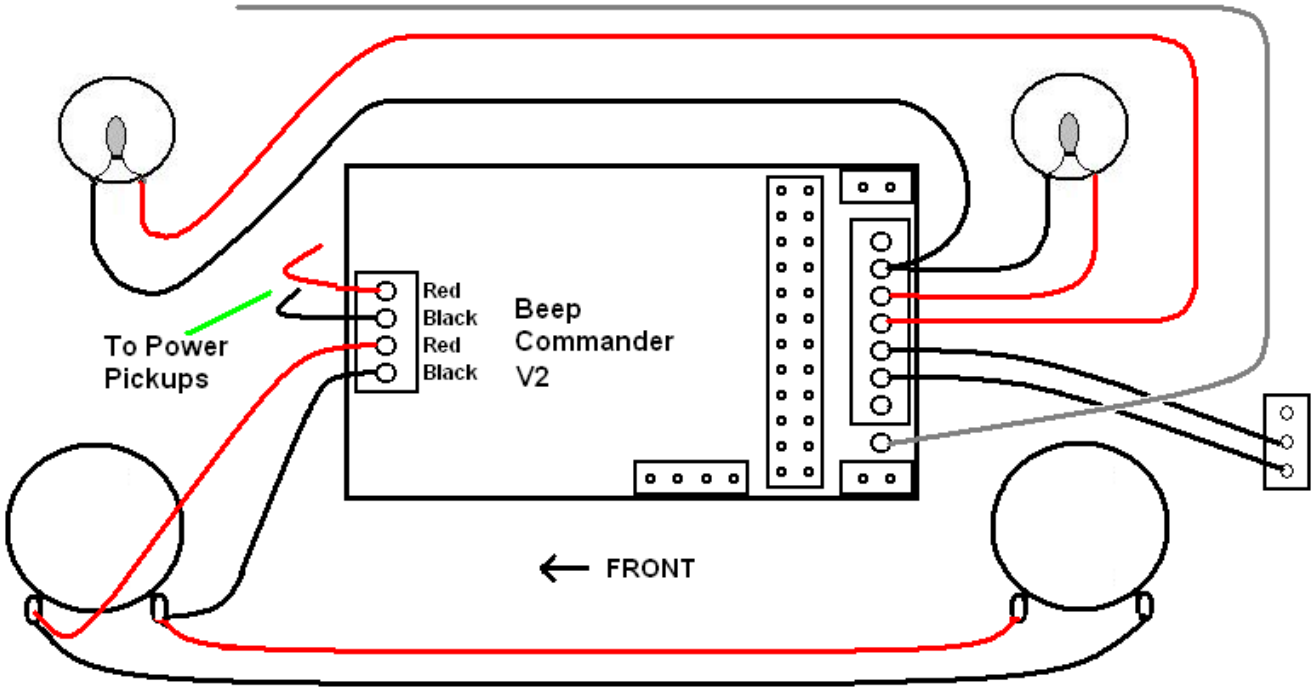


Figure 3

NOTE: Take your time while wiring, strip each wire to ¼" and twist the ends, use your needle nose pliers or tweezers to place the wires; patience is required to make all the connections as shown in Figure 3. Do not over-tighten the screw terminals, or they my break off.

3. Start by attaching the power pickup connections. Next, attach the motor connections. Check all connections; insure no wire frays are causing a short circuit.

4. Attach the wires from the direction switch as shown, this will become the "program/run switch"; with ON being RUN.

5. Slip the provided new lamp sockets into the holders; the socket with the longs leads goes in the front. Trim the pre-tinned leads to ¼" and attach as shown in figure 3. After wiring, screw in the lamps on the front and rear lamp sockets. NOTE: use the original lamps if possible.

6. Verify your wiring looks as shown in figure 4.

Finished wiring overview…

Figure 4

7. Double check all wiring, then install the R2LC receiver board onto the Beep Commander v2 circuit board as shown in figure 5 below. Use caution not to miss by one pin pair to either side, as this will certainly damage the components on both cards!

