# Installation guide for the PinLED display set 20002 (128x32 Dot-matrix display)

Read this installation guide completely before you start changing the display. Follow all steps of this manual. Note the following safety instruction.

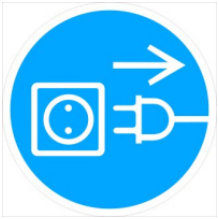
## Safety Instruction

**CAUTION**

Danger, electrical hazard. High voltages are present in the pinball machine during operation. The supply voltages of the displays and coils are grater then 50V and dangerous to life. **Please do all re-modeling while the pinball is turned off.**

**QUALIFIED PERSONAL**

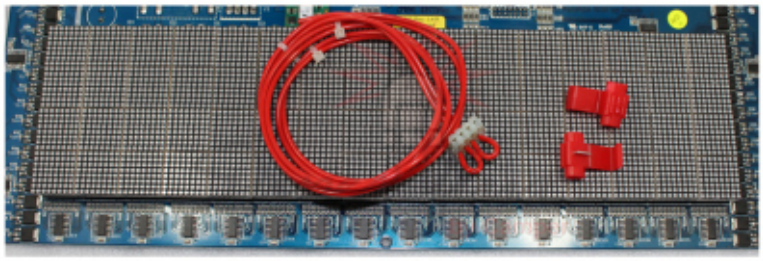
Please let a qualified person change the display only. The technician should have experience in working on pinball machines. This includes the reading and understanding of technical paper such as schematics of pinball machines.



**UNPLUG THE MAINS PLUG**

Unplug the mains plug to disconnect the pinball from the outlet. Wait at lest 10 minutes to make sure that all capacitors of the power supplies can discharge completely.

## Delivery contain



- 128x32 Dot-matrix display
- Power supply wire incl. power clamps.
- This manual.

## Installation

The PinLED display set 20002 is for use in all pinball machines of all brands that comes with a 128x 32 Dot-matrix display. This manual covers pinballs from Bally/Williams, Data East, SEGA/STERN and Gottlieb. For the installation you need a Philips screwdriver and a universal plier for pressing the cable clamps.

1. **Unplug the mains plug.**
2. Remove the back glass of the back box and open the door behind.
3. Put the speaker panel on the playfield glass or slew it aside.
4. Remove the cables to the old display.
5. Remove the four nuts of the old display and put them by side (they are used later to fix the new displays).
6. Remove the old display.
7. Put the new PinLED display into the mounting brackets of the speaker panel. Notice the right direction of the display. The power connector faces to your direction.
8. Fix the display with the four nuts.
9. Reconnect the flat cable.
10. **The PinLED display has its own power supply. This needs a power input of 9-10VAC or 12-14VDC.** This will be described in the following steps.

**!! Attention !!**

**The original 8-pin connector is not in use any longer. You can put it by side and fix it to the cable harness with a cable tie. THE DIFFERENT VOLTAGES THAT IT SUPPLY ARE NOT LONGER NEEDED AND THEY CANNOT SUPPLY THE PINLED DISPLAY.**

- **Bally/Williams with original installed power driver board:** The best way to supply the PinLED display is to use the 9VAC winding of the transformer in Bally/Williams pinballs. The 9VAC will enter the power driver board at **connector J101 pin 1 (red) and pin 2 (red)**. With the aid of two cable clamps connect the included power cable to both red cables, which reach the board at J101 pin 1 and 2. The sequence does not matter because it is an AC supply voltage. At last connect the 4-pin connector to the display.
- **Bally/Williams with PinLED power driver board:** You can use connector J100 if you use the PinLED power driver board. This connector will supply the 9VAC too. You have to add a 4-pin connector to the second end (this will not be supplied with the display) and connect it to J100. At last connect the 4-pin connector to the display.
- **Data East:** The best way to supply the PinLED display is to use the unregulated 12VDC at Data East pinballs. You will find the unregulated 12VDC on the soundboard at **connector CN2**. The voltage will enter the board on **pin 2 (black)** and **pin 6 (grey/white)**. With the aid of two cable clamps connect the included power cable to the black and grey/white wires. The sequence does not matter because the PinLED display includes a rectifier. At last connect the 4-pin connector to the display.
- **SEGA/STERN:** The best way to supply the PinLED display is to use the 9VAC winding of the transformer in Data East pinballs. The 9VAC will enter the power driver board at **connector J17 Pin 1 (red)** and **Pin 4 (red).** With the aid of two cable clamps connect the included power cable to both red cables, which reach

the board at J17 pin 1 and 4. The sequence does not matter because it is an AC supply voltage. At last connect the 4-pin connector to the display.

