



*it's a whole new game!*

## **Mini PlayField (MPF) Removal and Installation guide**

### **Caution:**

If you are not comfortable working on pinball hardware and/or high voltage electronics, please get professional support for this. In general: use your common sense. Don't experiment. Don't be a nihilist. Only skilled and trained people are allowed to open this system. The manufacturer accepts no responsibility for injuries caused by unauthorized operation. Keep long hair, fingers, jewelry, etc. away from turning parts of the system.

## Before removing the MPF make sure the game is TURNED OFF!

This instruction is valid for two types of built TBL:

1. The built with the latest version boardset and new construction for the cardoor assy (eg stepper motor connected to the bottom of the MPF). Called Built type A in the manual
2. The built with the first boardset and retrofitted with the 'so-called' MPF kit (eg afterwards the steppermotor was re-positioned under the MPF). Called Built type B in the manual

The difference is that with the old boardset the connector for the opto's of the scoop is under the playfield where with the new boardset this connector is placed on the PCB under the MPF. So Built type A has one connector less to remove.

## MPF out of TBL

### Step 1 – remove glass and balls

- Carefully remove the lockdown bar and playfield glass.
- Remove all five balls from the Ball Trough!
- Lift the playfield a bit and pull the playfield a bit towards you as soon as the playfield support brackets are high enough to do so and rest the playfield onto the front of the cabinet on the playfield support brackets:

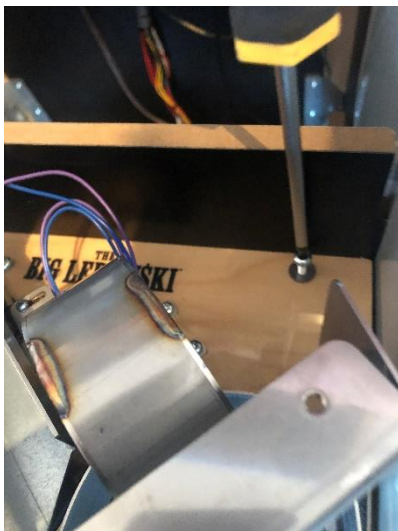


**Step 1 – Only valid for built type B: disconnecting the Opto connector**

- Raise the playfield to vertical position. Let it carefully touch the top part of the backbox, this to avoid damage. You can put something in between like a cloth to reduce the chance of damage even further. Also we recommend to put something over the bowling alley to avoid screws falling into it.
- Disconnect the connector going to the opto's of the MPF
- After this is done set the playfield horizontal again.

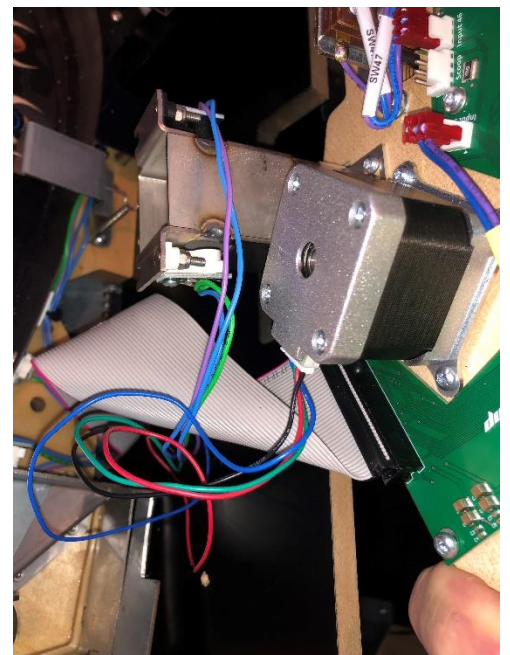
**Step 2 – Remove the MPF**

- Remove the roof by loosen the two Allen screws
- Disconnect the cable going to the roof
- Remove the 4 screws holding the Right ramp at the entrance and end and put ramp aside. It can remain in the flipper
- Loosen the wireform to make it easier to remove the MPF
- Remove the 3 screws accessible from the top plus the 1 in the backboard





