

**Bally - 1994
Shadow**

Ring LED Mod Guide

We were asked to try and come up with a solution for the Rings in Shadow. While the bulbs are still available the small holders that the bulbs plug into are not available. This is a guide to add lights back to your rings but is not a plug and play solution rather a “but better than nothing”. Read further on how to use this mod to add LED’s to your Rings on Shadow - as shown below.



Designed by



1. The Original Show Parts

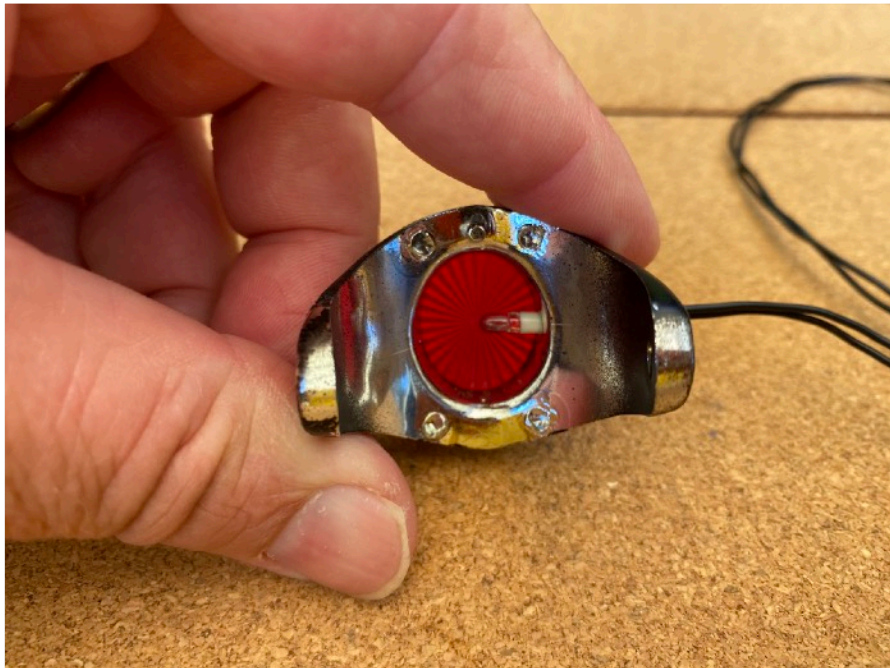
The ring, bulb and lead look like this:



The bulb presses into the bulb holder like this:



Once the bulb and holder are slid into the side of the ring it will look like from the underside.



The original bulbs are a #7268 Lamp - Sub Midget T1 - 24-8855



In the Shadow game they are know as a A-19545

Rated at 5 VDC / 0.125a

Which can be found here in Australia:

<https://www.rtbb.com.au/product/7268-lamp-sub-midget-t1-24-8855/>

Which can be found here in the US:

<https://www.marcospecialties.com/pinball-parts/24-8855>

2. A Bulb Holder Solution

For those that have a Shadow Pinball and sick of blown A-1954 Bulbs and want to switch to a LED OR have no bulb holder at all - here is a solution. It is not a perfect solution but those with soldering skills can fix their games with this approach.

The game has 4 rings so you will need the following parts:

- 4 x Shadow Ring LED Adaptor Pins (3D printed)
- 1 x LED Leg Bender (3D printed)
- 4 x 3mm LEDs - Red / White / Pink (your choice)
- 4 x resistors - size will depend on the voltage rating of your LED.
- Some very small heat shrink



See photo below - though a few extras for an Aussie Pinsider were included, including white and black adaptor pins black is not as visible.

Head to your local electronics shop or LED supplier or online and get some 3mm LED's of your preference as well as resistors to suit the 5vdc supply and bulb rating, as well as some small heat shrink.

Head here to download the free files for the Shadow Ring LED Adaptor Pins and LED Leg Bender and print in your preferred colours using the recommended print settings:

<https://makerworld.com/en/models/924293#profileId-886962>

Once you have the parts follow these steps to installing the 3mm LEDS and other components.

