

Replacing Lamp & Ballast in Optoma HD72 Projector

By Mark R. Spiering

13Feb10

The Optoma HD72 DLP projector was an instant success when released in February of 2006. Garnering much praise from consumer electronics pundits as well as popularity among home enthusiasts, the HD72 offered an impressive array of features at a remarkable price point. It was one of the first 720p projectors at an affordable, entry-level position, aimed squarely at the first-time buyer.

However, the projector does have an Achilles heel. As the lamp ages with use, increasing levels of stress are placed on the ballast (lamp driver) every time the projector is turned on. Over time, a fault* develops in the ballast where it cannot properly hold the current once the mercury vapor in the lamp has ignited after a high-voltage strike. This results in the lamp suddenly extinguishing after a minute or two while the projector continues to run. No "lamp" or "temp" LEDs will be illuminated. Pressing the power button twice will initiate the shut-down sequence as normal.

This do-it-yourself guide will provide step-by-step instructions to replace both the lamp and the ballast together. The first part focuses on the ballast while the second part deals with the lamp.

Before beginning with these instructions, install the lens cover.

First, carefully turn the projector over as shown in figure 1 below. A helpful hint is to use a towel or cloth to protect the top of the housing.



Figure 1 – Bottom of Projector

Next, remove the panel to expose the lamp carrier assembly as shown in figure 2 on the following page.



Figure 2 – Lamp Carrier Assembly

Loosen the two screws securing the assembly in the projector. The screws are captive in the assembly and will not be able to be removed.

Swing the metal loop upwards and gently pull the assembly out of the projector. The lamp connectors are friction fit and will separate with enough applied force.

Do not touch the glass of the lamp with bare fingers.

Set the lamp assembly aside.

Next, loosen the five (5) screws that secure the top of the housing. They are in deep wells in the bottom of the housing so extracting them might not be possible.

Carefully turn the projector right side up. The screws should drop out of the wells.

Starting with the front (lens side) of the projector, carefully lift the top (white) part of the housing. It should lift up at least a half inch before resistance from the back can be felt. There are four (4) clips holding the top to the bottom of the housing at the rear. With gentle but firm force, they will release, allowing the top to be lifted a few inches **but not completely off**.

There are two connections for the top controls that plug into the main board as shown in figure 3 on the following page.

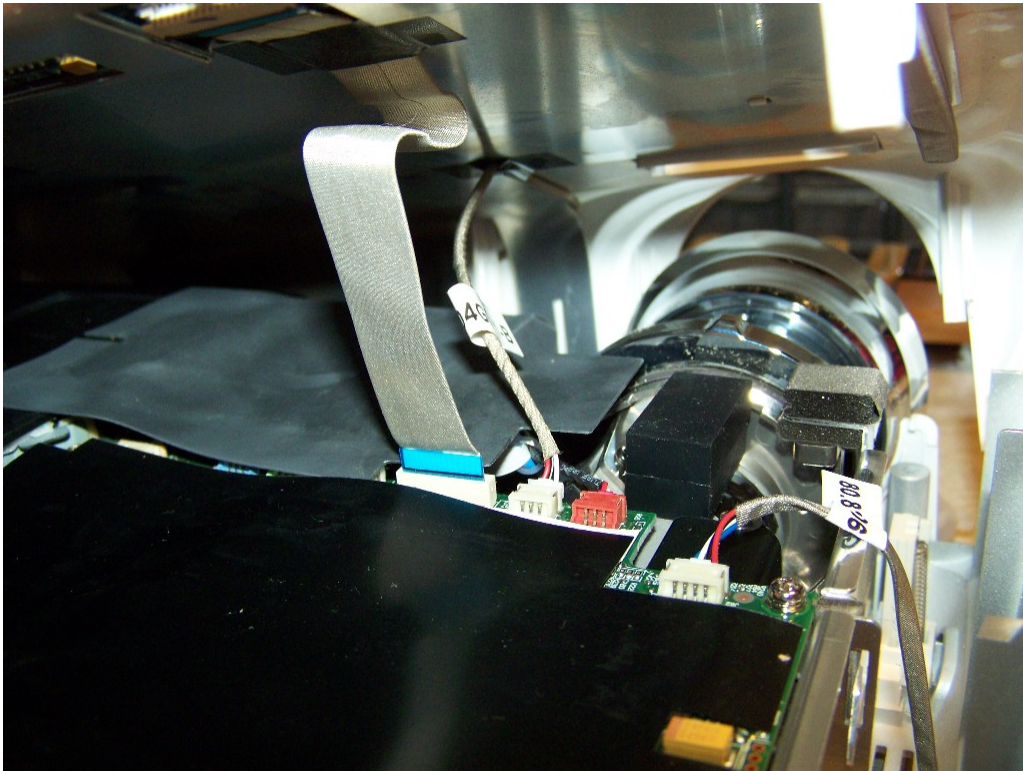


Figure 3 – Top Control Connections

Carefully disconnect the two cables from the main board connectors. Remove the top of the housing and set it aside, exposing the inner components as shown in figure 4 below.