- **Gottlieb:** The best way to supply the PinLED display is to use the unregulated 12VDC at Gottlieb pinballs. You will find the unregulated 12VDC at the input to the power supply board A2 (this is the board with the large heatsink) at **connector J1**. With the aid of two cable clamps connect the included power cable to the **pin 1 (brown/black)** and **pin 2 (white)** wires. The sequence does not matter because the PinLED display includes a rectifier. At last connect the 4-pin connector to the display.

11. Reinstall the speaker panel.
12. Close the door of the back box and reinstall the back glass.
13. Plug the mains plug back in.
14. That it! Switch the machine on and enjoy playing…

**NOTE**

**Please check the proper connection of the cable clamps if the new PinLED display glows after switching on the pinball machine and does not become bright. Sometime the clamps will not conduct properly. If so use a universal plier to press the clamps again.**

**NOTE**

**After swapping to the PinLED Dot-matrix display you can remove the high voltage fuse or fuses. The high voltage is not longer in use and therefore the fuses can be removed to prevent you for touching hot wires.**

Bally/Williams:

- WPC: Remove the fuses F601 and F602 on the display driver board.
- WPC95: Remove the fuses F601 and F602 on the audio/visual board.

Data East:

- Remove the fuse F7 on the power supply board.

SEGA/STERN:

- Remove the fuse F1 on the display power supply board.

Gottlieb:

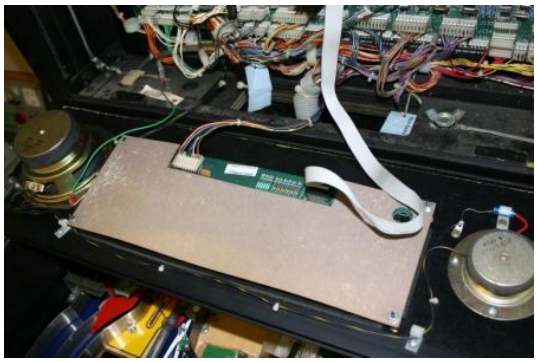
- Remove the fuses F3 and F4 on the transformer supply board.

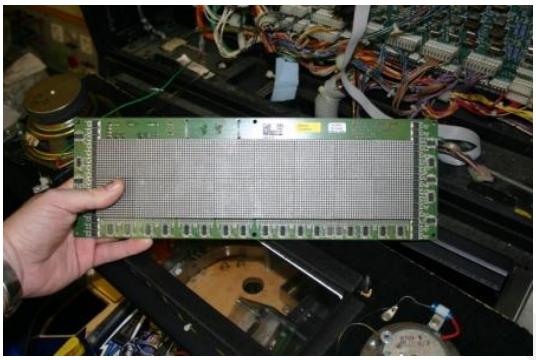
## Pictures for installation

### Installation in Bally/Williams pinballs

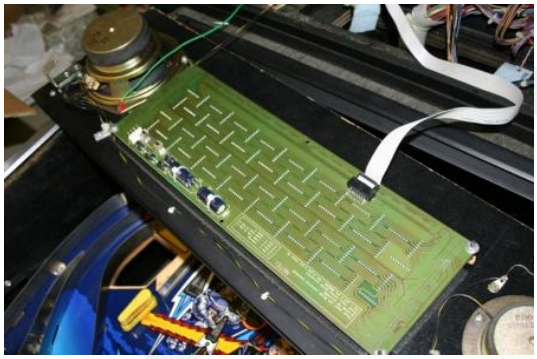
Example Bally/Williams Twilight Zone



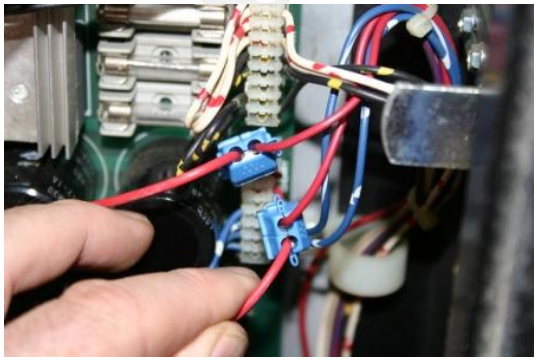
Put the speaker panel on the playfield glass.



Put the new display into suitable position.

