



MTH Helicopter Car Mini Commander Installation Guide

Revised: October, 2008

OVERVIEW:

The Helicopter car is normally operated by a UCS track. When over the UCS track, application of power on the 4th and 5th rails applies power to the motor to launch the helicopter. The Mini Commander can apply this power to the launch motor from one of its outputs. In the operating helicopter car, it is recommended to use HC-1 output, controlled by AUX1, for DCS compatibility as well.

INSTALLATION PROCESS SUMMARY:

To free yourself from the UCS, you will need to replace one of the trucks on the car to “collect” power from the 3rd (center) rail. The Mini Commander will need power from the track, which is obtained from replacing one of the trucks.

The Mini Commander fits in the car, and should be carefully positioned as shown in the pictures in this guide. The small AC-to-DC power board to drive the motor is removed for soldering the wires that go to the Mini Commander HC-1 output. ***Use caution not to damage or lose the mica insulators under the part securing the small power board to the chassis of the car.***

The truck mounting plate needs to be removed to replace the truck. One of the mounting screws will be left off in the re-assembly of the truck mounting plate as it interferes with the roller mount on the new truck.

Optionally, you can remove the truck that is not being replaced to remove the slider shoe. You can also leave the wire in the car & heat shrink the wire end as it is left unconnected.

There is a mechanism in the car to tilt the helicopter launch direction. It will be removed to make room for the Mini Commander board. Once removed, you will need to lock the launch pad in place to level it. I recommend removal of the spring and replacing it with some double stick tape (included). When the Mini Commander is mounted per the instructions, the Mini Commander card will stabilize the launch pad because the tab that the spring was attached to will rest on the Mini Commander.

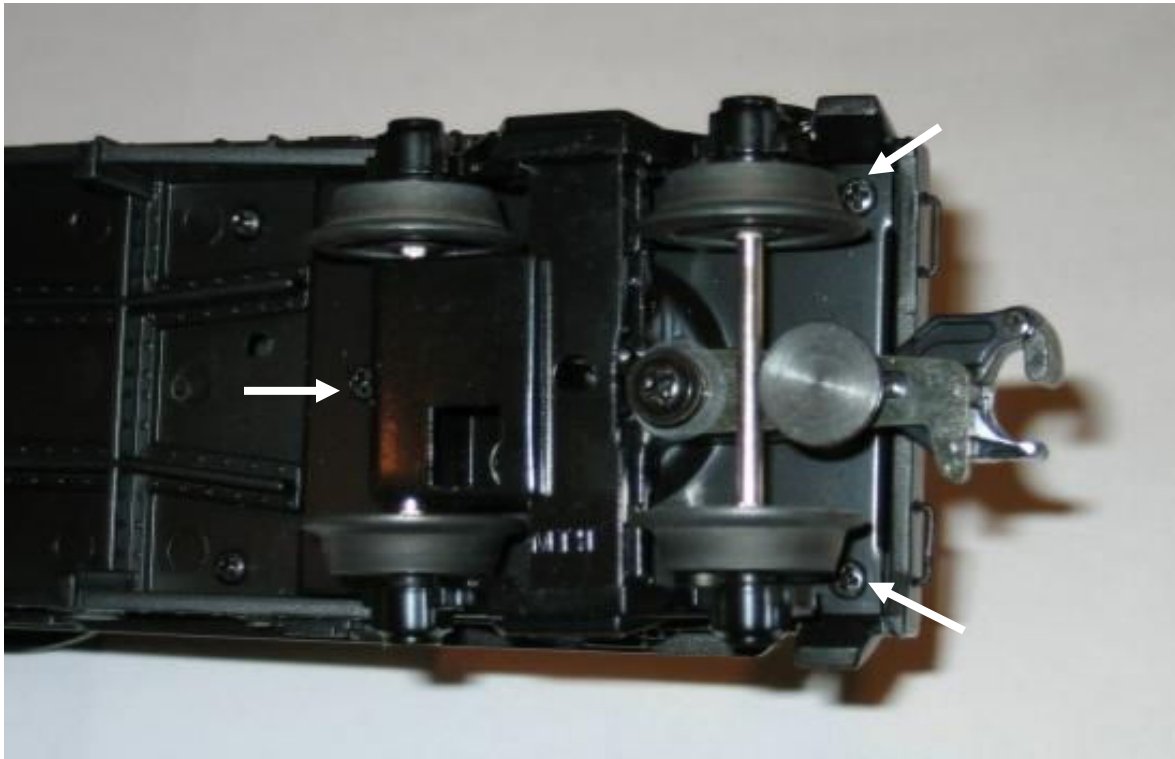
INSTALLATION SEQUENCE:

- 1) Prepare the car for the installation by identifying the truck for replacement as shown. This is the truck closest to where the Mini Commander will be mounted, and therefore easiest to wire.