Figure 4 – Projector Inner Components

Next, carefully lift the black shield over the main board connectors near the front edge. The shield is held down by an adhesive; it will come loose with gentle but firm force. **Do not attempt to remove the shield.** Make note of the cables and their respective connectors on the main board as shown in figure 5 below.



Figure 5 – Main Board Connectors

Carefully disconnect each of the cables going to the main board. There is also a power connection to the main board as shown in figure 6 on the following page. Carefully disconnect the power cable.

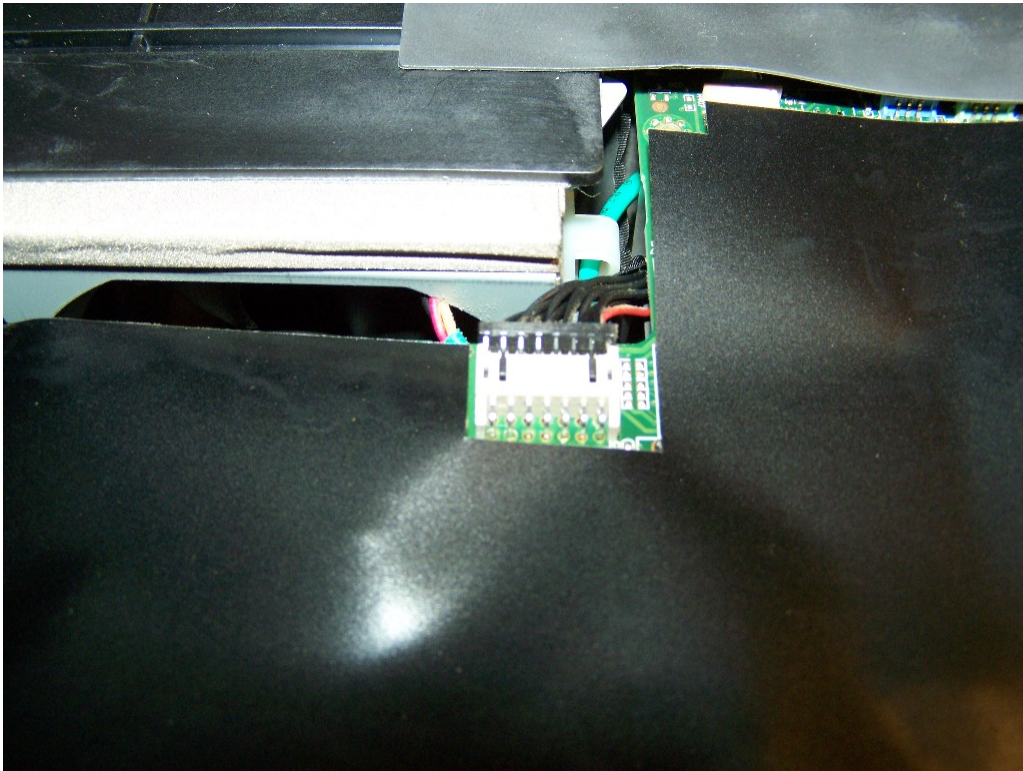


Figure 6 – Main Board Power Connector

Next, remove the five (5) screws that secure the main board in the chassis. Carefully lift up on the board to disconnect the edge connector to the DLP assembly on the other side. Once the main board is loose, remove it from the chassis as shown in figure 7 below.

