

Great Lakes Modular TZ-MPS-KIT V2 Twilight Zone Mini-Playfield Switch Kit

Thank you for purchasing a G.L.M product! This product was designed to replace all four mini-playfield switch assemblies on Twilight Zone! Please read through this manual first before installing this product!

Features

This board contains a number of unique features and improvements on the original design:

- 1) No more gray rubber switch covers.
- 2) Switches are mounted below the metal brackets giving a clear and clean view of the playfield.
- 3) The right side switch assembly provides protection for the wiring against air balls.
- 4) Horizontal adjustments for the two mini-playfield signs.
- 5) Compatible with Cliffy's TZ mini-playfield protector.
- 6) Auxiliary switches for triggering mods.

Warranty Information

G.L.M offers a 6-month limited warranty for this product against all workmanship defects! This warranty does not cover any damage caused from installation, modification, or use! The warranty also does not cover material finish or other cosmetic imperfections that may be present from the manufacturing processes used to make the product.

Liability Information

This product was designed as an aftermarket retro-fit into specific pinball machines only! Because Great Lakes Modular has no control over the conditions surrounding the installation of this product, the end user shall assume all liability and agrees to fully indemnify Great Lakes Modular and its agents, for any and all damages resulting from the installation and/or use of this product.

Contact Information

For the latest contact information, please visit our web site: www.greatlakesmodular.com

Or email us: info@greatlakesmodular.com

Installation Instructions

Disclaimer! Please read before proceeding!

Please be sure that you have read the Warranty and Liability information on the previous page!

If you do not feel comfortable performing the installation procedures, or do not fully understand the instructions described below, do not continue! Find or hire someone who is confident enough!

Should you encounter any problems, please email us first! We will try to help as best as we can to help you get the board installed and working!

- 1) **TURN OFF THE POWER!** - Safety first!
 - 2) Remove the lockdown bar and playfield glass.
 - 3) Pull the playfield up until it rests against the front part of the cabinet.
 - 4) Remove the mini-playfield from the game, please refer to the game manual on instructions for removing it.
 - 5) It is recommended to start with the front sign brackets first.
 - 6) Remove the gray switch covers first and unsolder the two wires (white and green) from the original switches.
The new switch assemblies come with diodes already installed so you can leave the old ones alone.
 - 7) Remove the rubber from the posts and then remove the switch assembly from the mini-playfield.
 - 8) With the sign assembly removed, drill out the rivets holding the sign plastic from the back side with a 1/8" or larger bit.
 - 9) If you decide to rivet the sign to the new switch assembly, now is the time to do so. There are a number of options for you. The original rivets are difficult to work with, so may want to consider the following alternatives:
 - a) Split rivets: These look just like the factory rivets, but the back side has two tabs which can be easily bent over to lock the sign in place. These can be difficult to find.
 - b) Pop rivets: These are the easiest to find, but they do not look like the factory rivets.
Use 1/8"x1/8" rivets.
 - c) screws and nuts: We recommend this option. Use two 4-40x1/4" philips screws and k-lock nuts or nylon lock nuts. While this doesn't look factory, it makes removing the signs in the future easy and allows you to adjust the position of the signs to your liking.
 - 10) Take a new sign switch assembly and pre-tin the two LEFT side solder pads with solder. There is one pad for each color wire. Some of the switches have two wires of the same color tied together. You must keep the wires tied together and solder them to the correctly marked pad.
 - 11) Solder the wires onto the new sign switch assembly.
- If you are planning to use the 2nd auxiliary switch for triggering mods, please see the **Auxiliary Switch** section.
- 12) Re-attach the switch assembly to the mini-playfield but do not tighten the screws completely down. Install the rubber ring back onto the star posts. Be careful to not jam the rubber down onto the switch actuators!
 - 13) With the rubber mounted onto the star posts, adjust the position of the switch assembly until the switches are just touching the rubber. Gentle pressure on the rubber should activate the switch (it will click).
Tighten the screws down and re-check the switch.
 - 14) Repeat steps 5-14 for the second sign switch assembly.

Installation continues on the next page...