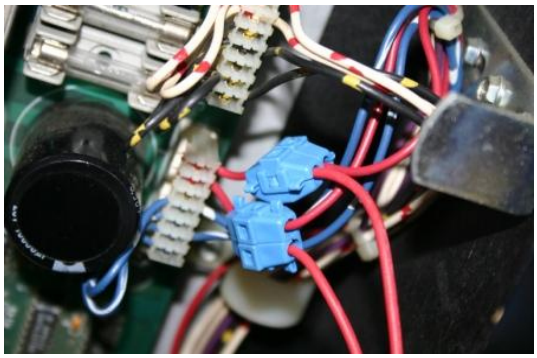


Fix the new display and reconnect the flat cable.

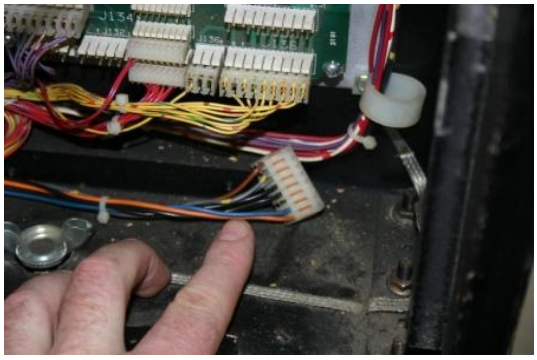


With the aid of two cable clamps connect the included power cable to 9VAC at the red cables, which reach the board at J101 pin 1 and 2

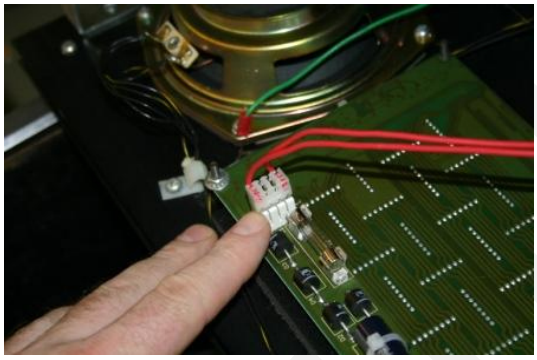
 



The two red wires enter the board at J101.



**The original 8-pin connector is not longer in use!!!**



Connect the display power supply to the display.


That it! Switch the machine to on.

You can use a black card board to make a cover for the sides of the display segments to cover the electronics.

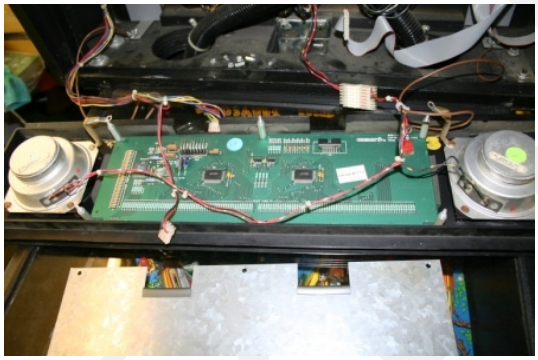
 

## Installation in Data East pinballs

Example Data East Jurassic Park

Put the speaker panel on the playfield glass.

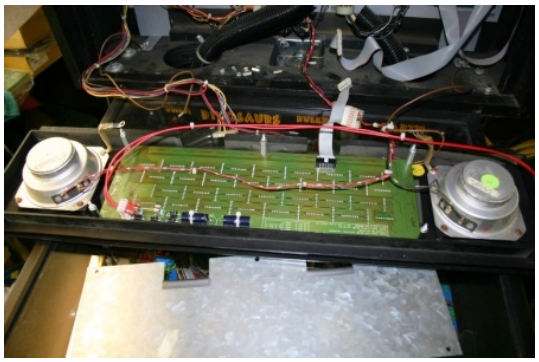
Remove the four mounting screws of the display driver board and remove it.



Remove the four spacers of the display driver board, both nuts and remove the metal cover plate.

Remove the five mounting screws of the old display and remove it.

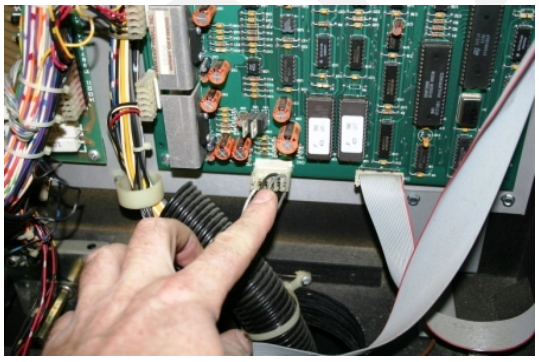
 



Install the new PinLED display and re-mount the five mounting screws. Connect the flat cable and the included display power cable.