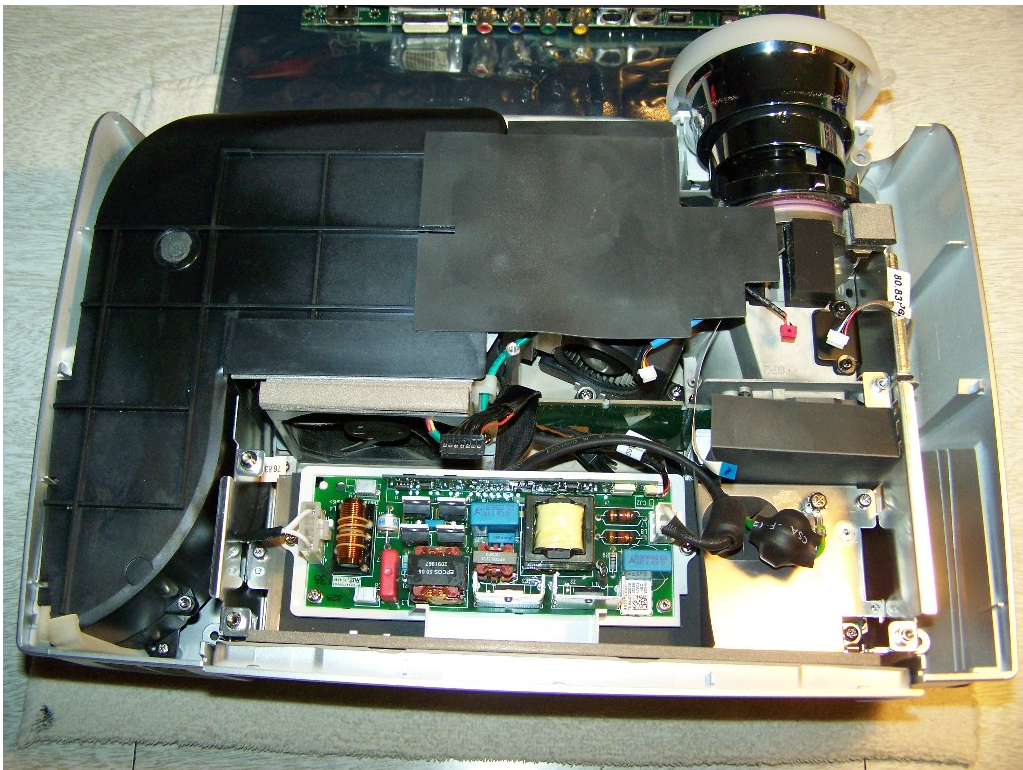


Figure 7 – Main Board Removed

Set the main board aside. It is sensitive to static electricity discharge so place it on a sheet of aluminum foil if an anti-static bag is not available as shown in figure 8 below.



Figure 8 – Main Board on Aluminum Foil

With the main board removed, the ballast is exposed as shown in figure 9 below.

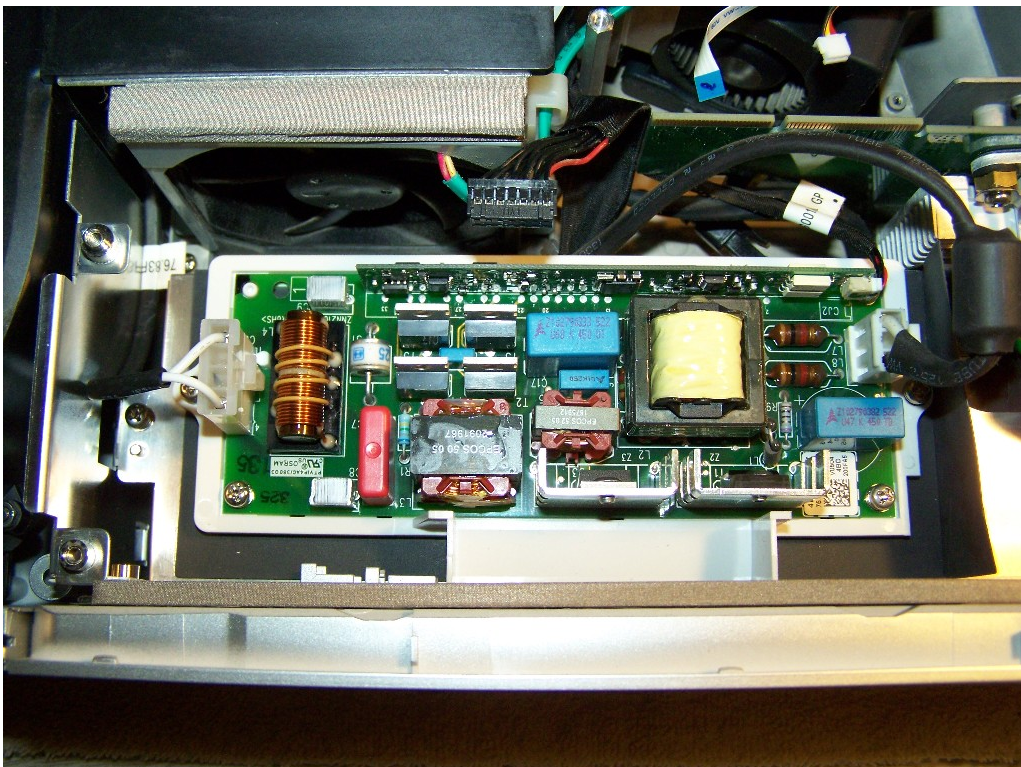


Figure 9 – Ballast Exposed

Next, carefully disconnect the three (3) cables connected to the ballast. Loosen the three (3) screws securing the ballast to the chassis. Remove the ballast as shown in figure 10 below.