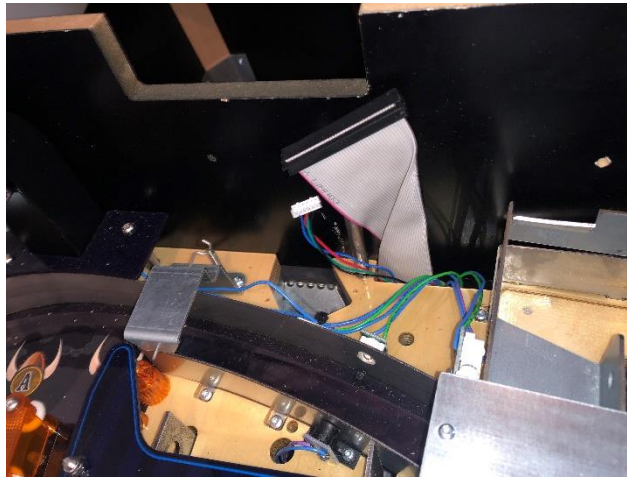
- Carefully lift the MPF and disconnect the ribbon flatcable going to the PCB and the cable going to the stepper motor.
- Remove the MPF and put it on your worktable



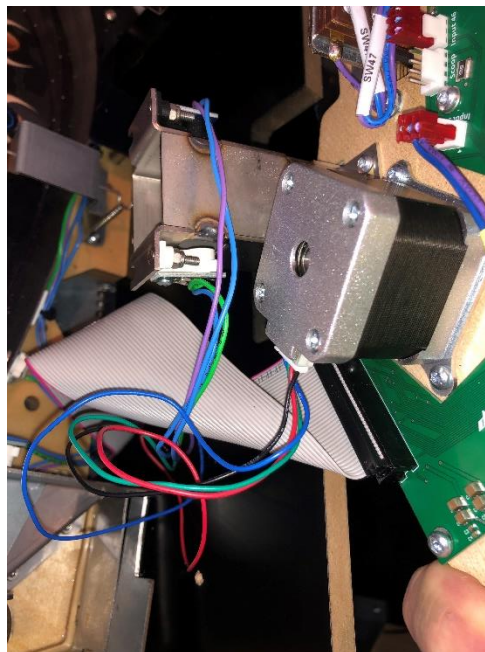
# MPF back in the TBL

## Step 3 – Re-install MPF

- Take the MPF and place the MPF mounting screw which is under the loopramp already in place in the hole. Once the MPF is in place it will otherwise be impossible to get this screw in place. Hold MPF slightly vertically above the place where it's going to be installed



- If you have the built type B with an opto cable guide this cable coming from the opto's of the scoop through the same hole as the flatcable. If you have type A you can skip this step.
- Plug now the plug of the stepper motor cable in place in the stepper motor and do the same with the flat cable in the PCB. Put MPF in place on his mounting rests and make sure no cable is de-attached and comes in a place where it can obstruct the ball.



*picture of cabling with built type B*

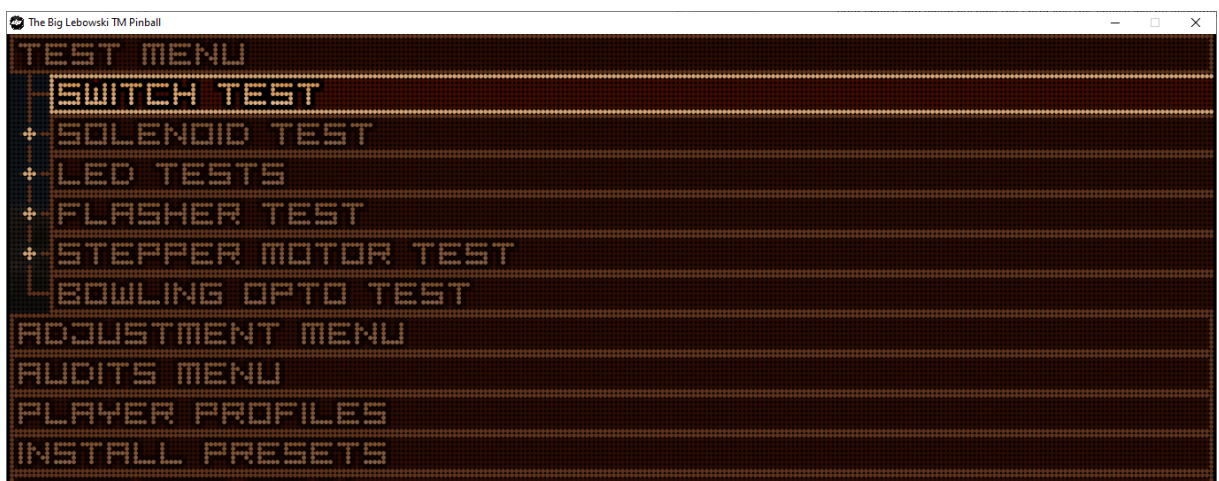
- Tighten the screw below the loopramp so it is fastened and will not move when playfield is raised again vertically
- If you have the built type B with loose opto cable: raise the playfield vertically and connect the optocable. Set the playfield horizontal again
- Connect the roof to the roof powercable



