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## ***DLP LightCrafter 4500 Modification Instructions***

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*DLP Catalog*

### **ABSTRACT**

The following document details how to modify a LightCrafter 4500 for the TIDA-00293 DLP 3D Printer reference design.

Two modifications are necessary to convert the LightCrafter 4500 EVM for the TIDA-00293 3D printer design: projection optics shimming and replacement of the OEM blue LED. Perform both procedures.

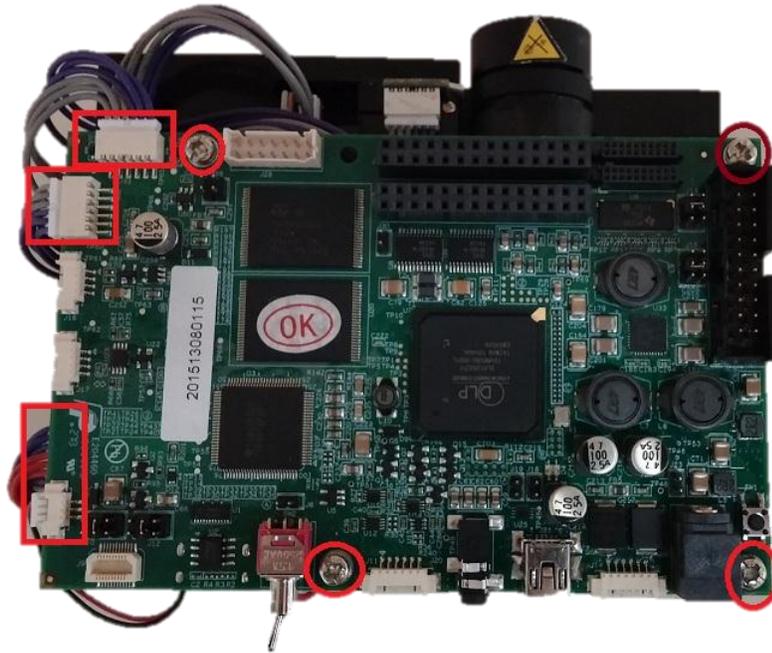
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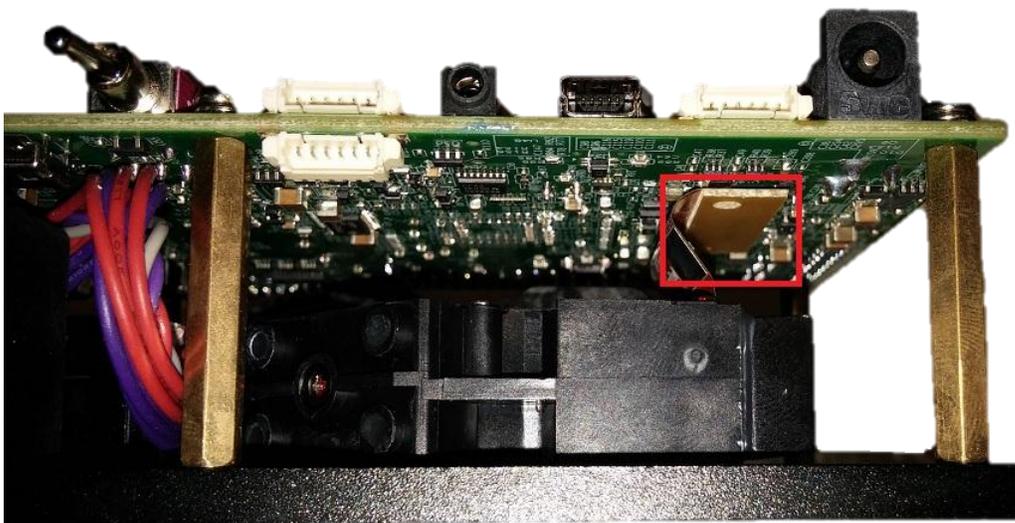
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## 1 Projection Optics Shim Procedure

1. Start with a DLP LightCrafter 4500 EVM. Remove the 4 screws highlighted in red. Disconnect the cables to the light engine and the fan connector.



