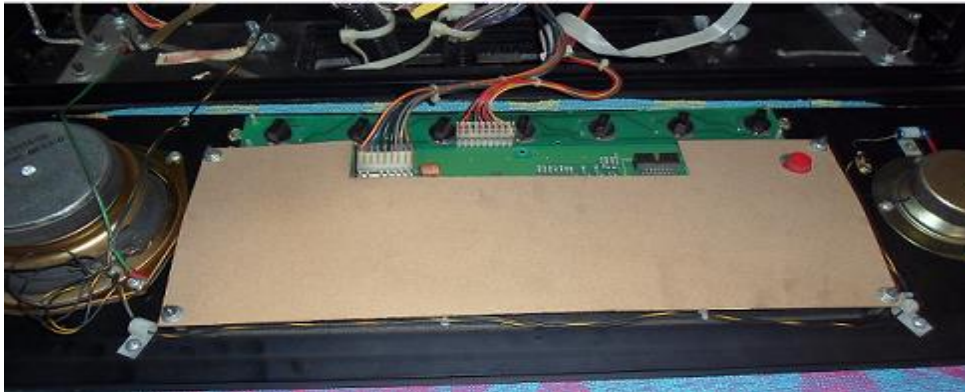


7 Lamp Board Mod for The Addams Family and Doctor Who to allow the use of ColorDMD SIGMA Displays

This modification will also upgrade the board from incandescent bulbs to LED.

1. Carefully remove the translite from the backbox and then lower the speaker panel to the position shown in picture1 to gain access to the 7 lamp board assembly.
NOTE: This process is the same for both The Addams Family and Doctor Who.

Picture1 (The Addams Family 5768-12377-00 board shown)



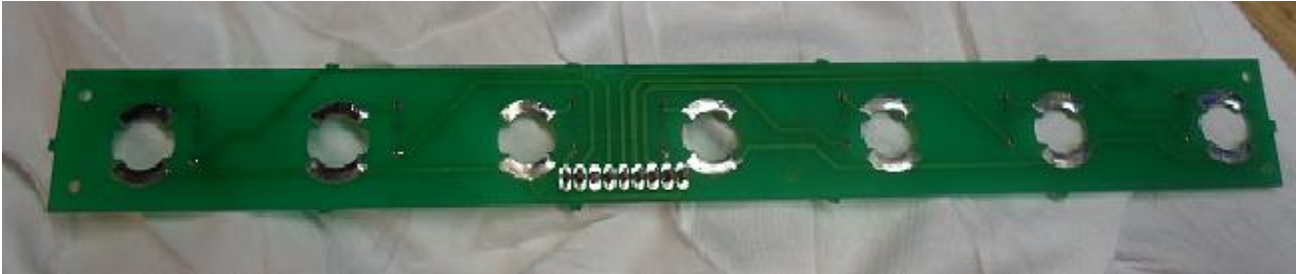
2. Disconnect the 8-pin DMD power cable and ribbon cable from DMD and also disconnect the 9-pin lamp power cable from 7 lamp board.
NOTE: disconnect 13-pin lamp power cable for Doctor Who 7 lamp board.
3. Remove the four screws holding the 7 lamp board and remove board from the game as shown in picture2.

Picture2 (The Addams Family 5768-12377-00 board shown)



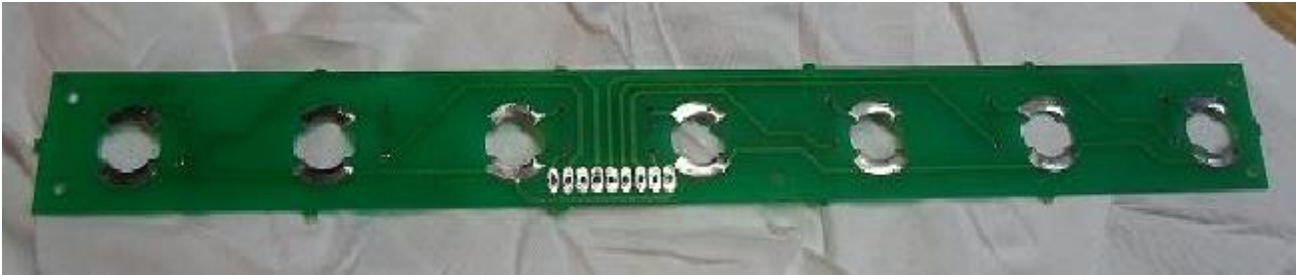
4. Remove all seven of the lamp holders and all four of the nylon mounting feet as shown in picture3.