Completed Beep chassis…

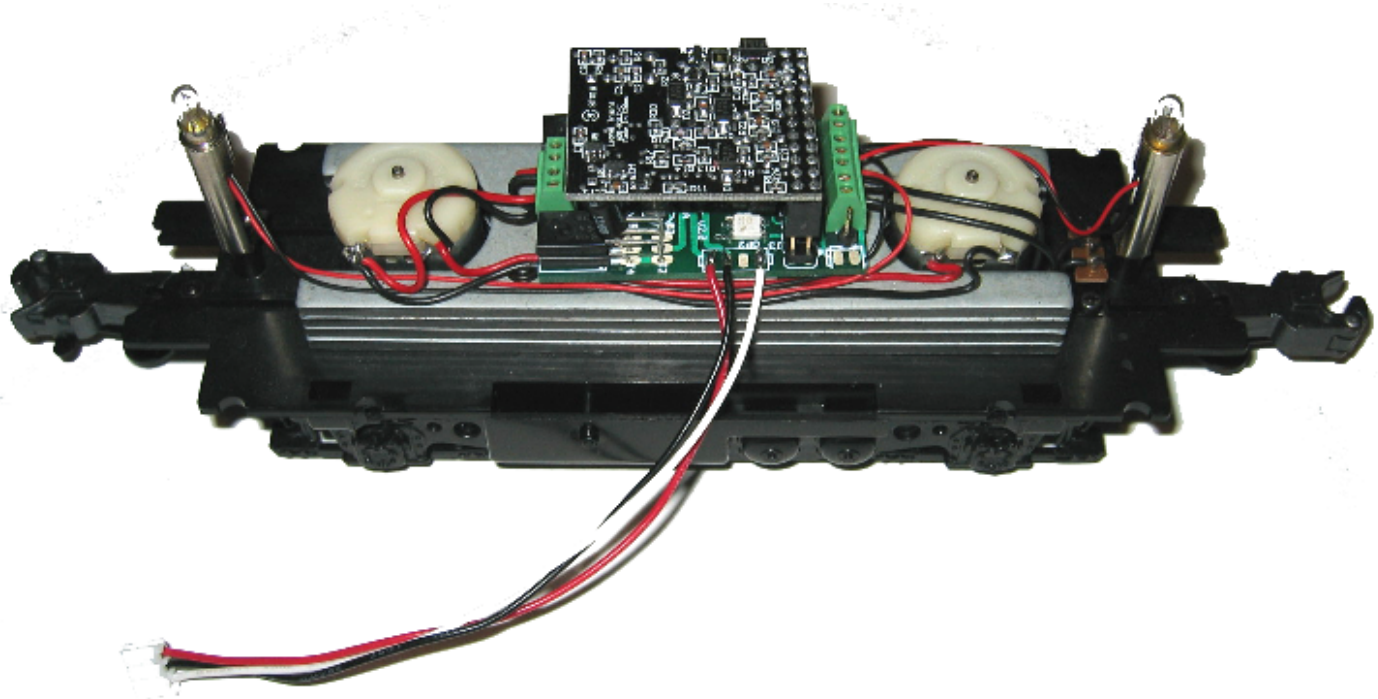


Figure 5

8. Before proceeding, do an operational check. Verify the direction "ON / OFF" switch on the bottom is set to "ON" for "run". The "OFF" position is now the "program" position. Next, attach the antenna as shown in figure 6, looping as shown to keep it from touching anything. Also, position the Sound Commander power wires as shown to keep them from dragging during checkout.

