

Installation Instructions for System 1 Replacement Displays

www.BostonPinballCompany.com

Please make sure your machine is in proper working order before installing this kit. Please check our web site www.bostonpinballcompany.com for information relating to existing display problems or machine problems. If you have any questions, please contact us before installing the display kit. E-mail; info@bostonpinballcompany.com

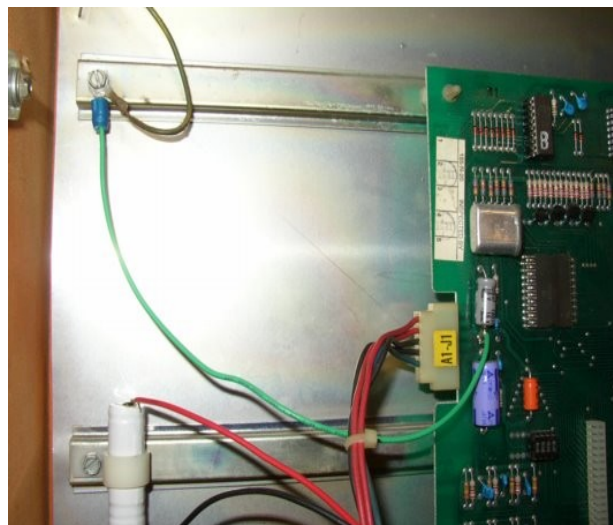
WARNING: Never unplug any connectors inside your machine with the power on. Be sure the power is off.

If you are familiar with the inner workings of your pinball machine, have done minor repairs or service, and are comfortable with working inside your machine. You may be able use the Quick instructions and the pictures, if not skip to the full instructions.

Quick Instructions (also refer to pictures);

- Turn your machine off.
- Open the back box and remove all the displays (careful not to break the standoffs, use your fingers to squeeze the tabs).
- (also be careful of the nipple on the back of the fluorescent tube display as you remove them, they break easily)
- Install the new LED displays.
- Install the dimmer PCB onto the backbox right side mounting bracket. (See picture), Remove the ground to this bracket if there is one, as the dimmer regulator needs to be isolated from ground.
- Install the harness to the displays;
 1. Take the cable with the 4 connectors and run this to J2 on each 6-Digit display.
 2. Take the Power Supply, and attach the connector to the dimmer PCB.
 3. Run one of the short cables from the dimmer to display #4. (or the closest display).
 4. Run the other short cable from one of the 6-Digit displays J3 connector to the 4-Digit display.
- Now place the PS down into the cabinet base through the hole with the rest of the wires.
- **[CAUTION: these machines have exposed live wiring of 120VAC from the power cord, if you are unsure of where it is, then unplug your machine before completing this step.]**
- Close backbox. Remove playfield glass, lift playfield, plug power supply into the service outlet in the cabinet.
- (Alternate to lifting the playfield. If you have a 3 or 4 foot long piece of wood, you could actually place the power supply at the end on it, then just pull the board forward, then reach in and plug the power supply into the service outlet.)
- Adjust the dimmer to the desired brightness.
- Power up your machine and play a game of pinball with your new Boston Pinball Company LED Displays.

Additional Information:



These are pictures showing ground wires added to power supply and control board. This is not part of this kit, but if your game is resetting during play or having other odd problems, these modifications may help. Check out www.marvin3.com for additional information about this and other repair and service information of Gottlieb System 1 Pinball Machines.

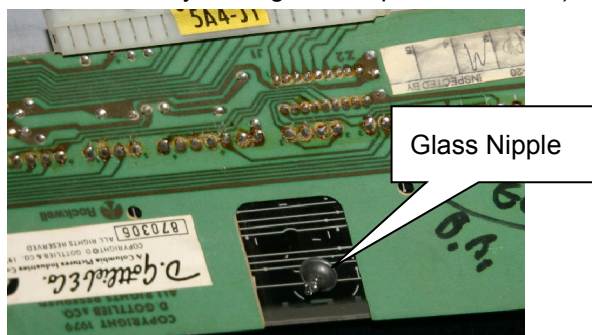
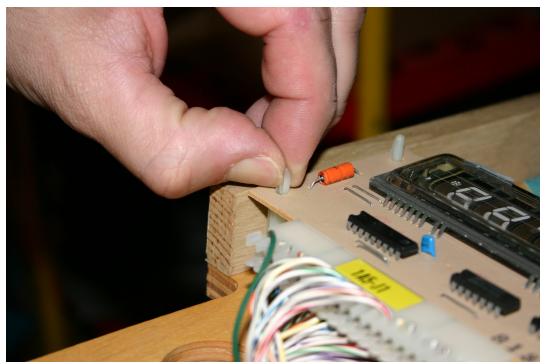
Full Instructions;