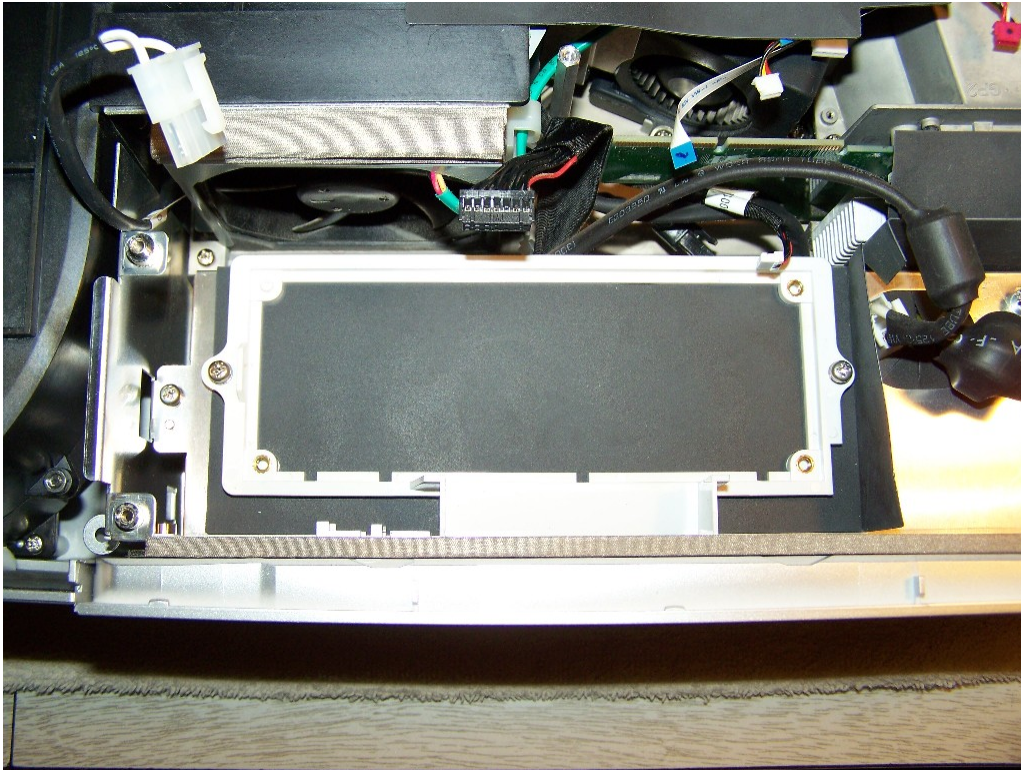


Figure 10 – Ballast Removed

The new ballast is shown in figure 11 below.



Figure 11 – New Ballast

Next, install the new ballast and secure it with the screws. Reconnect the cables to the ballast as shown in figure 12 below.