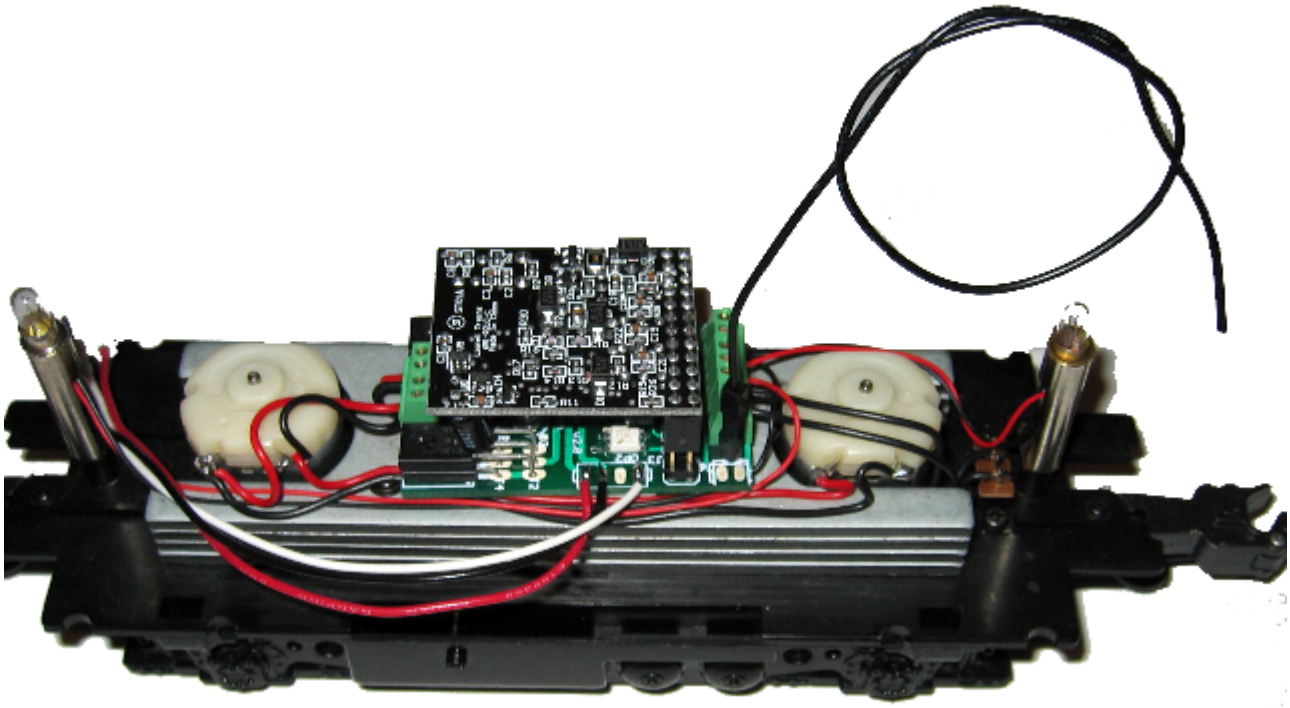


Figure 6

9. Test by operating the Beep in command (Engine #1) and conventional modes; verify the lighting operates directionally. If the command mode lighting is not directional, re-program the R2LC ***and*** feature code as explained on page 14. If a bulb does not light, check for a "glue-like" substance on the threads preventing the bulb from fully seating; carefully tighten as needed. If both bulbs do not light, try pressing AUX2.

10. After checkout, un-plug the antenna wire from the Beep Commander v2 circuit board. Cut the wire to about 7 inches. Install the antenna in the shell as shown in figure 8, noting the position closely. The positioning is to facilitate the Sound Commander mounting. The antenna is best attached to the shell with hot melt glue (shown) or with tape. Tape tends to dry out or get sticky, so use the hot melt glue technique if you can.

