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Great Lakes Modular WPC-UFB Universal WPC Flipper Board

Thank you for purchasing a G.L.M product! This product was designed to be an upgrade to all flipper boards found in WPC machines that use the Fliptronics system. As this covers a very long list of games, please read through this manual first before installing the flipper board!

Features

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

- 1) No optos! This board uses long-life hermetically sealed switches which are not affected by dirt.
- 2) Uses existing mounting holes for both early and late model flipper boards.
- 3) Spring steel flipper actuator is virtually indestructible, for years of reliable use!
- 4) Adjustable tension on the actuator gives you the button feel that you want. From light action to stiff!
- 5) Adjustable double-flip action on games with more than two flippers!
- 6) Two green LEDs show the status of the two flipper switches for easy adjustment and quick diagnostics.

Compatibility

This board is electrically compatible with any of the Fliptronics pinball machines. However, please note that some early Fliptronics games, like Addams Family, used leaf switches and not opto boards. These games may not have the correct wiring harness to use these boards!

Included

Included with the WPC-FB2 flipper board are the following items:

- 2 - #8 x 7/8" Sheet Metal Screws
- 2 - #8 x 5/16" Plastic Spacers
- 4 - 5/16" Standoffs (attached)

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!

If you have purchased this product from one of our distributors, please contact us first about problems or issues about this 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.

Installation Instructions

Disclaimer! Please read before proceeding!

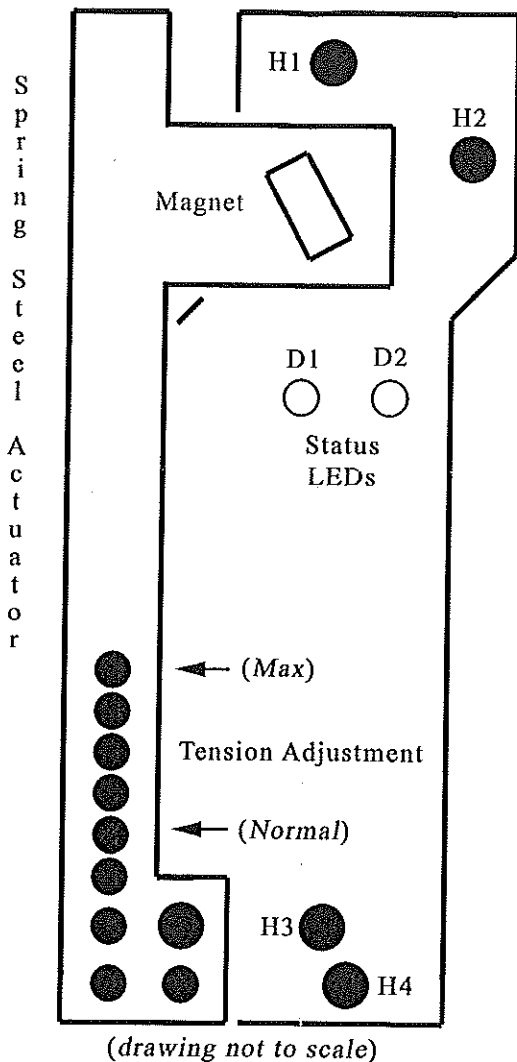
Please be sure that you have read the Warranty and Liability information on the previous page!

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!

NOTE: Failure to follow the instructions may result in permanent damage to your cabinet! Please be sure that you read through the following steps carefully!

Fig 1. - WPC-UFB Overview



- 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 backbox.
- 4) Disconnect the cable from the old flipper board and then remove the old board. Note: Replacing the right flipper board may require you to remove the shooter rod assembly, if installed.
- 5) Inspect the 7-pin connector and wiring harness. If your game is missing the 7-pin connector, please replace it first! Do NOT solder wires directly to the new board!
- 6) Remove any excess padding or material from the end of the flipper button if present. Any excess material may cause the new flipper board to not work correctly.
- 7) Prep the new board by first adjusting the tension of the spring steel actuator to match the old board, or to your personal preference. Move the tension adjustment screw higher for more tension, lower for less.
- 8) Install the two 7/8" screws (included) into the holes that match up with the holes found on the old boards. If you have a game with a Type 1 flipper board (metal interrupter), use holes H2 and H4. If you have a game with a Type 2 flipper board (plastic interrupter), use holes H1 and H3.
- 9) Feed the two 5/16" plastic spacers (included) onto the screws on the back side of the board. You are now ready to install the new board in the cabinet!

WARNING! WARNING!

Do NOT install this board without the included 5/16" spacers attached to the board! The included 7/8" screws are longer than cabinet wood is thick! If these are tightened in without spacers, or are used on the original factory boards, you run the risk of damaging the exterior of the cabinet!

We will NOT be held responsible for ANY cabinet damage that may occur from the installation of this product!

