



Lionel Barrel Car Mini Commander Installation Guide

Revised: October, 2008

OVERVIEW:

The Barrel car is normally operated by the UCS track. When over the UCS track, application of power on the 4th and 5th rails applies power to the vibration motor to move the barrels up the ramp. The Mini Commander ACC can apply this power to the vibration motor from one of its outputs. If DCS operation is desired, the Mini Commander HC-1 output, controlled by AUX1, should be used.

INSTALLATION PROCESS SUMMARY:

To free yourself from the UCS, you will need to modify one of the trucks on the car to “collect” power from the 3rd (center) rail for the Mini Commander to operate the vibration motor attached to the ramp. A new power pickup roller / coupler is included in the kit. This is attached by bending over small tabs around the axel. The best location for the attachment of the roller is the end of the car where the ramp is the highest. The Mini Commander will be located under this portion of the ramp, near the power pick-up.

The second slider shoe is not used, and the wire may be insulated and left free inside the barrel ramp car, or the wire may be cut close to the shoe. Insulating the wire will allow easier reversal of the upgrade, should it be desired.

Note: the truck that will have the power collector installed will need a “common” wire attached. It is suggested to solder this to the truck frame after baring some paint. Usually there is a small tab on the frame on the opposite side of the coupler to attach a wire to.

After mounting the Mini commander, simple configuration is done to set the ID and select the operating characteristics. The preferred method to configure the car is by using Soft Set Technology™.

Optionally, a configure/run switch may be installed in the car for setting the ID and setting the operating voltages. A small hole can be made and momentary pushbutton may be installed to act as a configure/run switch. The switch that seems to look nice, and works well is a Radio Shack #275-1571. Programming is covered later in the document.

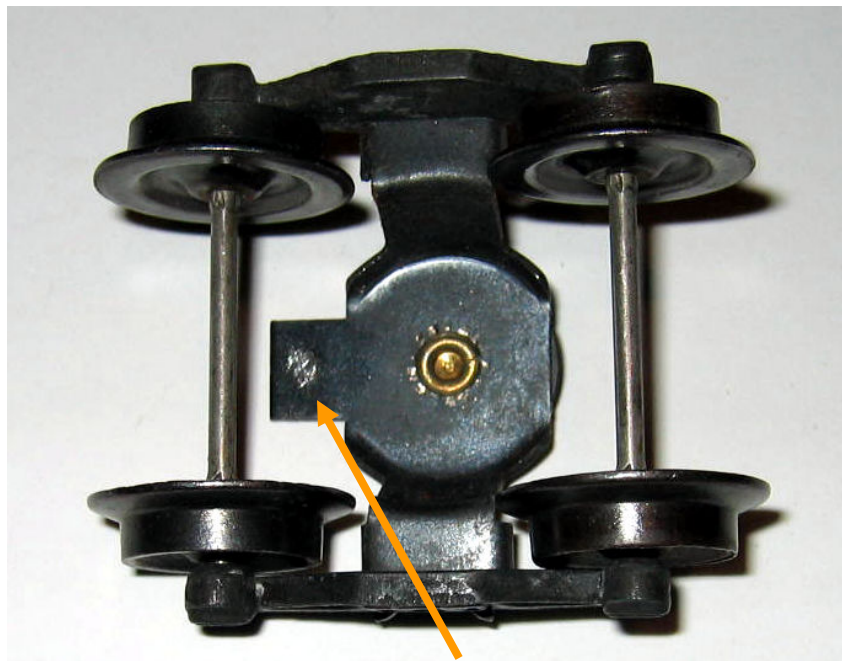
INSTALLATION SEQUENCE:

Start by removing the barrel car shell, set the shell and mounting screw aside for later re-assembly. Review the wiring in the car. In most cases, both of the slider shoe wires are attached to the coil wire with a wire nut. The second coil wire is soldered to the motor case.

Disconnect both slider shoe wires from the coil, and then remove the “E” clip securing the truck on the side where the ramp is the highest.

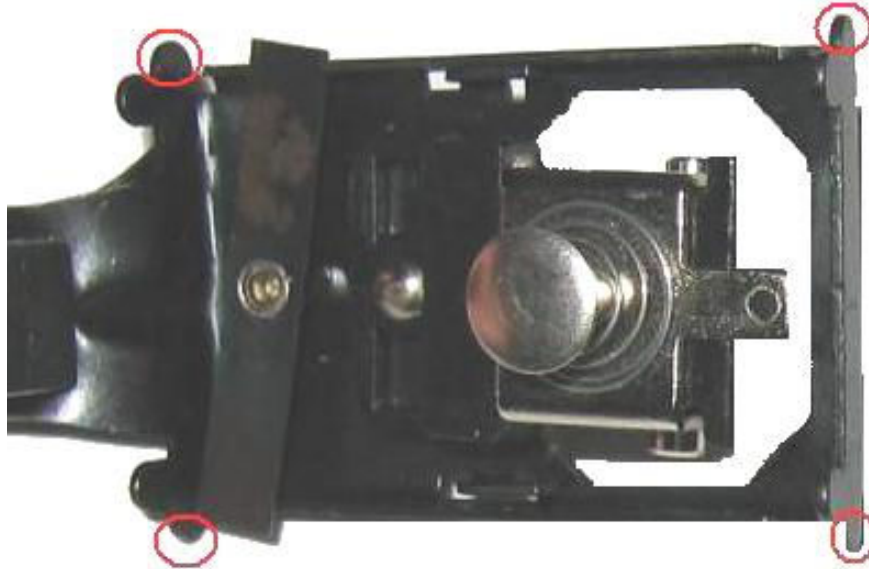
Remove the slider shoe / coupler mounting plate by bending up the 4 tabs at each axel end. Scrape a bit of paint away from the frame as shown below.