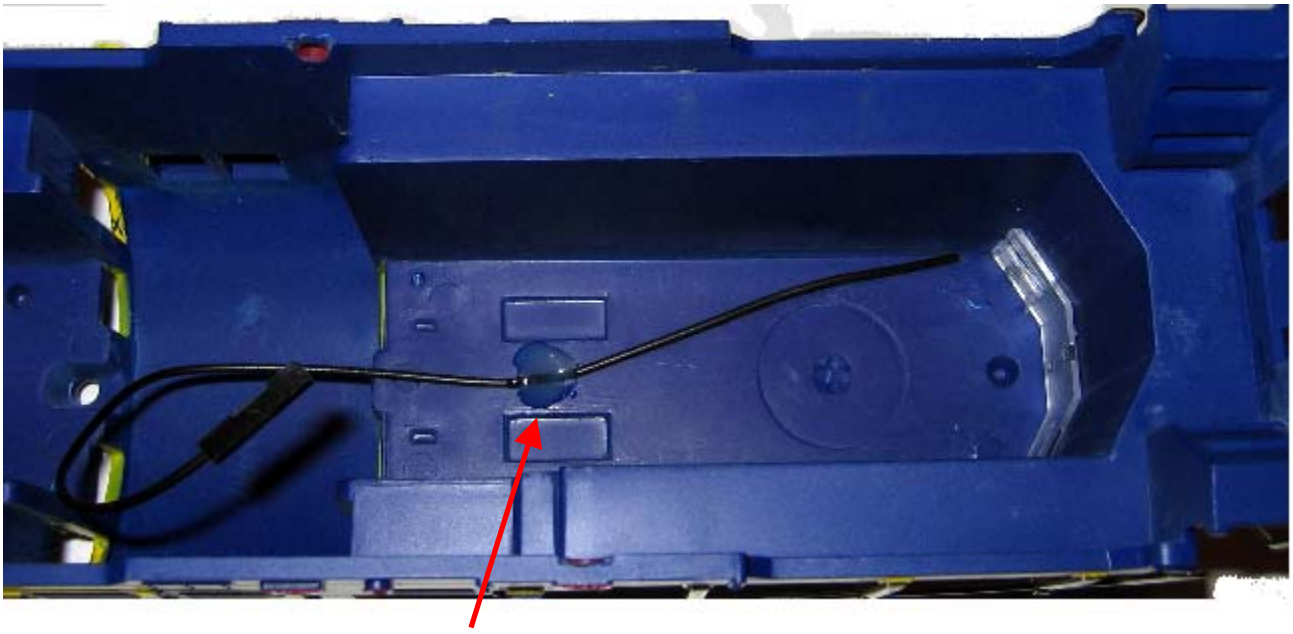


Figure 8

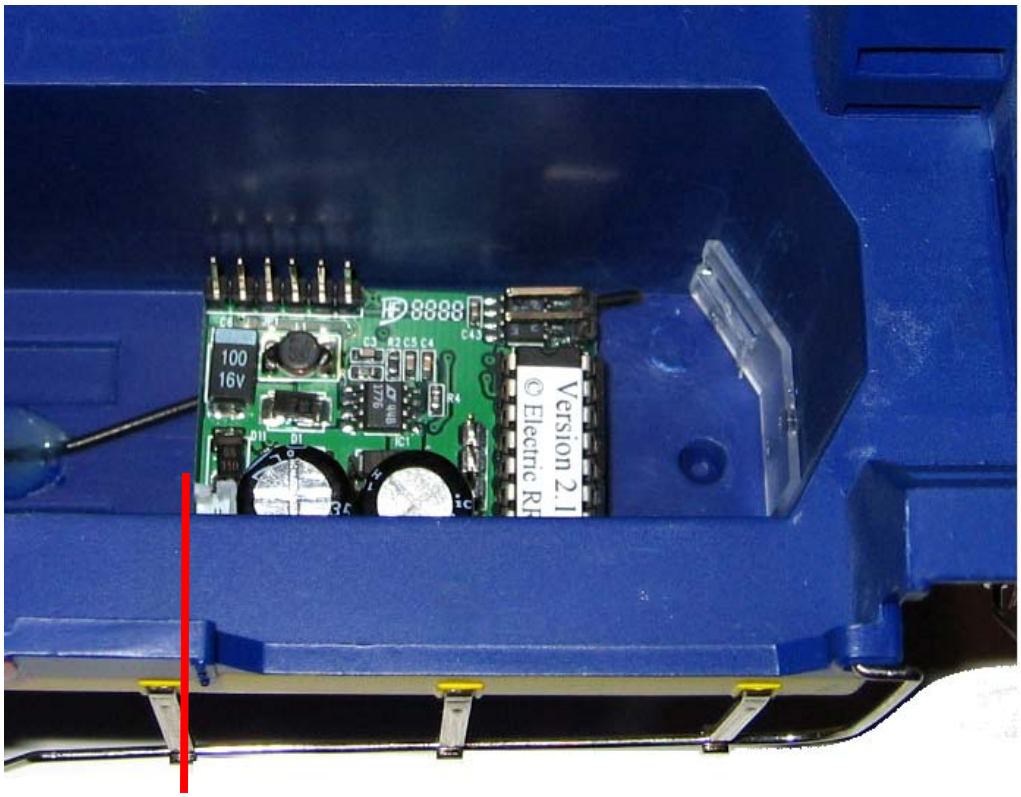
Installing the Sound Commander (optional):