Picture3



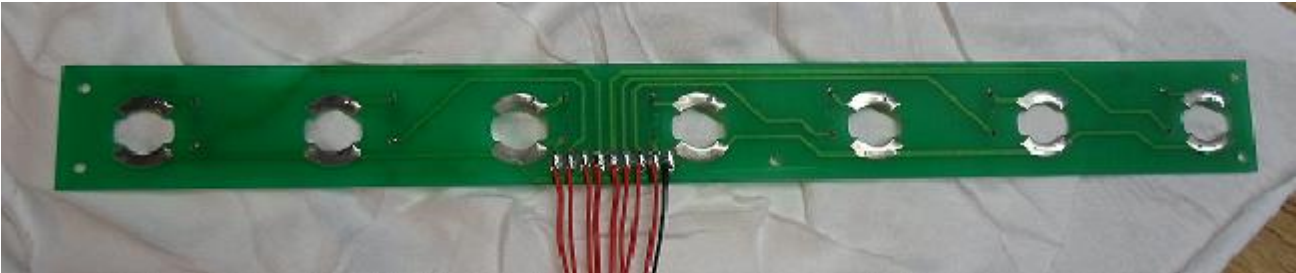
5. Now unsolder the 9-pin header connector from the board (13-pin header connector for Doctor Who). This does require some experience with soldering so be careful not to over heat the board and damage the solder pads, you'll need these later. Now your board should be completely stripped of all hardware except the seven diodes on the other side of the board you'll keep those as well. The board should now look like picture4.

Picture4



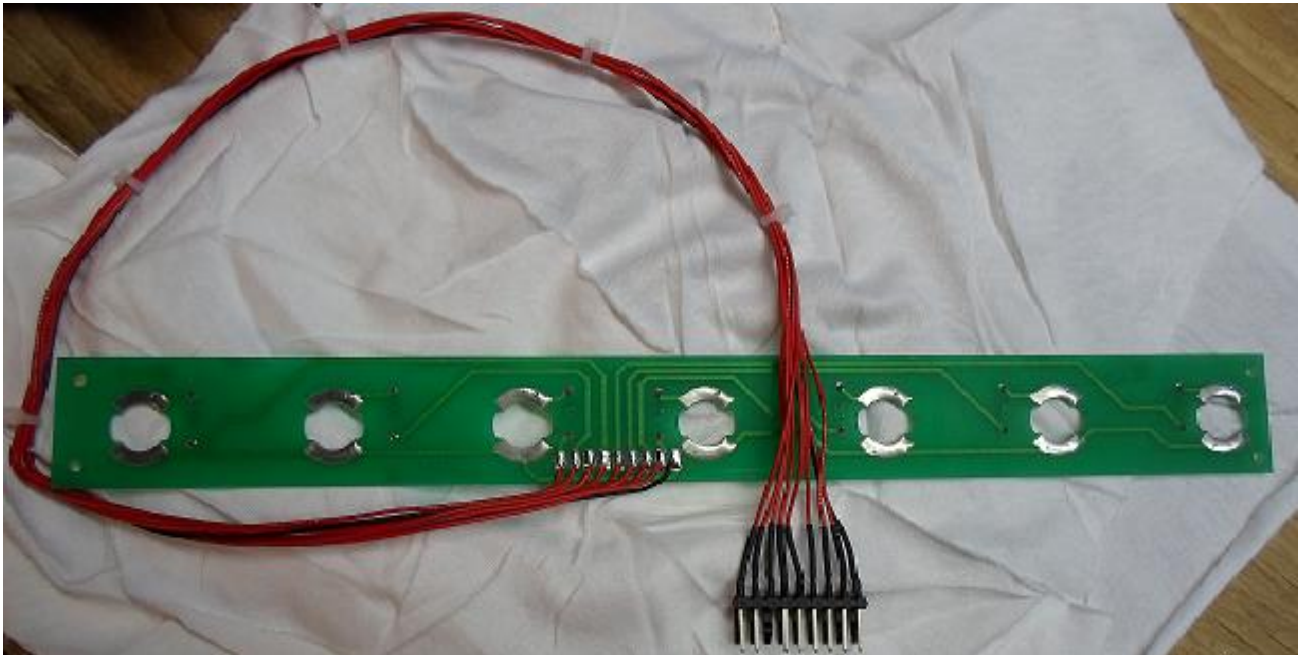
6. Now you'll need some 26 awg stranded wire cut in 24" lengths, nine wires for The Addams Family or thirteen wires for Doctor Who. The color of the wire doesn't really matter unless you just have to have it match the machine then you'll need every color that the machine has, your choice, I chose red and black. Strip both ends of each wire back approximately 1/4" on each end, then tin the wires. Solder the wires into the board, one wire for each hole in the board. I used red wire for all of the Row wires and black wire for the Column wire. Again it really doesn't matter what color wire you use because this is just a pin to pin 24" extension for the header. The board should now look like picture5.