- Turn your machine off

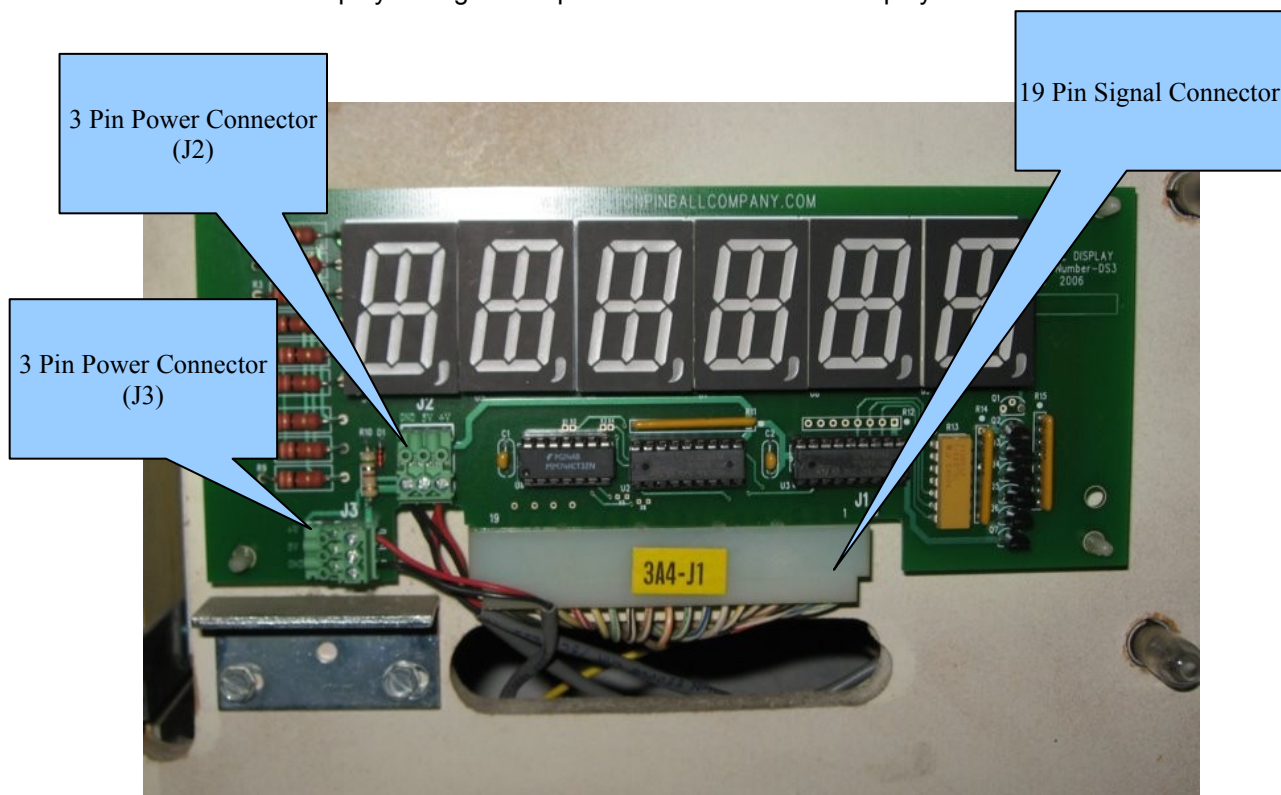
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- Open the back box (requires key, normally located inside the cabinet to the left behind the coin door)
- Remove the connectors from the bottom of all the displays
- Remove all the displays (careful not to break the standoffs, use your fingers to squeeze the tabs)