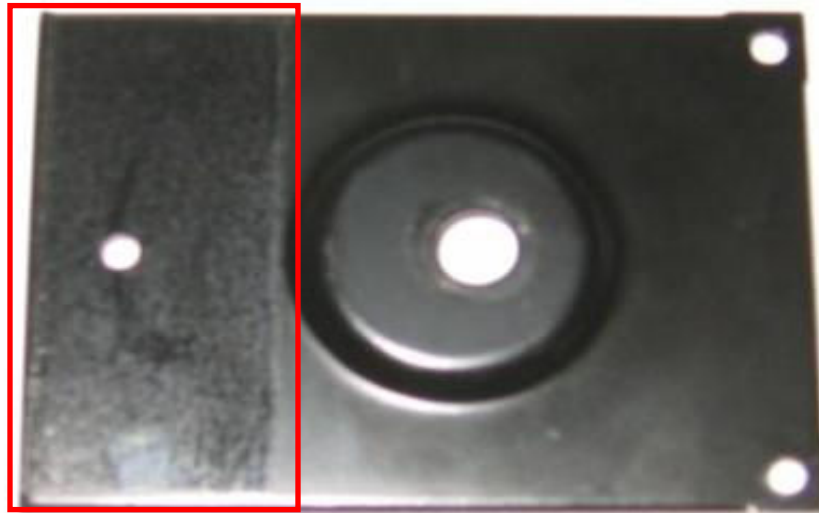


Replace this truck

- 2) Remove these three (3) screws to release the truck mounting frame. When the screws are removed, the frame and truck will still have a wire attached to the car. Cut this wire to release the assembly.



- 3) Once removed, continue by removing the truck from the mounting plate. The bare plate will need an insulator on the bottom to help prevent wear on the plate, which will eventually short out the pickup. This insulator is made of acetate, and measures 1.75" x .75". Place the insulator as shown:

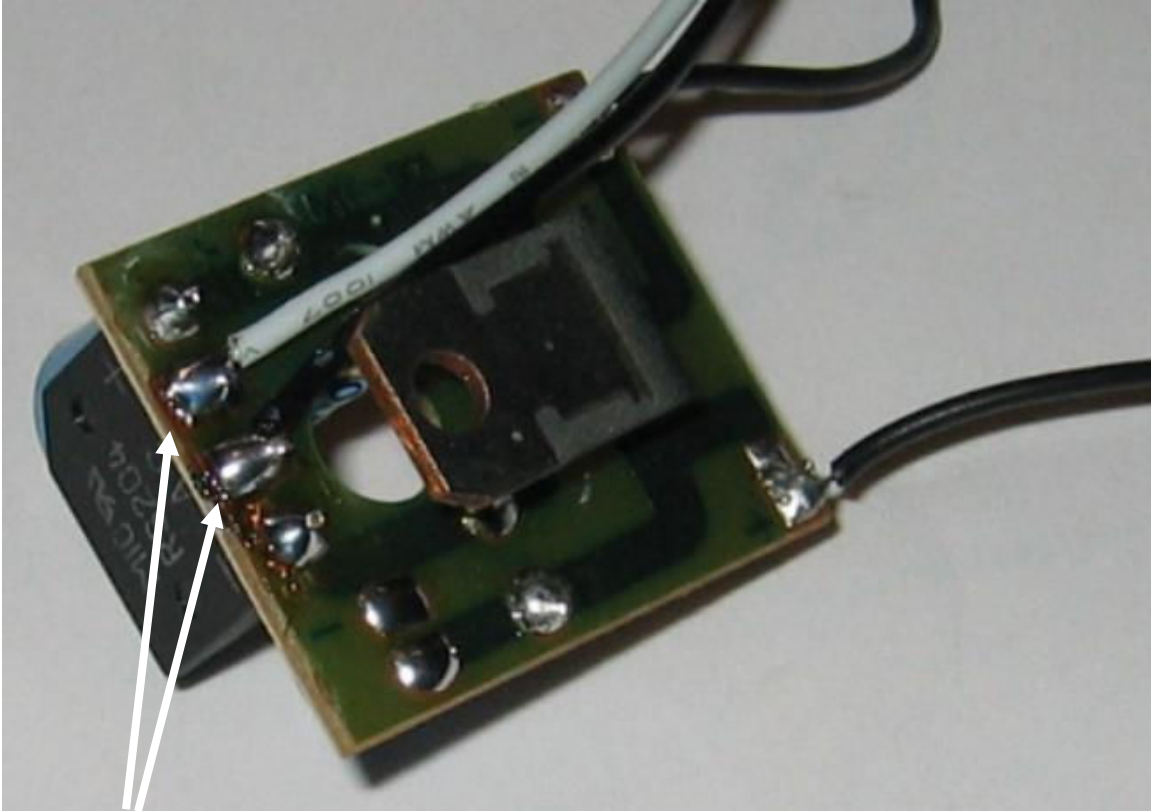


IMPORTANT: The mounting hole covered by the insulator will not have the mounting screw replaced when attaching the mounting plate back on the car!

- 4) Attach the replacement truck with the pickup roller to this plate and set the assembly aside for later installation.
- 5) Release the helicopter launch platform by removing these four (4) screws. When the platform is free, use caution not to damage the wiring connecting the motor and the power board. Once the platform is released, remove the single mounting screw holding the power board on the chassis. Cut the wire from the power board leading to the other slide shoe on the truck still attached to the car.



- 6) Next prepare a wire to connect the Mini Commander to the power board. This wire should be cut to about 3.75" long and will attach to the center two (2) pins on the bridge rectifier. You will need to clean off the wires that went to the sliding shoes first that were cut in the disassembly process. Solder the new wire assembly as shown - polarity is not important.



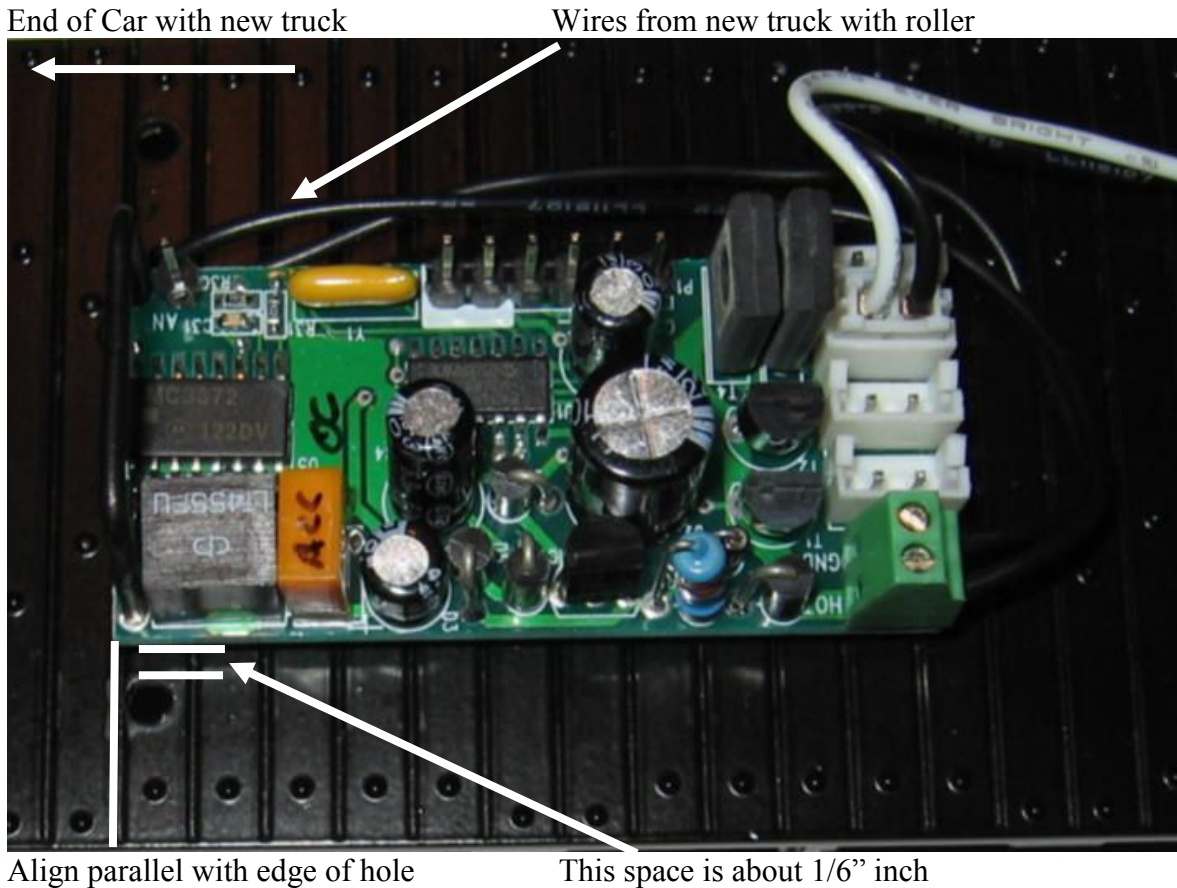
Attach Mini Commander wire assembly to these 2 pins