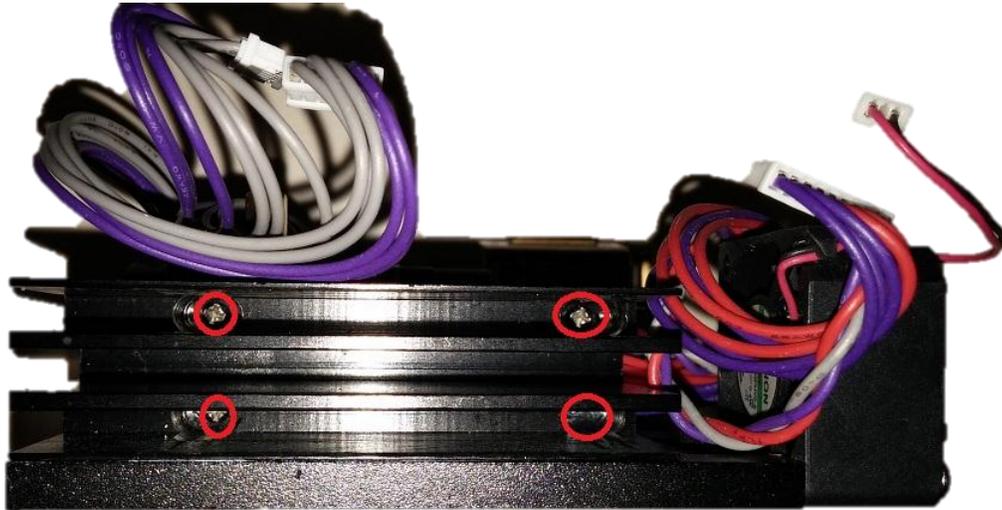
2. Disconnect the flex print cable on the bottom of the system board, highlighted in red.



3. Remove the system board from the DLP LightCrafter 4500 chassis to expose the light engine.

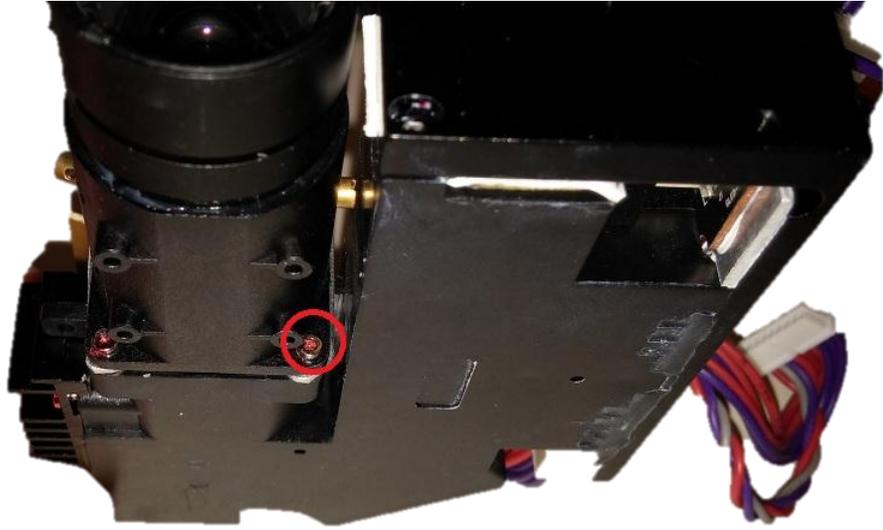


4. Remove the 4 screws connecting the light engine to the heat sink/chassis, circled in red. Some units have thermal adhesive holding the light engine to the heat sink, carefully work the light engine free.