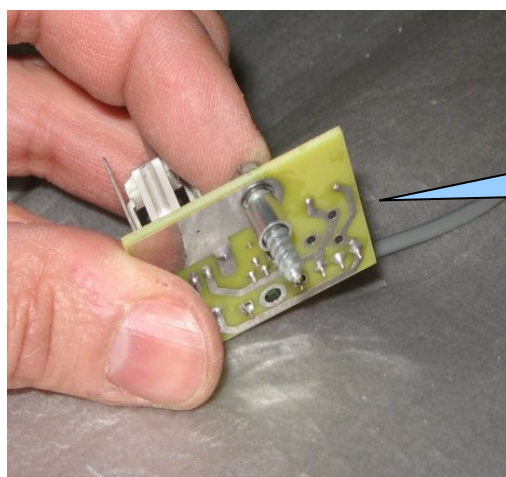
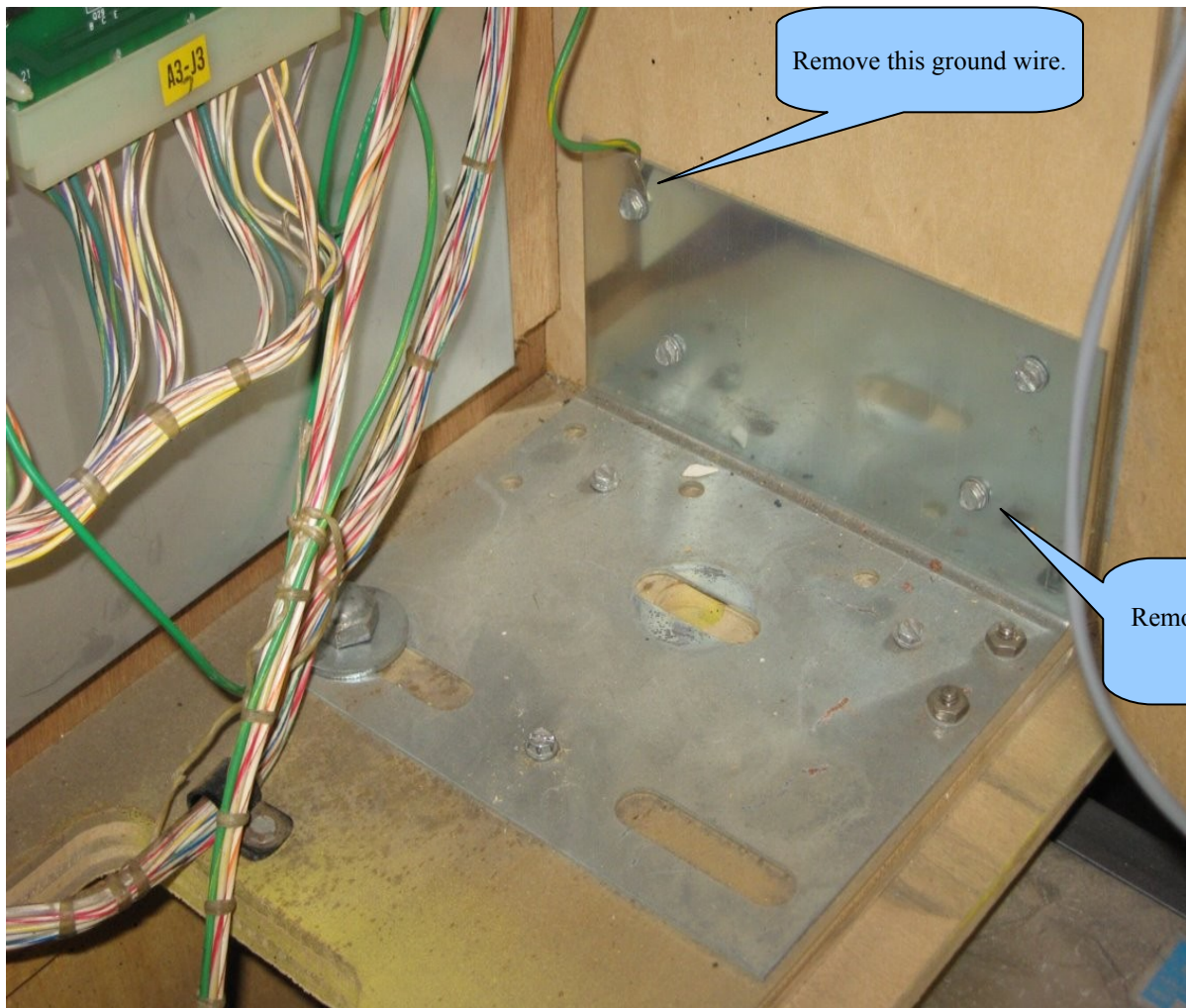
- (also be careful of the nipple on the back of the fluorescent tube display as you remove them, they break easily)
- Install the new LED displays. Plug the 19 pin connector onto each display.