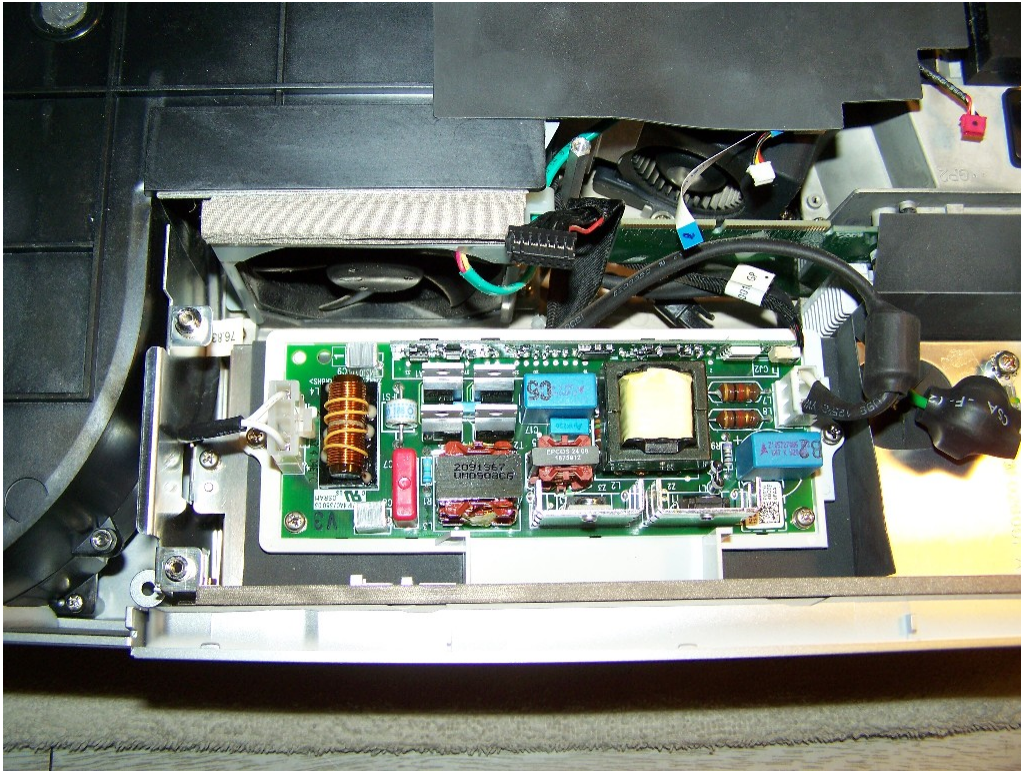


Figure 12 – New Ballast Installed

Next, carefully align the main board edge connector with the DLP assembly PCB. Press down to reconnect the main board while ensuring the mounting holes line up with the screw PEMs in the chassis. Secure the main board screws as shown in figure 13 below.

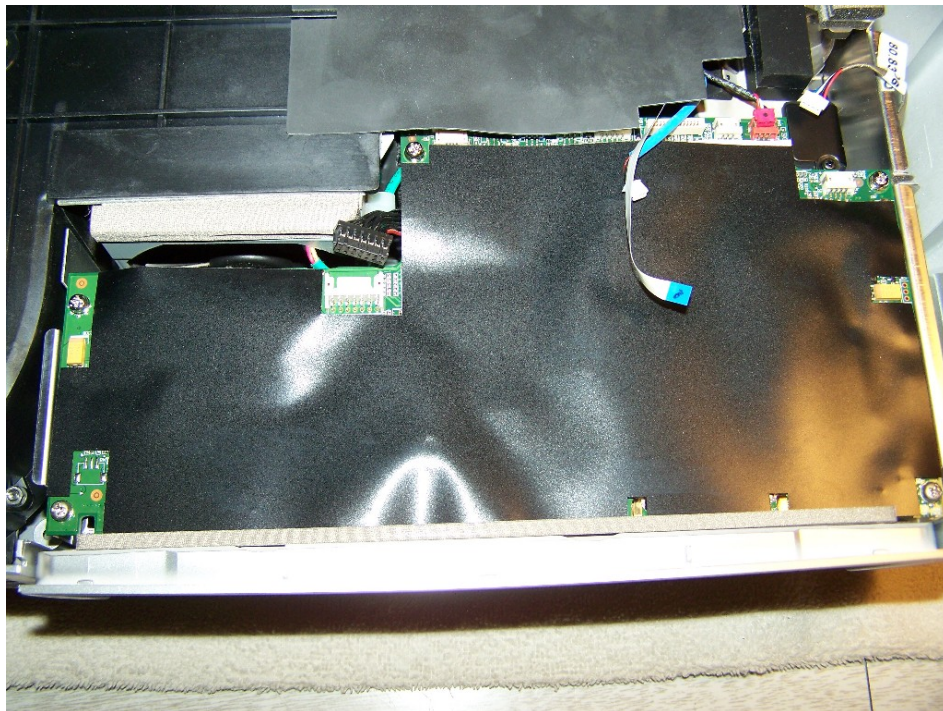


Figure 13 – Main Board Installed

Next, reconnect all the cables to the main board as shown in figure 14 below.