1. Prepare 2 pieces of double stick tape 0.4” by 1.0” and apply to the speaker as indicated.

2. Remove the windshield, as it will block the sound from exiting the shell. Next, install the speaker as shown in the shell. The wires are directed towards the long hood on the Beep shell. Test fit the speaker first with the double stick tape protection on. Once comfortable, fasten the speaker in permanently.

Note: There is no baffle shown on this installation

3. Attach a 0.5 x 0.75” of double stick tape to the back of the Sound Commander and mount in the long hood of the Beep as shown. Align the card with the stanchion on the shell as indicated. Test fit the Sound Commander first with the double stick tape protection on. Once comfortable, fasten the Sound Commander in permanently



Align and Orient the Sound Commander as shown

4. Attach the speaker wire connector to the 2-pin connector in the upper right of the sound Commander; the polarity is not important.

5. Attach the 3-pin power connector from the power chassis into the power connector in the lower left of the Sound Commander. This connector is keyed, and only plugs in one way.

6. Reinstall the shell, attaching the antennal wire to the ANT post. When attaching the shell, use caution not to pinch the antenna and power wires to the Sound Commander. The excess wire is best tucked into the long hood side, out of sight and away from the speaker cone.

INSTALLATION COMPLETED!

Operation - Conventional Mode

The Sound Commander requires a minimum of nine (9) volts AC applied to operate properly. The bell will continue to operate during direction changes as long as the track power interruption is not unusually long.

The horn/whistle and bell buttons on the transformer operate the respective sounds on the Sound Commander. The horn/whistle will sound as long as the button is pressed. The bell will stay activated until the bell button is pressed again.

Using an extended press of the Bell button may activate the selection of additional sounds, which vary by sound set. Holding down the bell button for less than 2 seconds will turn the bell on or off. When the Bell button is held down greater then 2 seconds, but less than 3 seconds, the 2nd sound is activated. Holding down the bell button for longer than 3 seconds will activate the 3rd sound.

Note: Sufficient load must be present on the transformer for the offset voltage to be developed. If the horn/whistle or bell does not operate, try adding a lighted caboose to the "consist" and see if that helps. The Electric Railroad Company has checked out the transformers listed below and found them to operate satisfactorily.

Note: If the horn/whistle and bell sounds are reversed from the activation buttons, the track power is reversed. Switch the connections on the transformer power terminals to correct this condition.

Transformer Compatibility List:

Lionel 1033
Lionel KW
Lionel ZW
Lionel Sound Activation Button
Lionel PM-1
Lionel TPC 300/400
** The CW-80 is NOT compatible with the sound commander

Important Note: *The PM-1 will not develop sound control signals at full throttle, simply back off from full throttle a bit to operate the sounds.*

MTH Z750
MTH Z1000
MTH Z4000 – CAUTION: do not advance the track voltage over 20v !