5. Remove the 4 screws holding the projection optics to the light engine body, all circled in red.

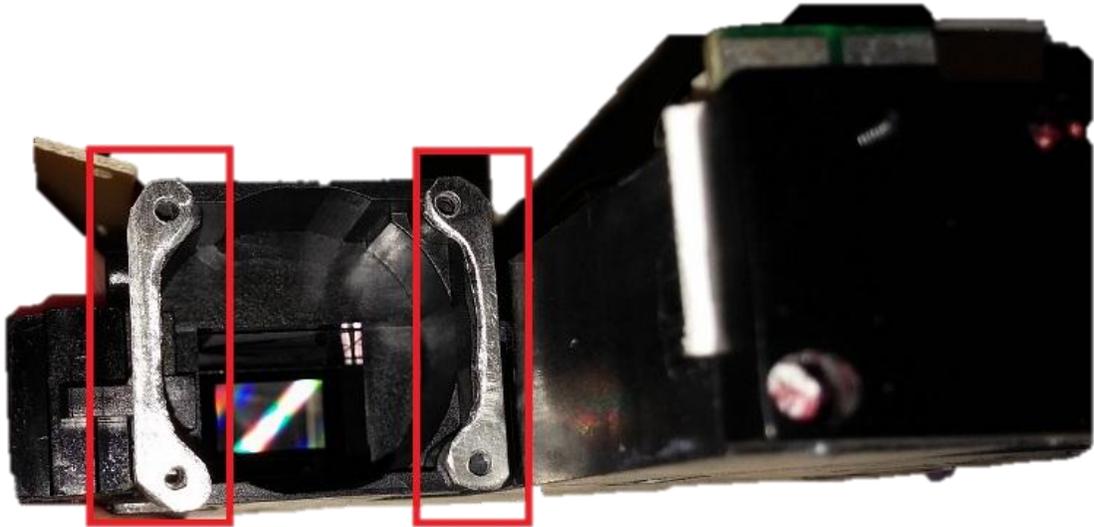




6. Remove the projection optics from the light engine case.



7. Place the 2 shims (TI Drawing # 2514194) on the vertical sides of the light engine.

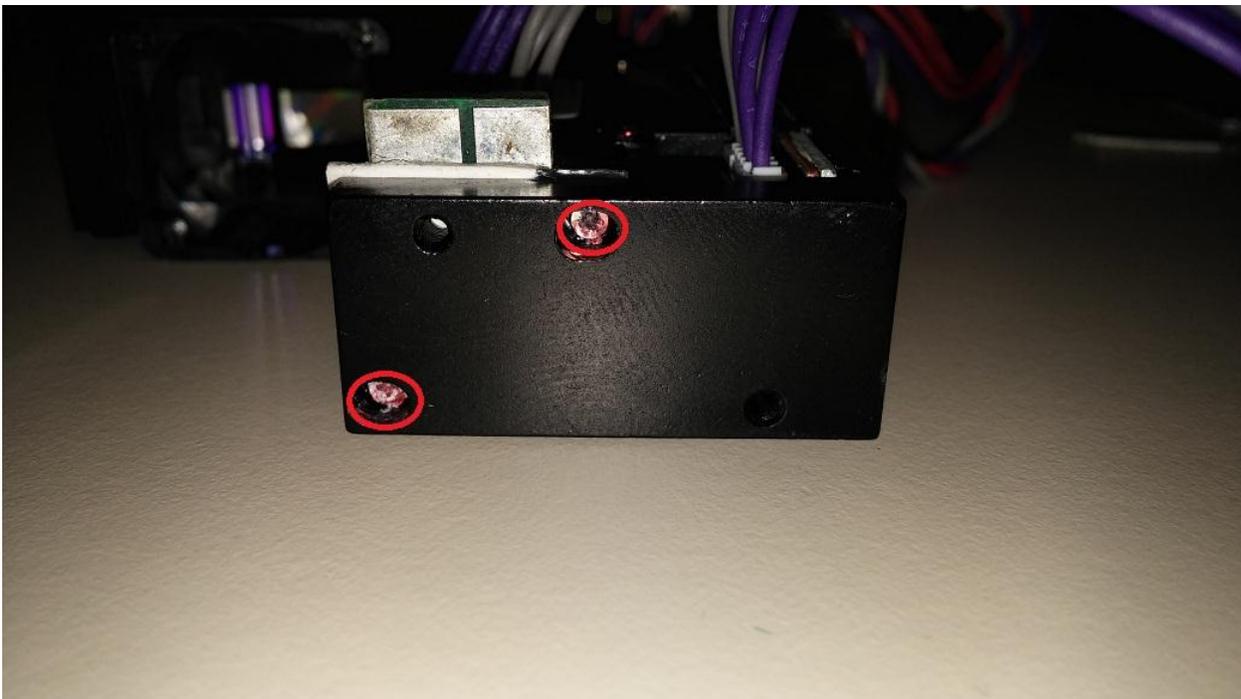