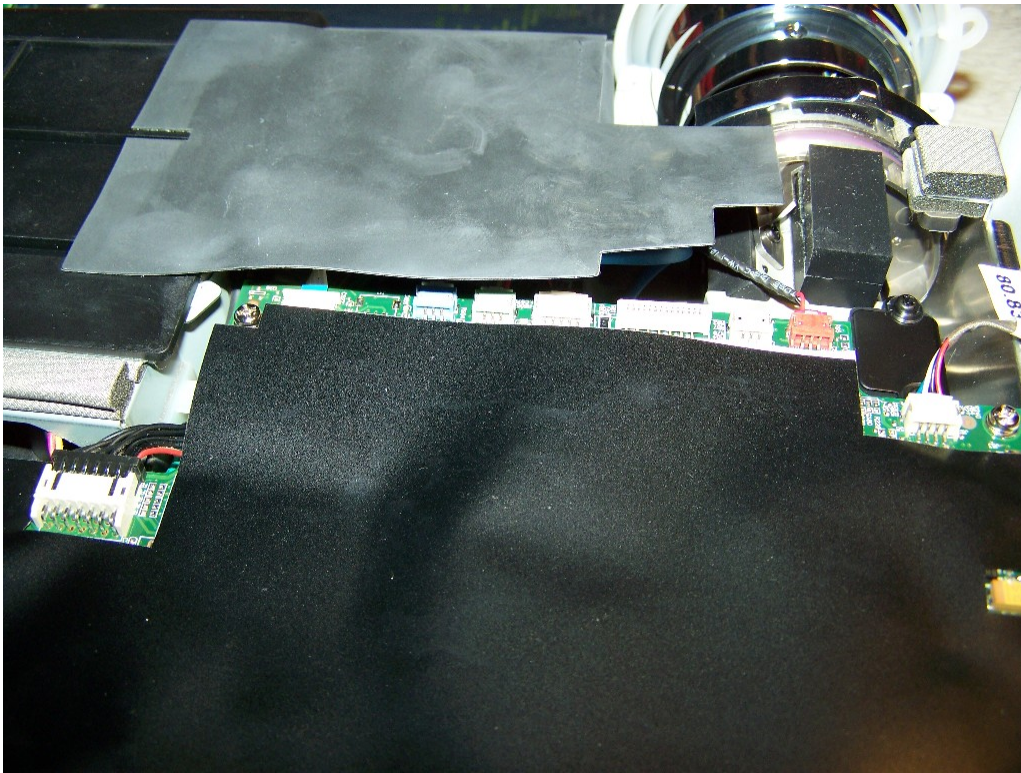


Figure 14 – Main Board Connections

Next, position the top of the housing so that the two top control connections can be made to the main board. Carefully reconnect the cables (as shown in figure 3 earlier).

Align the top of the housing and move it into position over the bottom part. Snap the back of the top down with gentle but firm force. The front should have very little split in the housing.

Carefully turn the projector over. Drop the five (5) screws into the wells and tighten. **Do not over tighten the screws.**

Set the projector aside.

Handle the lamp carrier assembly by the frame only as shown in figure 15 on the following page.

Do not touch the glass of the lamp with bare fingers.

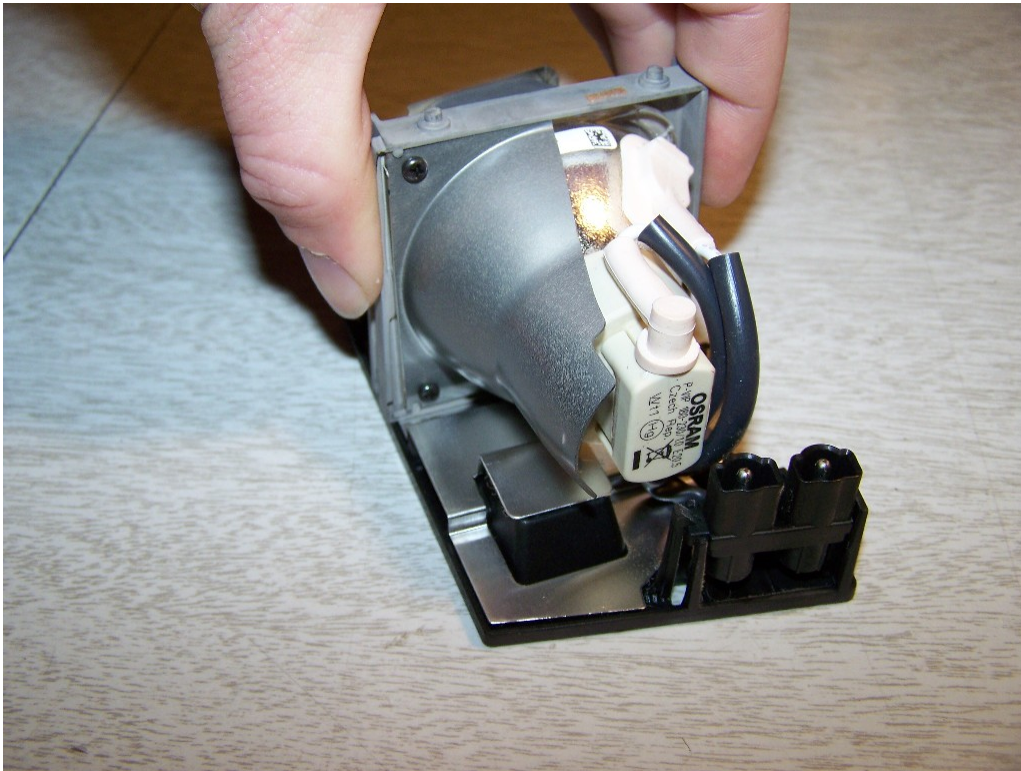


Figure 15 – Handling Lamp Assembly

Next, carefully peel back the rubber boots on the connections to the lamp. Disconnect the two power leads as shown in figure 16 below.