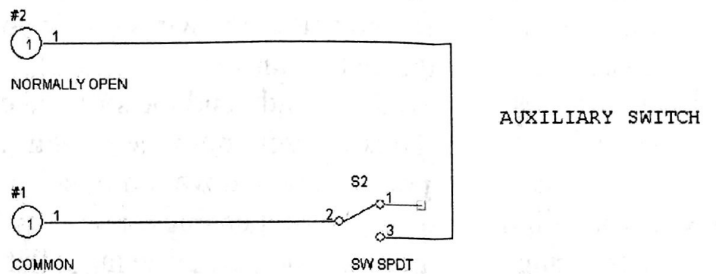
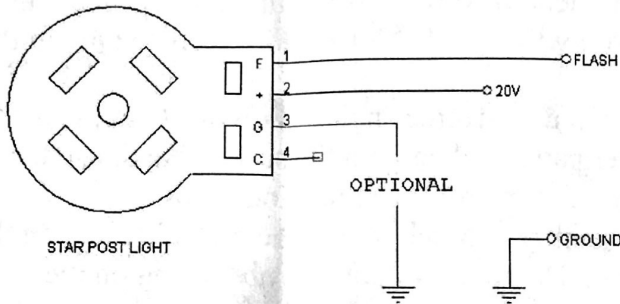
- 15) The side brackets are a bit more difficult to solder the wires onto. For this task, a thin pencil-style soldering iron is ideal.
- 16) Start with the right switch first. Unsolder the two wires from the switch as you did with the front switches.
- 17) Remove the old switch assembly from the mini-playfield. If you are doing this with the mini-playfield still in the game, you will need to pull the front retention bracket away from the switch assembly to remove the screw post.
- 18) Pre-tin the solder pads on the new side switch assembly. This is a tight fit for many soldering irons, but you should be able to get in there. Although we do not recommend it, you can drill out the rivets and take the switch PCB off and solder the wires on. If you do, you will need 1/8"x1/8" pop rivets to put the PCB board back onto the metal bracket.
- 19) Take the wires to be soldered and bend the stripped end over at a 90 degree angle. With one hand, you should be able to hook the wire onto the pre-tinned solder pad and then with the second hand, use the soldering iron to press the wire down onto the solder pad. Repeat for the remaining wires.
- 20) Now you will need to put the rubber ring onto the switch assembly. Stretch it onto the metal bracket on the side facing away from the switches (the large flat surface). Do not try to put the rubber ring on the switch side just yet!
- 21) Mount the switch assembly back onto the mini-playfield. With the star posts in place and the threaded posts holding everything in place (but not tight), you can now roll the rubber ring over the top of the switch assembly onto the star posts. Be careful not to catch the rubber ring on the switches!
- 22) With the rubber mounted onto the star posts, adjust the position of the switch assembly until the switch is just touching the rubber. Gentle pressure on the rubber should activate the switch (it will click). Tighten the screws down and re-check the switch.
- 23) Repeat steps 17-22 for the left hand side.
- 24) On the left hand side there is a plastic piece being held up by a single plastic support post. In order for there to be enough room to properly adjust the switch, you will need to take a sharp blade and cut the upper flange off on one side. This will allow the switch assembly to adjust all the way up against the plastic support post.
- 25) Once all four switch assemblies have been installed onto the mini-playfield, install the mini-playfield back into the game.
- 26) Turn on the game and enter switch test mode.
- 27) Check each switch to make sure it registers correctly. Re-adjust any switch as needed.
- 28) Take out a pinball and gently bounce it around on the mini-playfield. The ball should easily make each switch register.
- 29) Replace the playfield glass and lock down bar and enjoy!

Auxiliary Switches

Each switch bracket has a 2nd auxiliary switch that can be used to trigger other mods or devices developed by GLM or other third parties.

WARNING! - It is possible for each switch to be held closed **indefinitely**. Some mods, in particular LED flashers (eg. star post lights), can be **damaged** if the switch is held closed for a long period of time.

The schematic below details the connection of a GLM star post light to the auxiliary switch.



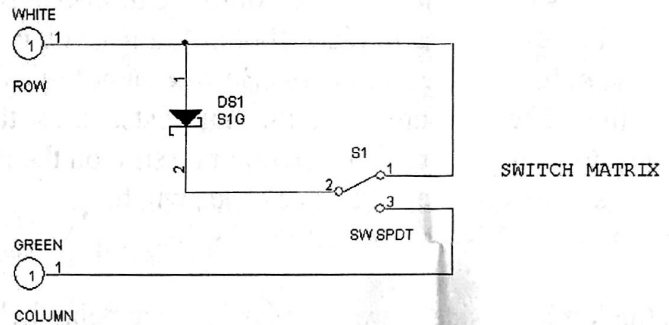
WHERE DO I FIND 20V ? -

20V CAN BE FOUND ON THE EYE FLASHER THE LUG WITH THE RED WIRE ATTACHED TO IT

WHERE CAN I FIND GROUND? -

THE GREEN OPTO TRANSMITTER BOARDS FOR THE UPPER AND LOWER EXITS. LOOK FOR THE BLACK WIRE.

NOTE: IF YOU ARE USING THE GLM OSB-10B OPTO SWITCH CONTROLLER BOARD, YOU CANNOT USE THE GROUND ON THE OPTO TRANSMITTER BOARDS!



FOR FLASH ONLY OPERATION -

CONNECT 20V FROM EYE FLASHER TO "+" TAB STAR POST LIGHT.
 CONNECT "F" TAB OF STAR POST LIGHT TO PAD #2 OF AUXILIARY SWITCH.
 CONNECT GROUND TO PAD #1 OF AUXILIARY SWITCH.

FOR GENERAL ILLUMINATION (OPTIONAL)-

CONNECT GROUND TO "G" TAB OF STAR POST LIGHT.

Title		
Twilight Zone Dual Micro Mini Switch		
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A	TZ-DMS	V1B
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