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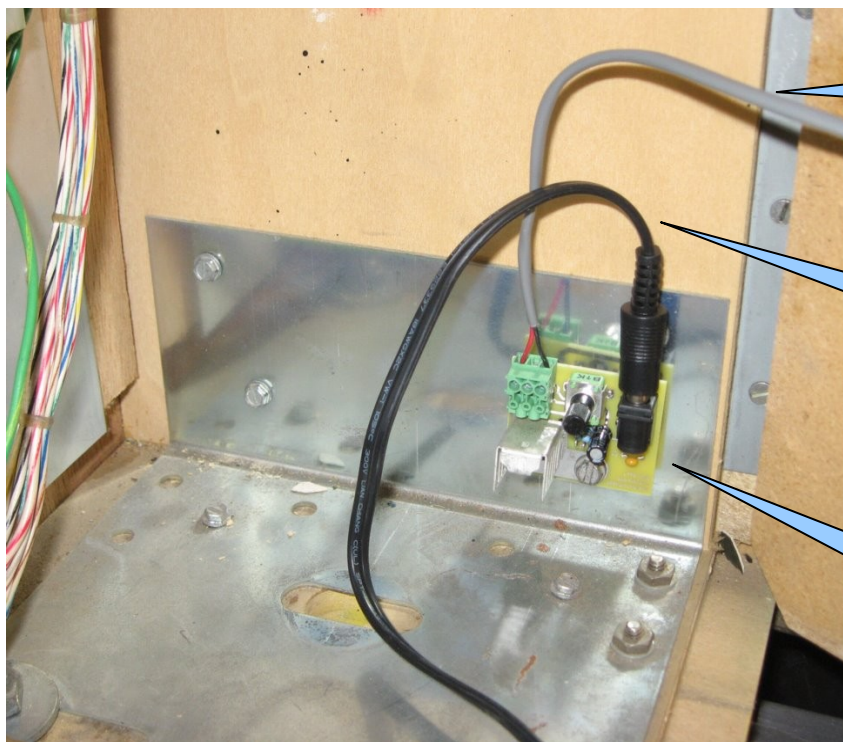
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Installing the Dimmer PCB;



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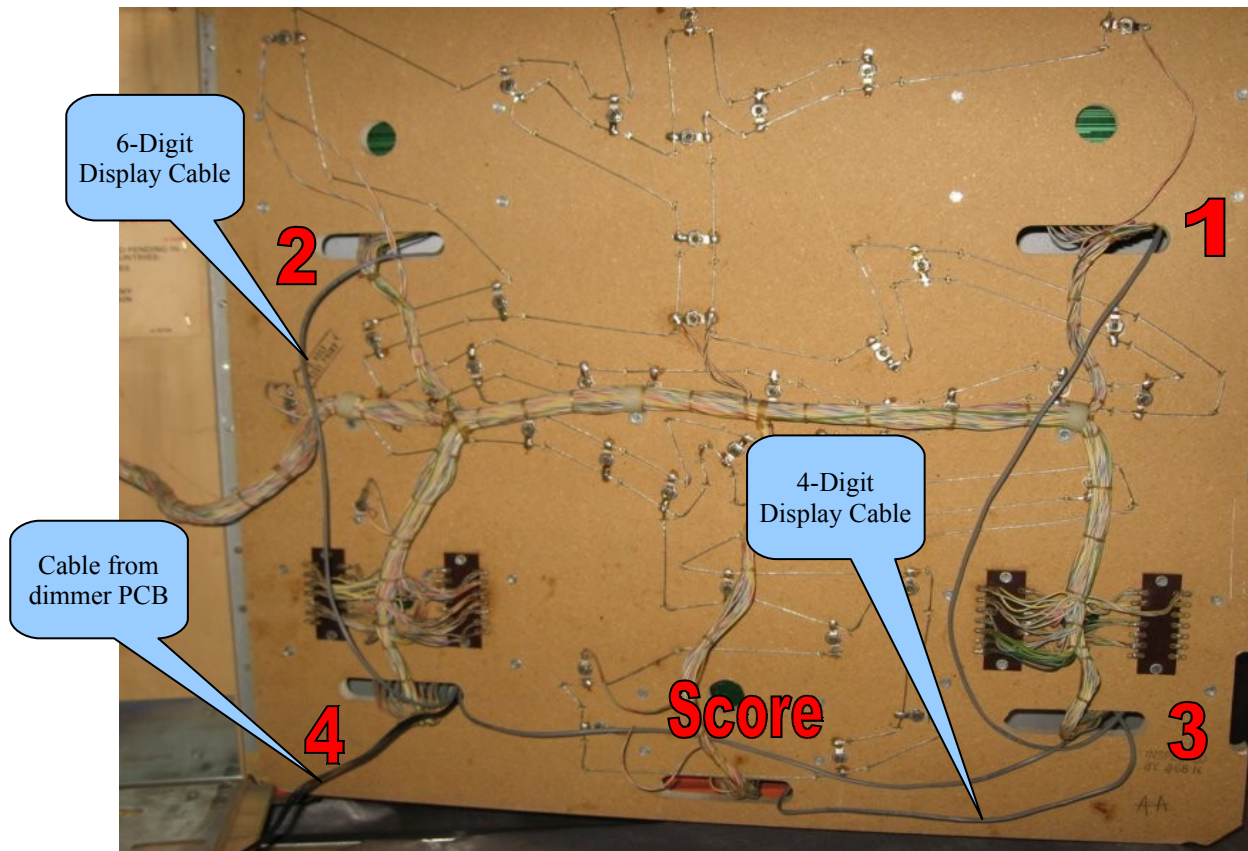
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- Install the dimmer as shown in the picture, install the standoff between the dimmer PCB and the metal bracket.
- If the bracket has a ground wire going to it as shown in the picture, it must be removed. As the dimmer mounting screw must be isolated from ground, the bracket is used to dissipate some of heat generated by the voltage regulator.
- Now take one of the short cables and run it from the dimmer to display #4.
- Install the harness to the displays;
 1. Take the cable with the 4 connectors and run this to J2 on each 6-Digit display, run from Player 1 to 3 to 4 to 2. (Be sure the connectors are orientated as shown in the picture.)
 2. Take the Power Supply, and attach the connector to dimmer PCB, then lower the power supply down into the cabinet through the opening with the other cables.
 3. Run the short cable from one of the 6-Digit displays to the 4-Digit display. (Depending on the location of the score display on your machine, you may have to route the cable different than shown in the picture.)