#### Step 4 – Test functionality

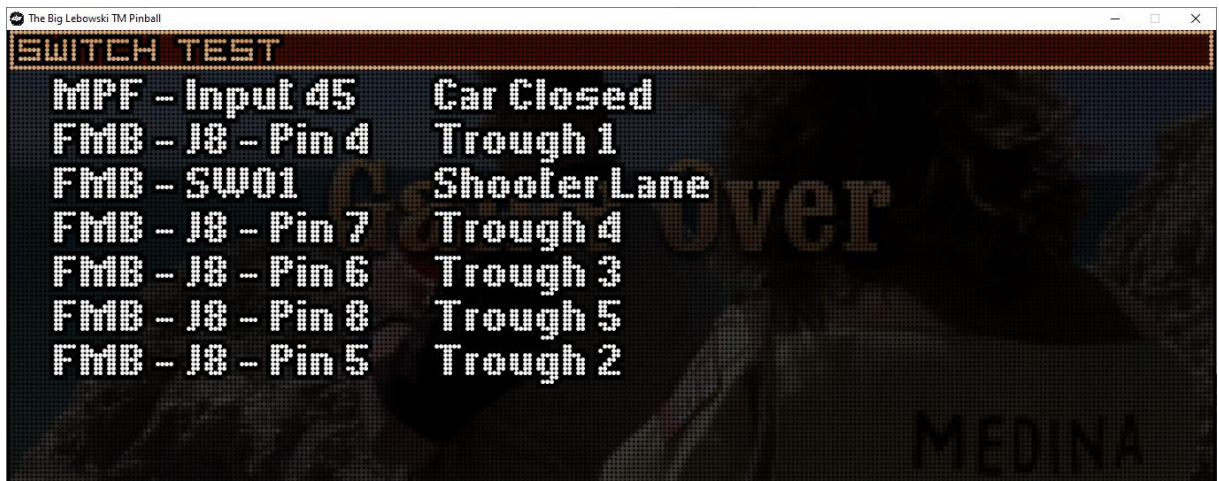
- Now time to test if all connections are in place prior to placing all screws back in place. This to make sure no cable has come loose. So boot the TBL and go into the testmenu

In this menu, you can carry out any test you desire to check if something is working properly.



## Switch test

If you activate this test, it will display all switches which are active at that moment.



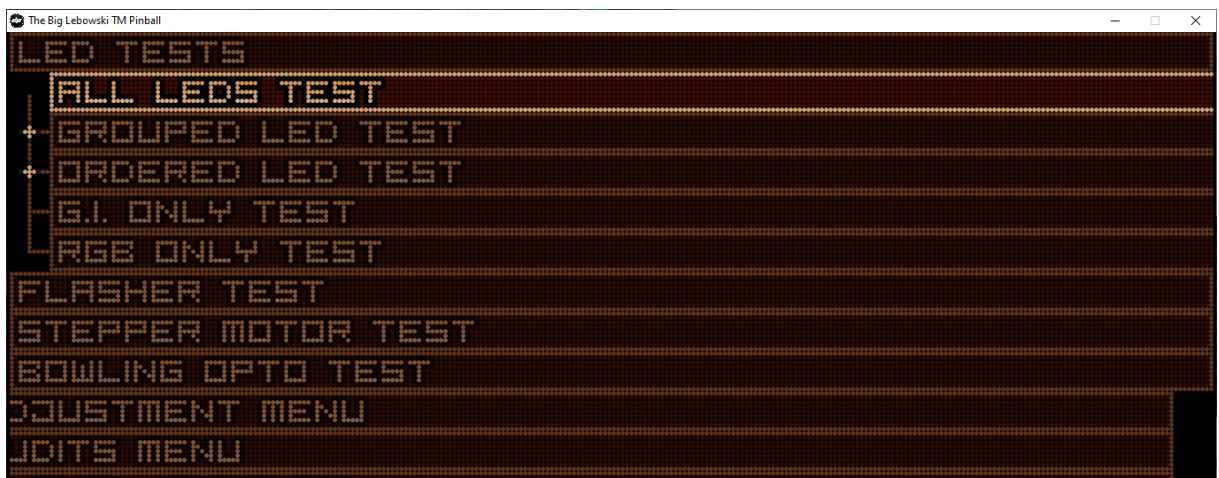
If you have doubts about a certain switch, you can check the correct working here. Push the switches on the MPF (parking targets, loop ramp, ramp made, closed door) and see if this switch pops up on the display here. Also, a sound can be heard when a switch is activated and you can also see if there are no switches active when they should not be.