- 7) Stabilize the launch platform by removing the spring and replacing the spring with a small piece of .5" x .5" double stick tape as shown. The spring pops out easily; just grab it with a pair of needle-nose pliers.



- 8) Re-attach the truck frame to the car and route the wires up through the car base, using only the 2 screws on the end! Leave slack on the wires for the truck to rotate freely.
- 9) Remove the leveling device from the car base by removing the two (2) mounting screws.

- 10) Mount the Mini Commander as shown with the remaining double stick tape. The location of the Mini Commander is important, as it will provide support for the Tab that we just placed the double stick tape on in the previous step. Be sure to note the correct end of the car to attach the Mini Commander card to!



- 11) Attach the wires from the truck to the Mini Commander. Make sure the wire from the roller goes to the "HOT" connection on the Mini Commander.
- 12) Reattach the Power board. Remember to place the mica insulators under the mounting tab of the board. There is also a bushing on the screw that must engage the tab to insulate the screw properly.
- 13) Connect the wire from the power board into HC-1 on the Mini Commander.
- 14) Review all the connections carefully. Then reattach the launch platform to the car base and proceed to checkout. You need only to put 2 screws in with a few turns until the car is fully checked out.

Note: An extension antenna is included, however it is rarely needed for this type of installation. If operation is erratic, you can enhance the signal reception by using the supplied antenna extension. The extension is a single wire with a connector that plugs over the "ANT" pin. Place the antenna wire in a place that will not be in the way of the operation of the car, it is fine to shorten the wire. However, if you shorten it too much, it will not help the reception.

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. And although the configuration is not done yet, you can get the car to operate by selecting ACC + 1 + AUX1 and listening for the launching motor operation.

If this checks out, proceed to configuration. If not, you will need to verify the connections again, and use a meter to be sure the Mini Commander is getting power.

CONFIGURATION:

Since there is not a Configure / Run switch, you should enter Soft Set to finalize the installation.

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 + 7 + BRAKE + 3
AUX2 + 7 + BRAKE + 3
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 + 7 + BRAKE + 3
AUX2 + 7 + BRAKE + 3
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 AUX1 to Launch the Helicopter.

If the car is not operating, you will need to redo the configuration sequence. If you are un-sure you are able to get into Soft Set to configure the car, you may use the jumper on the connector P1 pins 1 & 2. Then enter the configuration sequence without the Soft Set entry sequence line above.

The configuration sequence above shows AUX1 and AUX2 getting configuration settings. This is not an absolute requirement, but until you get more familiar with Soft Set, please follow the sequence above.

NOTE: All configuration sequences require the CAB-1.

Note: if the helicopter is launching too high, lower the voltage by using “6” instead of “7” in the above sequences. The settings above are based on 18v track voltage.

OPERATION:

CAB-1

Operation with the CAB-1 is as simple as selecting the ACC or ENG and the ID that you assigned. Pressing AUX1 (or AUX2) will spool up the launch motor. Releasing will launch the helicopter.

DCS

Operation under DCS can be initiated by adding the Helicopter car as a TMCC engine. When selected, using the AX9 soft key under the LCD will operate the Helicopter car.

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