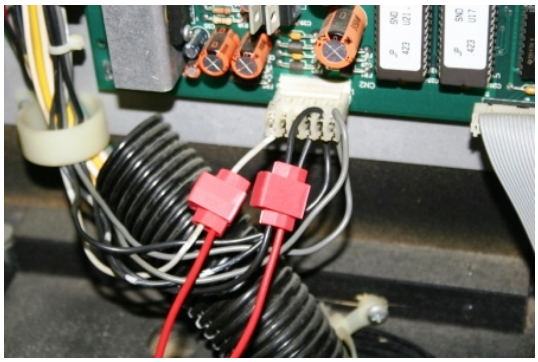
Put the metal cover plate back on and fix it with the two screws and the four spacers.

Reinstall the display driver board and fix it with the four Philips screws. Reconnect the flat cable and the power supply cable. The original power supply connector is not in use any longer. Store it in the back panel and fix it to the cable harness with a cable tie.



You will find the unregulated 12VDC at connector CN2 on the soundboard.



With the aid of two cable clamps connect the included power cable to the black and grey/white wires.

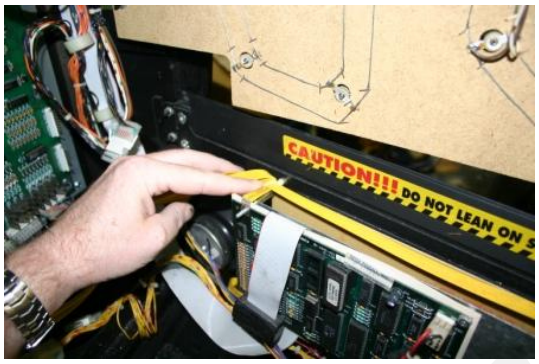

That it! Switch the machine to on.

You can use a black card board to make a cover for the sides of the display segments to cover the electronics.

## Installation in SEGA/STERN pinballs

Example SEGA/STERN Apollo 13


Slew the speaker panel aside.
J17 on the I/O power driver board. You have to connect the included display power cable later here.

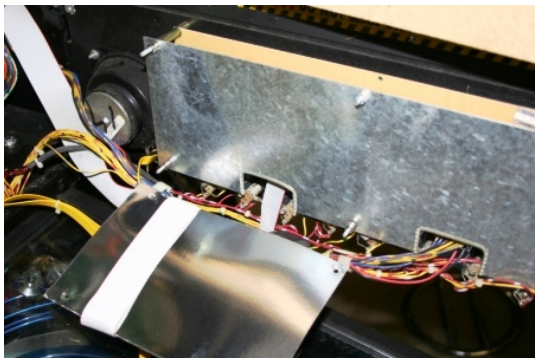



Cut the cable tie of the grounding wire.

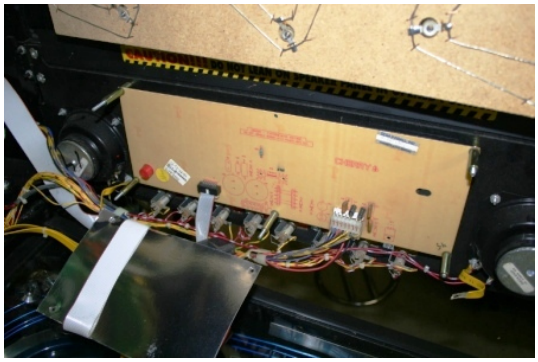

Left cable tie

Right cable tie

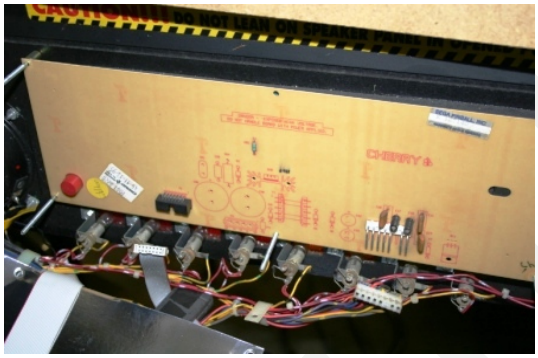
 



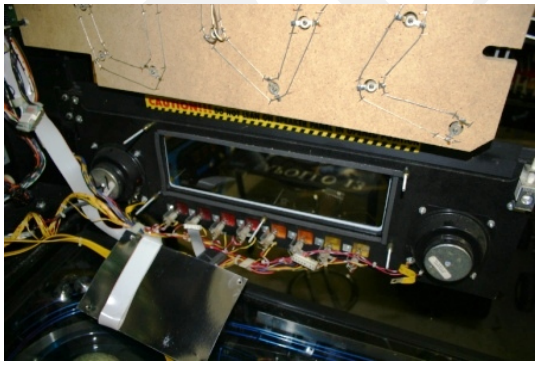
Remove the four mounting screws of the display driver board and remove it. Remove the three spacers too.