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- **===Read the next few steps to decide which method you wish to use to plug in the power supply===**
- Close backbox.
- Remove playfield glass; Open the coin door, pull down on the lever holding the lock down bar. Remove the lock down bar. Now carefully slide the glass down and remove it. Place it gently against a wall and be careful not to



- bang the corners.
- Remove the ball from the playfield.
- Lift the playfield. Grab the playfield from the apron and lift. (Caution, if the apron is not properly screwed in or the screws are missing, you may bend the apron, so you may want to push the playfield from below as you lift it. Once you can get your hands to grab the sides of the playfield, lift and pull it towards you, then lift it all the way up and prop it against the backbox or use the support rod to hold it in place. **BE SURE IT IS SUPPORTED BEFORE YOU WORK INSIDE THE CABINET.**

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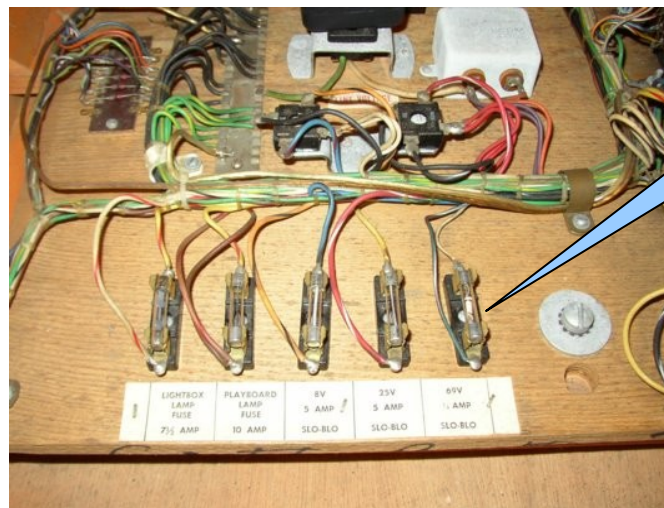
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WARNING; SOME OF THESE MACHINES HAVE EXPOSED WIRING, USE CAUTION OR UNPLUG YOUR MACHINE BEFORE COMPLETING THIS STEP. (YES, EVEN IF YOUR MACHINE IS OFF, THERE IS LIVE WIRING!)

- Now plug the power supply into the service outlet in the cabinet.



- ***Note (An alternate to lifting the playfield. If you have a 3 or 4 foot long piece of wood, you can slide it into the cabinet, then you could place the power supply at the end, and just pull it forward, then reach in and plug the power supply into the service outlet.)***
- Remove the Fuse marked 69V 1/4 AMP. This voltage was for the old fluorescent displays and is no longer needed.



Carefully lower the playfield, reinstall the glass and lock down bar.

- Power up your machine.
- Open the backbox and adjust the dimmer for the desired brightness.
- Close the backbox and play a game of pinball with your new Boston Pinball Company LED Displays.

(Instructions Version 3)