Cut the super flex wire included in the kit in 2 equal lengths. Solder one end of the wire to the truck as shown below. Use a fairly high wattage iron to heat the truck for a secure connection. This wire will be connected to the Mini Commander “GND” terminal.



Scrape paint and attach wire here for “common”

Next, test fit the new roller / coupler assembly on the truck. If the tabs circled below impact the wheels, you will need to cut them off or bend them over. The “fast angled” wheel sets typically require this modification. Do not cut off the mounting tabs!



Attach the remaining length of super flex wire to the new plate that has the 3rd rail collector and coupler. It is best sand the tab with lightweight sandpaper to clean the tab prior to soldering. Heat-shrink the wire where it attaches to the roller.

Attach this new plate to the truck by bending the tabs over the axel (not too tightly), and re-attach the truck to the chassis. Make sure the wheels turn freely after mounting the new roller / coupler assembly.

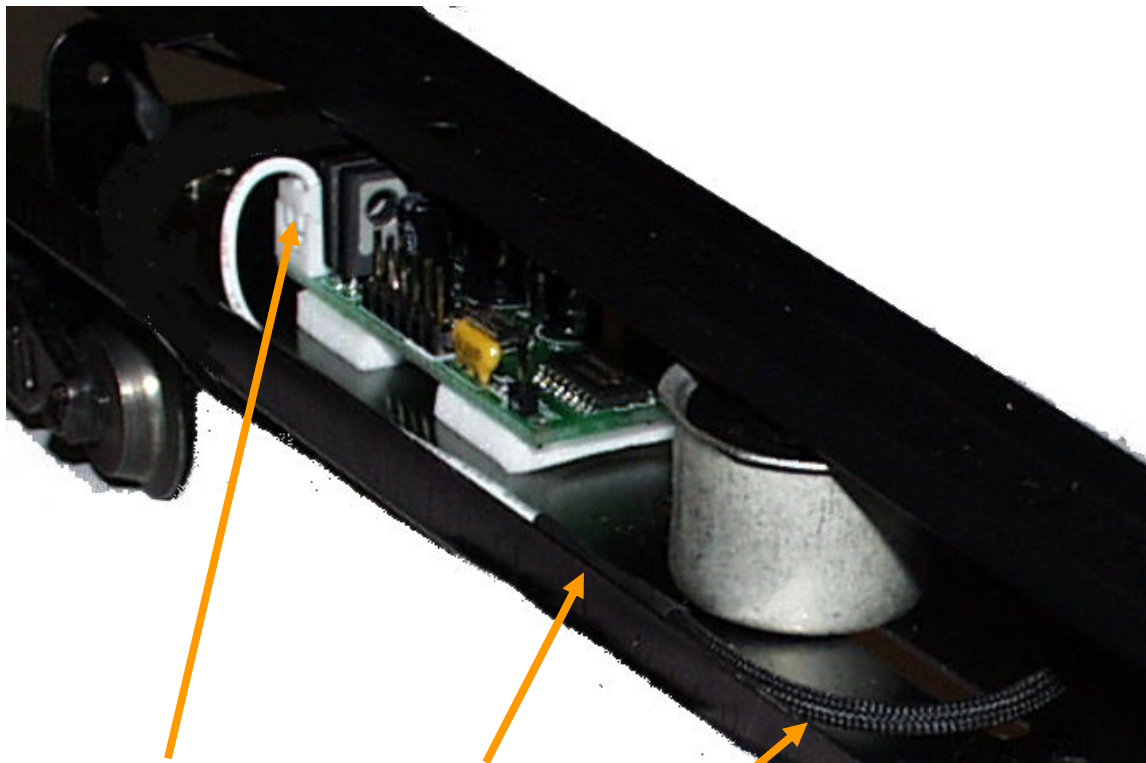
Next route the wires back up through the chassis hole to the topside of the chassis.

Using one of the Mini Commander wire assemblies (mini connector with a black and white wire); attach the white wire (hot) to the coil wire and heat-shrink the connection.

The black wire should be soldered to the coil case for the most reliable operation. If this proves to be a difficult task, the car will operate without the black wire attached as long as the car is stationary when operating. If you choose to omit the connection of the black wire to the coil case, simply cut it off close to the connector.