Remove the three mounting screws and remove the metal cover plate.

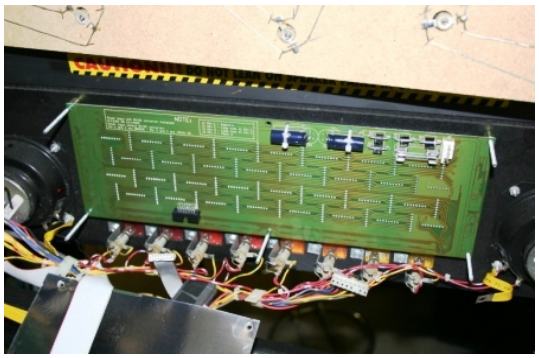


Remove both cable connections. Remove the spacers and washers from the five long mounting bolts.

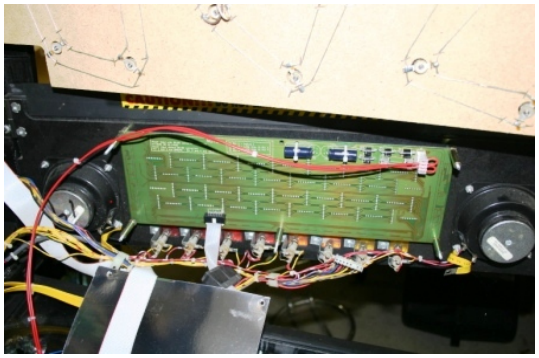


Remove the old display.

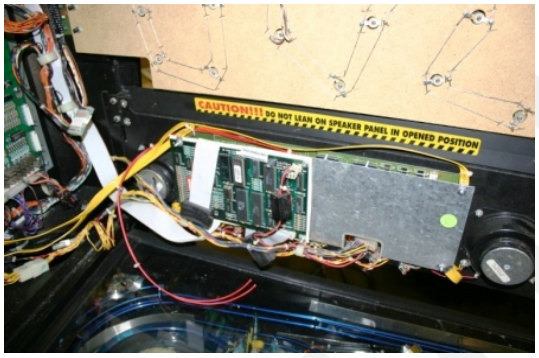
 



Put the new display in.



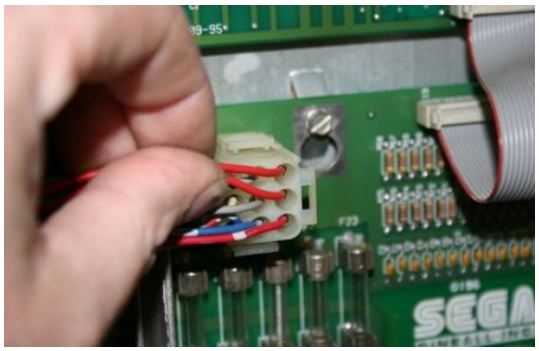
Reconnect the flat cable and the included display power cable. Fix the washers and spacers back on.



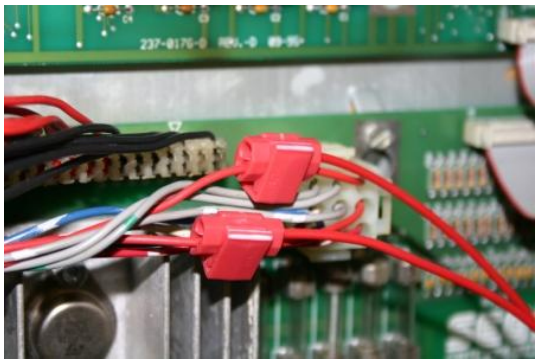

Remount the metal cover plate. Reinstall the three spacers and reinstall the display driver board. Fix the grounding wire with cable ties.


Use cable ties to fix the grounding wire and display power supply cable.



Connect the included display power supply cable with the two red wires at J17 pin 1 and 4.



Use the two include cable clamps to make the connection at J17 pin 1 (red) and 4 (red).

Shoes the complete setting.
**The original 8-pin connector is not in use any longer!!!**


That it! Switch the machine to on.

You can use a black card board to make a cover for the sides of the display segments to cover the electronics.