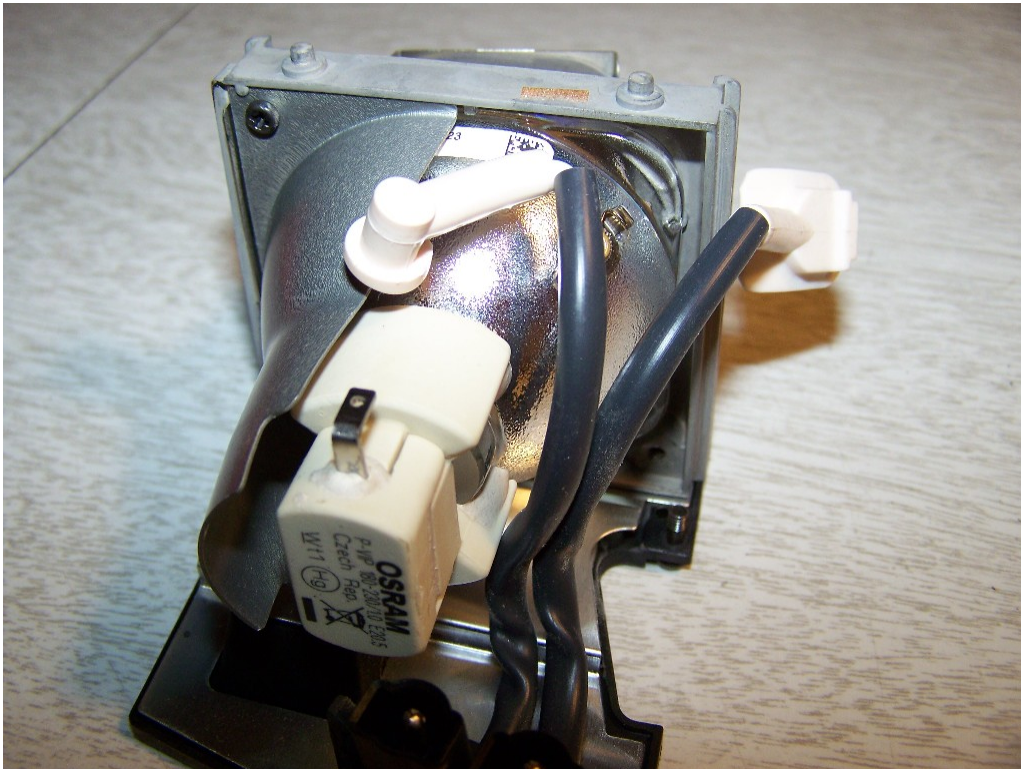


Figure 16 – Power Leads Disconnected

Next, remove the screw and metal clip in the lower right-hand corner of the frame as shown in figure 17 below.

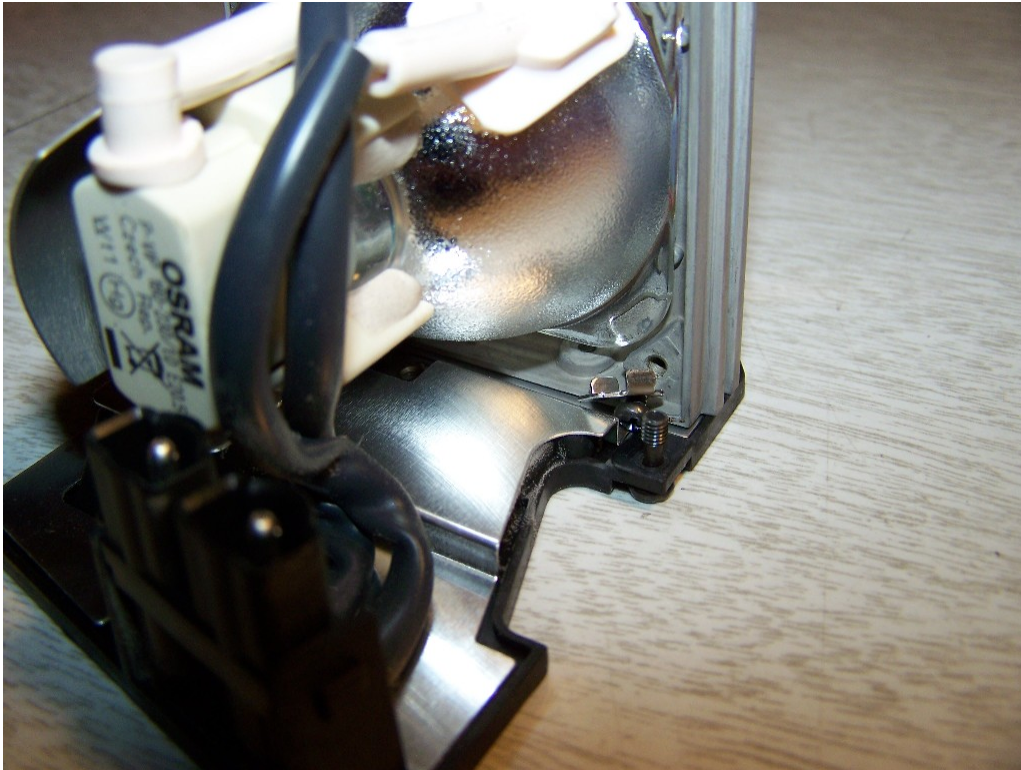


Figure 17 – Screw and Clip Removed

Loosen but do not remove the two mounting screws on the left-hand side of the frame. The lamp should be loose enough to be removed.