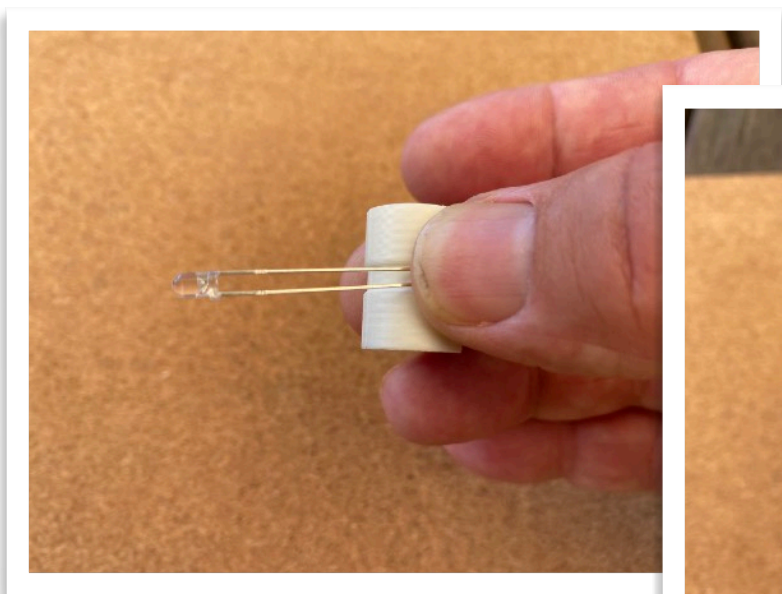
Step 1

Take one of your LEDS (with straight legs) and feed through the holes from the smaller pin end and then through the larger end to clear any bits of filament of your freshly printed Shadow Ring LED Adaptor Pins.



Step 2

Hold the legs of the LED in the printed LED Leg Bender Jig and then rotate the led. The reason we are adding a curve to the LED legs is to feed the LED legs through the hole of ring and adding a curve helps.



Step 3

Feed the LED legs through the hole of the ring from the inside as shown



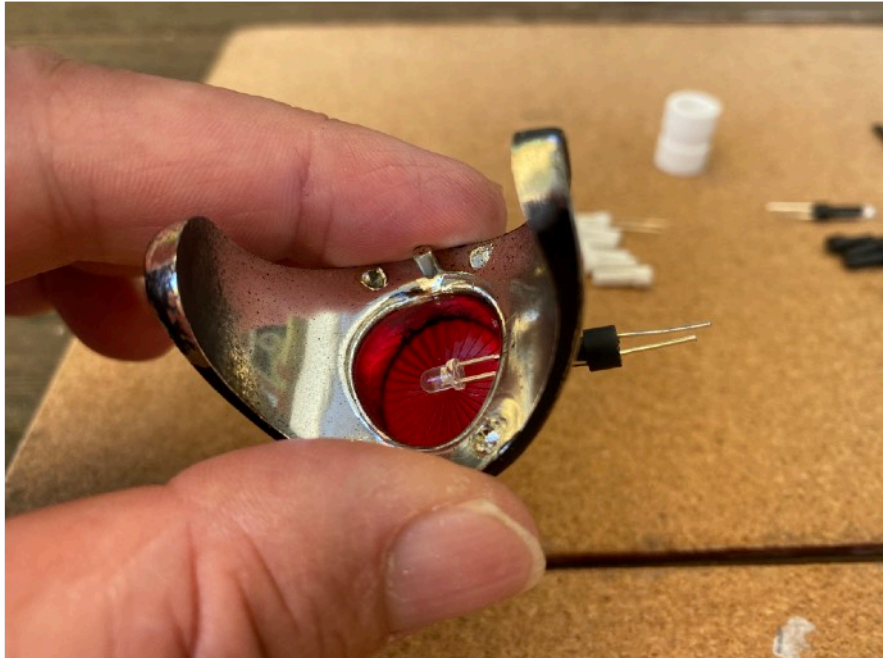
Step 4

Straighten the LED legs out again to ready for sliding on the Shadow Ring LED Adaptor Pin.



Step 5

Feed the smaller end of the Shadow Ring LED Adaptor Pin from the outside of the ring from the hole ensuring the LED legs feed through the Shadow Ring LED Adaptor Pin until the LED is sitting on the smaller end of the Adaptor Pin and then also push the Adaptor Pin in fully - should be a snug fit.



Step 6

The down side of this solution is that you have to solder the wires to the LED while the LED and Adaptor Pin are fitted to the ring but if you don't have an original bulb holder this is currently a solution over no lights in the rings at all - take care with the hot iron tip to only touch the wires you are soldering.

Next you need to identify which wire of the original lead is positive and negative, and place a small bit of tape to the positive side with a + sign so you don't get them mixed up.

Now trim the longer leg of the LED (positive side) to 5-6mm long outside the adaptor pin and solder to the positive lead - make sure to add heat shrink before soldering the wire.



Step 9

Now trim the shorter LED leg and solder the negative lead to this trimmed LED leg.



Step 10

Now go to the plug end of the lead and identify the positive side and cut the wire approx 50mm / 2 inches from the plug and install the resistor here. The resistor reduces the voltage of the incoming 5vdc to the LED which can be between 1.8vdc and 3.5vdc and protects the LED from blowing.



Step 11

Now you are ready to test this lead / ring / LED in your game.



Step 12

Now repeat the process for your other rings / leads.

PRODUCT DISCLAIMER:

Please remember that this is a Free Downloadable "MOD."

We took great effort in designing and testing our system in order to produce a high quality product, but it is not a factory original or an 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 our MOD.

PRODUCT QUALITY DISCLAIMER:

All parts are made to the highest quality possible to suit the one Shadow Ring issued as a sample. The main component is 3D home printed on a Bambu Labs machine. Swinks Pinball advises to download this manual prior to purchasing parts and have an understanding what is required and that you are comfortable it doing it.