Picture5



7. The other end of each wire solder to the new header, the old header gets damaged when removing it from the board because I cut the plastic in between each pin with a sharp No.11 Exacto knife so that each pin can be removed individually, this makes removing the header a lot easier. For the new header pins I used Molex header pins Molex part number 26-48-1215. I purchased these at Mouser Electronics, Mouser part number 538-26-48-1215. These are breakaway type friction lock twenty one pin headers that I cut to the length that I need, nine pin for The Addams Family or thirteen pin for Doctor Who. Now when soldering the wires to the new header check continuity of each wire as you solder, pin1 wire on board to pin1 on new header, then pin2 and so on. Pin1 will be marked on the board next to the solder pad on the left and pin9 will be marked on the board next to the solder pad on the board on the right as shown in picture6 below. Pin3 is the key pin, cut this off of the new header, this will be the third pin from the left with pins of the header facing you. I still solder a wire to pin3 even though it is not used and is the key pin. I use 3/32" x 3/4" long heat shrink tubing on each wire that I solder to the header so don't forget to preload these as you solder each wire to the header. Be careful not to over heat the shrink tubing when applying heat because the solder beneath the shrink tubing can actually unsolder from the pins. Tie wrap the wire cable to make it neat, don't put any tie wraps along side the board because this has to fit underneath the new display and the tie wraps could hit the face of the display. The board assembly should now look like picture6.

Picture6



8. Now for the lights. You could do just about anything for lights as far as color and type goes. But I decided to keep it simple, I started with seven each of 555 Cool White Super Bright bulbs purchased from Cointaker as shown below in picture7.

Picture7



9. But the bulb in its entirety is still too large, I need just the disk in the top and they are usually glued in. So I lightly sand the ridge around the top of the light using a small hobby belt sander being very careful not to harm the light disk assembly that I'm after. Do this to all seven bulbs. The bulb assembly should now look like picture8 below.