Handle the lamp only by the ceramic base. Do not touch the glass.

Remove the lamp from the carrier assembly as shown in figure 18 on the following page.

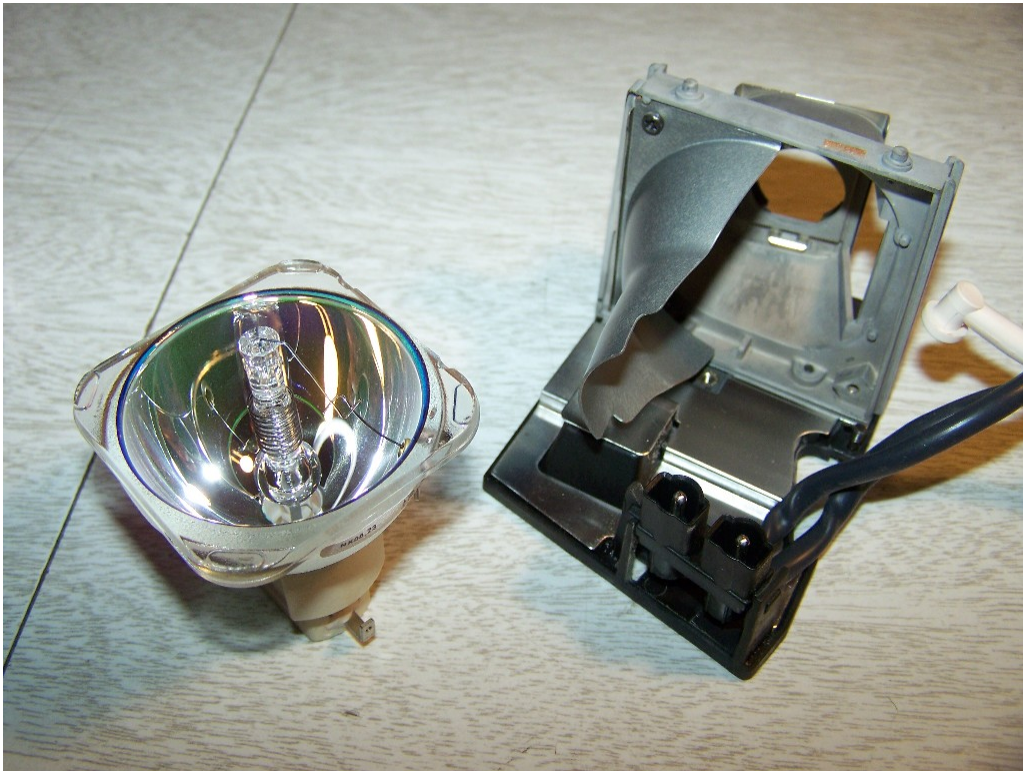


Figure 18 – Lamp Removed

Carefully remove the new lamp from the packaging as shown in figure 19 below. **Do not bend or distort the exposed lead wire.**



Figure 19 – New Lamp Packaging

Next, carefully install the lamp into the carrier assembly. Reinstall the lower right-hand mounting screw and clip. Tighten but not all the way; leave a little loose. Tighten the two left-hand mounting screws. Finally, tighten the right-hand screw. **Do not over tighten the screws.**

Next, reconnect the two power leads. Slip the rubber boots into position. **Do not touch the glass.**

Next, reinstall the lamp assembly into the projector (as shown in figure 2 earlier). Tighten the two screws to secure the assembly. **Do not over tighten the screws.**

Finally, reinstall the lamp cover. Carefully turn the projector over.

Connect a power cord to the project and turn it on. Run the projector for at least 15 minutes to verify the lamp remains ignited as shown in figure 20 below.



Figure 20 – Testing the Projector

This concludes these instructions.

* (from page 1) The exact failure mode of the ballast is unknown at this time. Investigation into the exact root cause will be conducted in the future using worn lamps and ballast samples as well as fresh ones. By studying the contrasting performance between the two sets, it is hoped a simpler remedy than replacing the entire ballast can be found.

Parts Suppliers

Ballast (Lamp Driver Assembly)

Part Number 75.83J01G002

Budgetary Price 99.00 USD

Optoma Customer Service

Milpitas, California

(408) 383-3700 main number

(888) 942-2929 out-of-warranty service



Mercury-Vapor Arc-Flash Lamp

Part Number Osram P-VIP 180-230/1.0

Budgetary Price 130.00 USD

eBay Auctions – prices vary, some include free shipping, stay away from Hong Kong auctions