Important Note: *Excessive track voltage (>20v) will damage the Sound Commander, and a protection device will activate. The activation of the protection device will void the warranty on the Sound Commander.*

Operation - Command Mode

The Sound Commander should remain silent when power is applied to the track when a solid command signal is present. If the command signal does not get detected within 0.5 second the Sound Commander may "start up" on its own, this is normal.

Several additional features are available in the Sound Commander when operating in command mode. The prime mover revs are enabled and the revs track the throttle settings. Additional sounds in command mode include, a coupler clank and a "beep-beep" sound that occurs when the "crew talk" button is pressed (AUX1+2).

Volume may be set on the prime mover independent of the other sounds. The prime mover sound volume is controlled with AUX1+3 for up, and AUX1+6 for down. This works on DCS with "labor/drift". The warning sounds volume is controlled by AUX1+1 for up, and AUX1+4 for down. This is the "volume" button in DCS. To shutdown, or "quell" the sounds, press AUX1+5.

Setting the engine ID Number:
The R2LC Receiver comes with its engine ID set to number '1'. To change the engine ID, follow this procedure.

1. Make sure the Command Base is connected to the track.
2. Set the Beep direction switch to "OFF"
3. Place the Beep on the track and apply power.
4. On the CAB-1, press [ENG] then the number (1 - 99) for the engine selected.
5. Press [SET], the Horn blows, and the ENG ID is stored.
6. Press AUX1 + 5, the Horn blows.
6. Remove power from the track and place the switch back to the 'ON position.

Note: The R2LC Receiver module can be programmed to operate different features for different engines. The fifth output (labeled "SMK") can be programmed to operate the different features. These include a smoke unit (with boost), a strobe light, or cab / marker lights. Simply set this to "5", as instructed above, as this terminal is not connect in this installation.

When running in Conventional mode:
Cycling of engine direction can be overridden by placing the programming switch in the 'OFF' (program) position. This will lock the engine direction into the last direction traveled. You **must** replace the switch back to the 'ON" (run) position if you wish to run the engine in Command mode.

Limited Warranty

The Electric Railroad Company warrants to the original consumer purchaser that this product will be free of defects in materials and workmanship for a period of 90 days from the date of original purchase. This warranty does not cover service, repair, or replacement to correct any damage caused by improper installation, improper connection, external electrical fault, accident, disaster, misuse, abuse, or modifications to the product. All other express or implied warranties, including the implied warranty of merchantability and fitness for a particular purpose, are hereby disclaimed. If this product is not in good working order as warranted, the sole and exclusive remedy shall be repair or replacement. In no event shall The Electric Railroad Company, or any dealer, distributor, or authorized installation and/or repair service provider be liable for any damages in excess of the purchase price of the product. This limitation applies to damages of any kind, including but not limited to, direct or indirect damages, lost profits, lost savings or other special, incidental, exemplary or consequential damages whether for breach of contract, tort or otherwise, or whether arising out of the use of or inability to use the product, even if The Electric Railroad Company, or any dealer, distributor, or service provider has been advised of the possibility of such damages or any claim by any other party. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. During this warranty period, the product will either be repaired or replaced (at our option) without charge to the purchaser, when returned either to the dealer with proof of the date of purchase or directly to The Electric Railroad Company when returned prepaid and insured with proof of date of purchase. Some states do not allow limitations on how long an implied warranty lasts, so such limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Repairs

Each and every product is thoroughly tested before it is shipped. The likelihood that it is not working when it reaches you is very small. However, if after troubleshooting it yourself you cannot get it to work properly, you should contact us to help determine the problem.

Should your product ever need repair, you should return it postpaid directly to The Electric Railroad Company. If the product is within the warranty period, it will be repaired or replaced and returned to you free of charge. Units out of warranty will be repaired or replaced for a service charge of $30.00 at our option.

Please email to support@electricrr.com for return authorization before returning any product.

Disclaimer

Improper installation or configuration of the Beep Commander Board can cause overheating and fires! Since it is not possible to understand every installation, it is the consumer's responsibility to verify proper operation of the upgrade to prevent malfunction. If you are unsure of your install, please contact us first before taking any risks!