Picture8



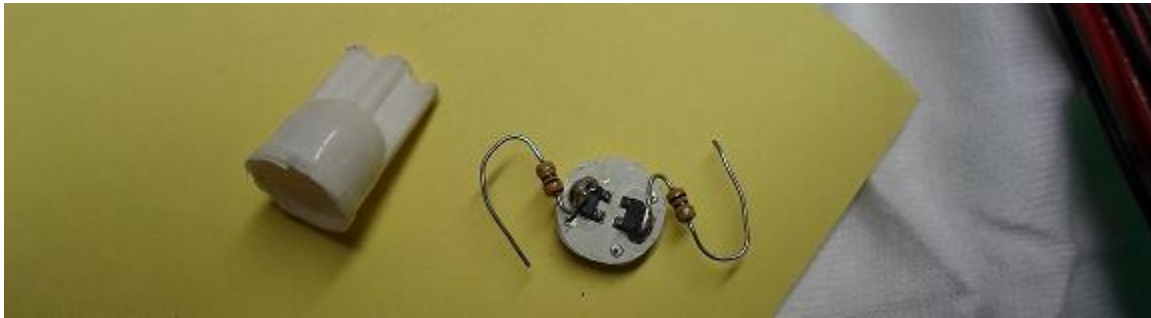
10. Now carefully pull the light disk assembly out of the plastic housing, the light disk assemblies should now look like picture9 below.

Picture9



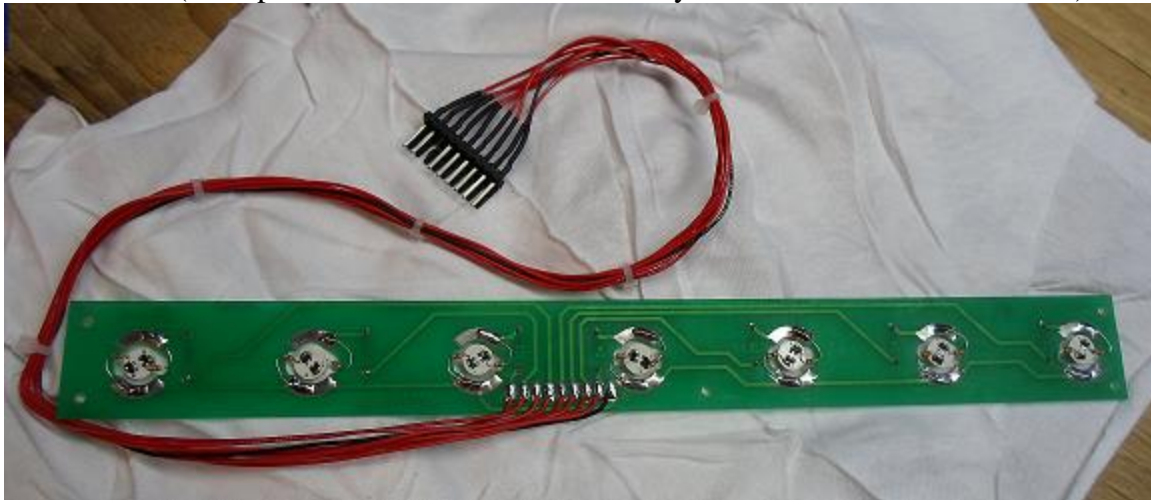
11. Carefully bend the 30 ohm current limiting resistors out flat and into an “S” shape as shown in picture10 below.