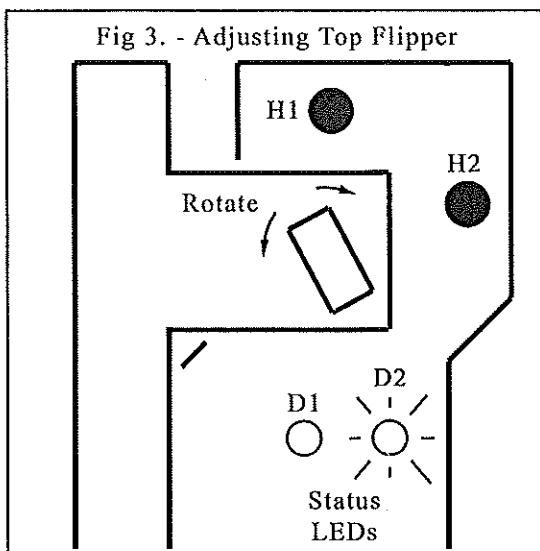
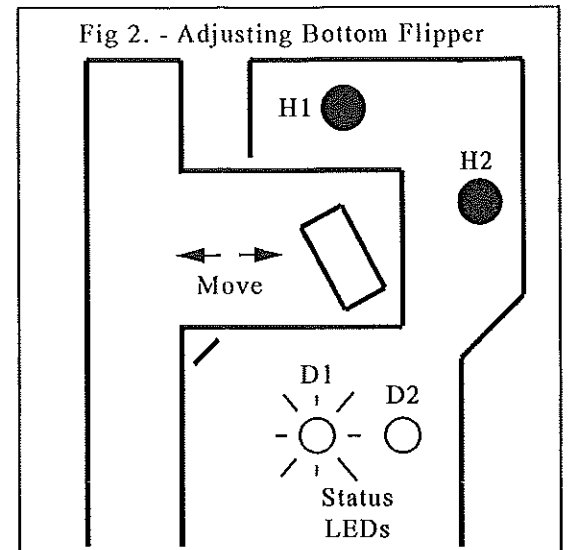
- 10) Screw board into place, making sure that the metal actuator remains flat against the circuit board.
- 11) Check the feel of the flipper button. Re-adjust the tension of the spring actuator if necessary (see step 7).
- 12) Plug the electrical connector to the new flipper board.
- 13) Power on machine and make sure that the red power LED is lit.

Adjusting the Flipper Switches

During shipping, or installation, the position of the magnet may be disturbed from its optimal location. The following calibration procedure will help you to adjust the magnet.

NOTE: The WPC-UFB flipper board utilizes an extremely high powered neodymium magnet to control the flipper switches. The magnet is very reliable and will last virtually forever, however the magnetic strength can be damaged by high heat. Keep hot soldering irons away from the magnet at all times!

- 1) First check to see that both LEDs D1 and D2 are off. Don't be alarmed if one or both are on! If either LED is lit, first check to make sure that the spring steel actuator is lying flat against the circuit board. If it isn't, please see steps 6-10 of the installation instructions! Otherwise the magnet may need to be adjusted. This process is outlined below.
- 2) If the LEDs are both off, try pushing the flipper button in slowly to check the double-flip action. D1 should light up first, followed by D2. The sensitivity can be adjusted to allow for more or less delay between the two switches.
- 3) To adjust the lower flipper switch, simply move the magnet from side to side (figure 2). Keep the bottom edge of the magnet near the bottom edge of the spring steel arm for best results. Move the magnet until LED D1 turns off.
- 4) Lightly press the flipper button in. The switch should activate very quickly (D1 will light up). There should be a small amount of dead time before the switch activates, so that fingers resting on the flipper button doesn't activate the flippers.
- 5) If you are having trouble with adjusting the lower flipper switch, try moving the magnet up or down and repeat steps 3-4. Adjust the magnet until you get a response that you like.



NOTE: Even if your game does not have upper flippers, the game may use the extra switch for scoring, or for a backup for the lower flipper switch, so it is recommended that you follow the adjustment procedure for the upper flipper switch.

- 6) To adjust the upper flipper switch, rotate the magnet from the top edge so that the bottom edge of the magnet stays in the same place (figure 3). Adjust the magnet until LED D2 turns off.
- 7) Test the flipper button and continue to adjust the magnet until LED D2 lights about 1/2 way through the button travel. Now check the button action. The lower flipper switch (D1) should activate first, then the upper flipper switch (D2) should activate later. With the button fully pressed in, both LEDs should be lit.
- 8) Try rapidly hitting the flipper button a few times and press them in slowly a few times. Observe the LEDs and look for any false triggering or "stuck" switches. If an LED lights up and then doesn't go off or turns off after another press of the button, you may need to go back and repeat steps 3-6.

Adjustment Procedure Continues On Next Page...

Adjustment Procedure Continues...

- 9) Once you get the magnet properly positioned, go into the switch test page and verify that the two switches register. If they don't, check the wiring harness and connector! Also check the troubleshooting section for help.
- 10) If all switches look okay, then you should be ready to try a game out! Lower the playfield back into the machine, replace the playfield glass and lockdown bar. Play a few games and if necessary, revisit the adjustment procedures.
- 11) Finally, once you are satisfied with the way it plays, we recommend applying a strip of tape to the top of the magnet to prevent it from shifting. Most any type of thin tape (packing, scotch, etc) will work. For best results, make sure that the tape wraps around to the under side of the spring steel actuator arm.
- 12) After applying the tape, check the adjustment to make sure that nothing has changed.

Troubleshooting

If your game has an auto-fire coil (ball launcher) and your lower flipper momentarily activates when the coil fires, turn the magnet over. This will align the magnetic field of the flipper board with the coil and prevent further interference.

If you are having trouble adjusting the magnet, try rotating it around 180 degrees.

Schematic