Test fit the Mini Commander to determine wire lengths before attachment to the coil. As you can see the install is tight, and the wires need attached to the Mini Commander prior to final attachment with the double stick tape to the car chassis.

There is a $1\mu\text{f} / 50\text{v}$ capacitor in the kit, which is a spare part. If you experience problems with the operation of the car (coil not turning off when commanded), please contact support@electricrr.com - at which time it may be suggested necessary to add the capacitor across the coil connections.



Mini Commander White wire

Heat Shrink

Coil Wire

To install the Mini commander, the loop antenna will need to be bent over to clear the bottom of the ramp. When properly placed, the Mini Commander components will clear the ramp bottom, and the green power connector will be clear of the ramp so the power wires can be attached to the green connector after mounting with the double stick tape.

The fit is tight, so take your time and once the Mini Commander is under the ramp and positioned in the right spot, press it down to adhere to the chassis. Remember to connect the coil wire before mounting the Mini Commander.

Attach the power pickup wires from the truck, making sure the 3rd rail collector wire is connected to “HOT” on the Mini Commander.



An extension antenna is needed for this install. The extension antenna should be hot glued to the roof of the car shell, and plugged into the “ANT” pin on the Mini Commander.

Re-install the shell and secure with the mounting screw.

INSTALLATION COMPLETED

CHECKOUT and CONFIGURATION:

Assuming you have the wiring reviewed, power up the car on the track. The Mini Commander is set to ACC one (1) when shipped. If you selected the optional output on the Mini Commander ACC product for operation under DCS, use AUX1 as appropriate.

CHECKOUT:

With the shell off do the following procedure. Although the configuration is not done yet, you can get the car to partially operate by selecting ACC + 1 + AUX2 (or AUX1). With a Barrel on the ramp, pressing the key will cause the barrel to vibrate for a short burst. If the ramp does not vibrate or gets stuck on, immediately remove power from the car. If this is OK, proceed to configuration, otherwise check the wiring, and as needed contact The Electric Railroad Company for tech support.

CONFIGURATION:

Configuration is done by using Soft Set Technology. Using this method eliminates the need for the presence of a configure/run switch.

Note: A jumper (included) may be placed on P1, pins 1 & 2 to enter configuration mode if problems are experienced with Soft Set mode. The shell will need to be removed to access the Mini Commander board in this case.

IMPORTANT NOTE: The configure/run mode of operation is determined at power on of the Mini Commander. Once sampled, the state is maintained. The power must be removed 10 seconds to observe a jumper or switch state change. (on or off)

Your installation may use an ENG ID or ACC ID from the CAB-1. DCS will require the ENG ID selection. Pick a number for the ID, and do one of the following:

USING SOFT SET

With the car on the track and power applied, configure the Mini Commander as follows: waiting 1 second between each SET press. Actually a few extra SETs are a good idea. I usually press it 6 to 7 times!

As ACC:

ACC + 1 + SET + SET + SET + SET + SET (Soft Set entry sequence)
ACC + ## + SET (where ## is the ACC number you want)
AUX1 + 4 + BOOST
AUX2 + 4 + BOOST
WAIT 10 seconds; do not press any CAB-1 key while waiting.

As ENG:

ACC + 1 + SET + SET + SET + SET + SET (Soft Set entry sequence)
ENG + ## + SET (where ## is the ENG number you want)
AUX1 + 4 + BOOST
AUX2 + 4 + BOOST
WAIT 10 seconds; do not press any CAB-1 key while waiting.

Now select the car by ACC (or ENG) + ## (the number you entered above) and then press AUX2 to operate the ramp.

If the car is not operating correctly, you will need to redo the configuration sequence. Notice the AUX1 and AUX2 keys are configured, as AUX2 will not configure before AUX1 is configured. This is a CAB-1 issue, some work, some don't - so do both to be safe.

USING A JUMPER

Power off the track for at least 10 seconds
Add the jumper
Power on the track

As ACC:

ACC + ## + SET (where ## is the ACC number you want)
AUX1 + 4 + BOOST
AUX2 + 4 + BOOST

As ENG:

ENG + ## + SET (where ## is the ENG number you want)
AUX1 + 4 + BOOST
AUX2 + 4 + BOOST

Power off the track for at least 10 seconds
Remove the jumper

NOTE: the voltage selection ("4" after AUXn) may need adjusted for your car, if the operation is sluggish, try 5 or 6 to improve the operating quality.

OPERATION:

CAB-1

Operation with the CAB-1 is as simple as selecting the ACC or ENG and the ID that you assigned. Pressing AUX2 (or AUX1) will activate the ramp motor. Pressing AUX2 (or AUX1) again, will switch off the ramp motor.

DCS

Operation under DCS can be initiated by adding the Barrel car as a TMCC engine. When selected, using any of the soft keys (except AX8/9) under the LCD will operate the ramp.

If you opted for AUX2 operation, the HDLT key will trigger the ramp on/off.

TMCC, R2LC, CAB-1, and RailSounds are registered trademarks of Lionel LLC
DCS is a registered trademark of MTH, Inc. The Mini Commander and Soft Set Technology
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