Picture10

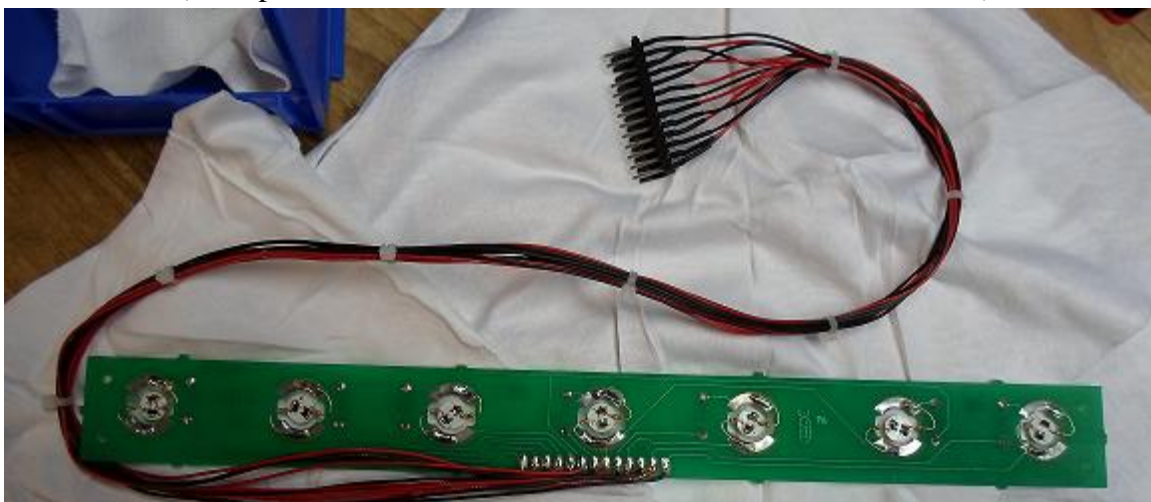


12. Now solder all seven of the lamp disk assemblies to the board as shown in pictures 11 and 12 below.

Picture11 (Completed 9-Pin The Addams Family 5768-12377-00 board shown)



Picture12 (Completed 13-Pin Doctor Who 5768-13288-00 board shown)



13. Now it's time to install your completed modified 7 lamp board, install using two of the four screws that you had removed earlier. The modified board will just fit from side to side since it doesn't use the four nylon extension feet anymore. The two screws have just enough wood at the edge of the cut out holes for the "Star Lamps for The Addams Family" or the edge of the cut out holes for the "Doctor 1 and Doctor 7 for Doctor Who". Now connect the new header connector to the 9-pin lamp power connector for The Addams Family or 13-pin lamp power connector for Doctor Who. You have completed the modification and installation of your 7 lamp board for either The Addams Family or Doctor Who pinball machine. You are now ready to install your new ColorDMD SIGMA display as per the instructions that come with the ColorDMD SIGMA display although disregard Step 4 and Step 13 that tells you to remove the lamp board then plug it back in later to the SIGMA, you will not do these steps, just leave it mounted and plugged into the 9-pin or 13-pin lamp power connector as shown in picture13 below. The new ColorDMD SIGMA display will mount right over the top of your modified 7 lamp board.

Picture13



14. After installing your new ColorDMD SIGMA display it should look like picture 14 or 15 below.

Picture14 (ColorDMD SIGMA display installed on The Addams Family)



Picture15 (ColorDMD SIGMA display installed on Doctor Who)



15. Now carefully put your speaker panel back into upright position onto game and carefully install the translite back onto the game. It is now time to turn the power back on the game and check out the new ColorDMD SIGMA display with the modified 7 lamp board with LED's.



16. Put your game in "ALL LAMPS" test mode and it should look like picture 17 or 18 below.

Picture17 (ColorDMD SIGMA display installed on The Addams Family, 7 lamp board lit.)



Picture18 (ColorDMD SIGMA display installed on Doctor Who, 7 lamp board lit.)



Picture19 shows ColorDMD SIGMA display running full color ROM on The Addams Family.
(THING lights just don't happen to be lit in this picture and are still fully functional.)

Picture19



Picture20 shows ColorDMD SIGMA display running High Definition Emulation mode in Blue color on a Doctor Who.

(Got lucky and all seven doctor lights are lit in this photo during game demo.)

Picture20



Time to have fun with your newly modified pinball game !!!!

[This pinball modification created by William Hollenbeck at pacificcoastpinball.com](http://pacificcoastpinball.com)

If you follow the directions carefully this should go very smoothly and there shouldn't be any issues but please remember that this is a "MOD." just remember that you control your own quality of workmanship this is not a factory original or approved part for your pinball machine. There is the risk of unwanted side effects with any modification to a factory game and there are many factors that can cause undesirable side effects after installation of such a modification. As such, we cannot assume responsibility for game malfunction, damage to the game or surroundings, unwanted electrical emissions, personal injury, or other adverse effects caused by the installation of this MOD. ***INSTALL AT YOUR OWN RISK.***