## LED tests

If you select LED test, you can check the proper working of all LED's and if the multi-color LEDs are displaying all colors correctly.

### All LEDs test

The easiest and most straight forward test is the All LEDs Test.



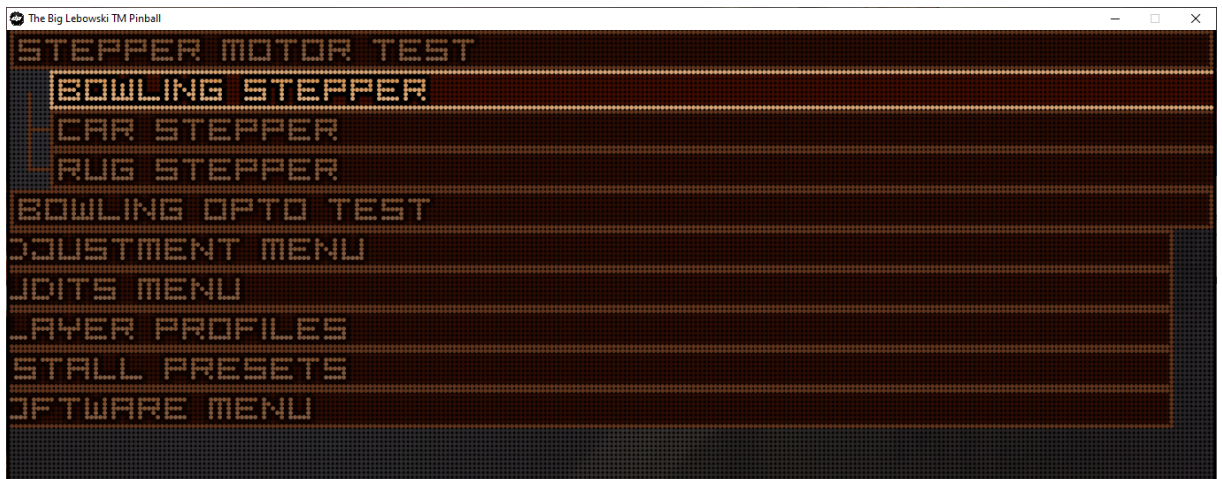
All LEDs will light up. The multi-color LEDs will cycle through different colors. You can select the following test patterns, which all speak for themselves.

## Stepper motor test

The TBL has three stepper motors:

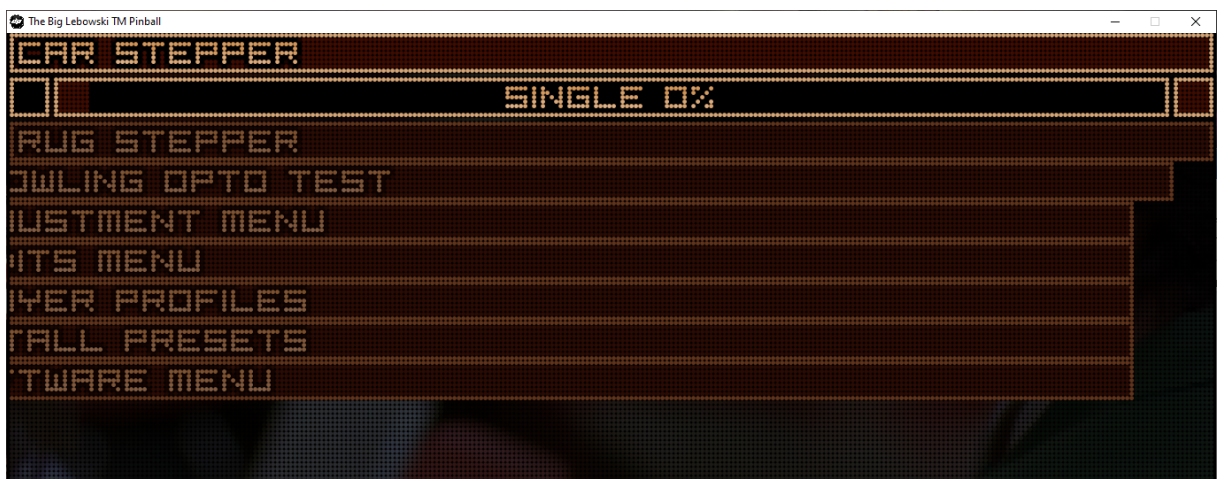
- In the Bowling alley below the playfield, which moves the ball launcher left and right.
- On the MPF, you will find a moving door behind which the car is placed. This Car Door is moved by a stepper motor.
- The rug on the playfield is also controlled by a stepper motor.

*Remember that for the stepper motors to work in the Test Menu, the switch which enables power supply to the 12 & 48 VDC circuits must be enabled!*



Select the stepper motor you want to test. In this case, we take the Car Stepper.

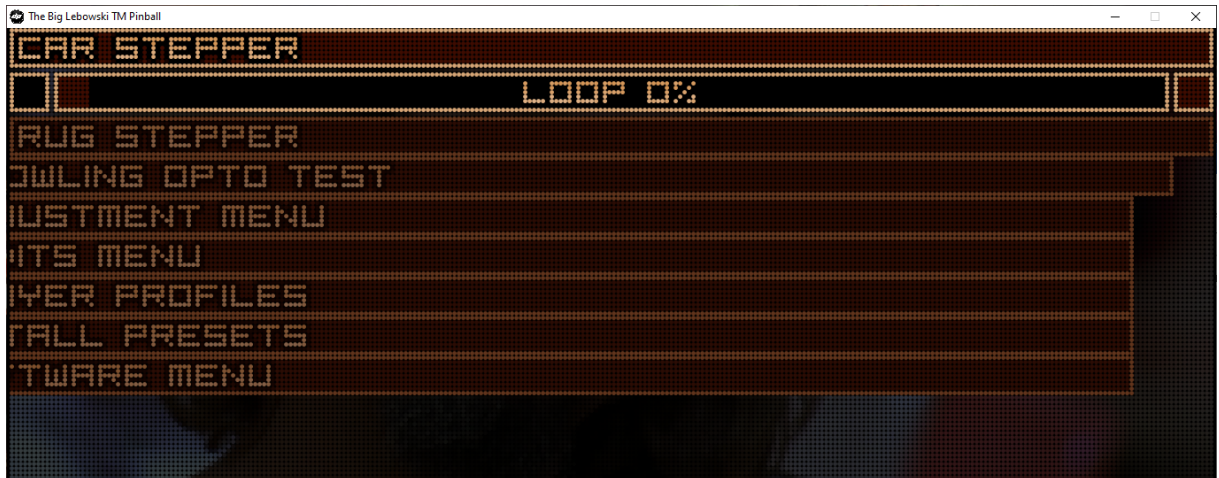
If you select it, you will get the following





In this mode, the door will move only once. Pushing + will open it, pushing – will close it.

However, if you push Enter it will go to the looping mode.



In this mode, the motor will run continuously. If you suspect any intermittent problem, this can be useful to diagnose it or to adjust a switch. Cardoor should go open and close smoothly. If the cardoor stutters against the parking targets you will need to adjust the parking targets, if it stutters when closed, you will have to adjust the switch there.

### Step 5 – Wrap up

- If everything is tested OK you can turn your TBL off
- Place all screws in place which secure the MPF (don't forget the one coming from the backboard on the backside)
- Reinstall the roof
- Reinstall the wireform and right ramp (when installing the right ramp put some thin plastic or cloth under the rampflap to avoid it making scratches on the playfield)
- Place playfield vertical again and install the upper flipper. Make sure its properly aligned and has some free space to move in vertical direction.
- Place playfield horizontal again, install glass and lockbar.

You are now all set to turn on the game and enjoy again your TBL