8. Slide the projection optics back into the light engine and replace the 4 screws removed in step 5.
9. Reassemble the DLP LightCrafter 4500 reversing the steps above OR continue to the OEM blue LED replacement procedure.

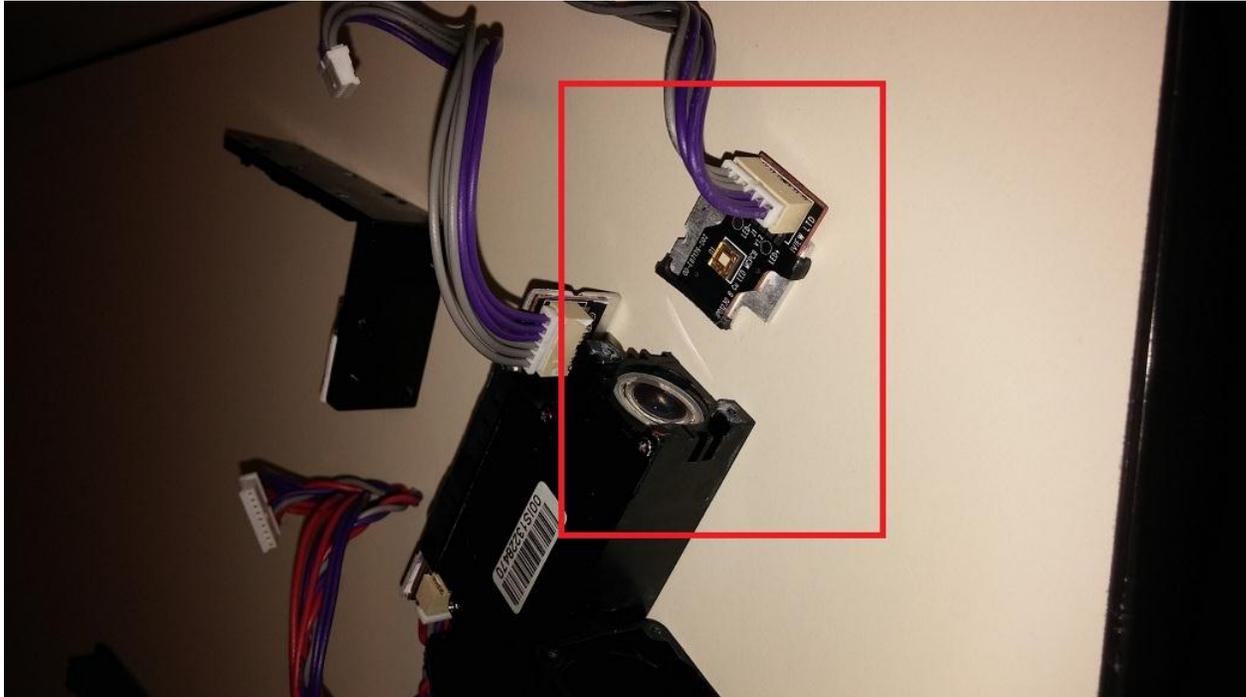
## 2 LED Replacement Procedure

1. Disassemble the DLP LightCrafter 4500 following steps 1 through 4 in the projection optics shim procedure above.

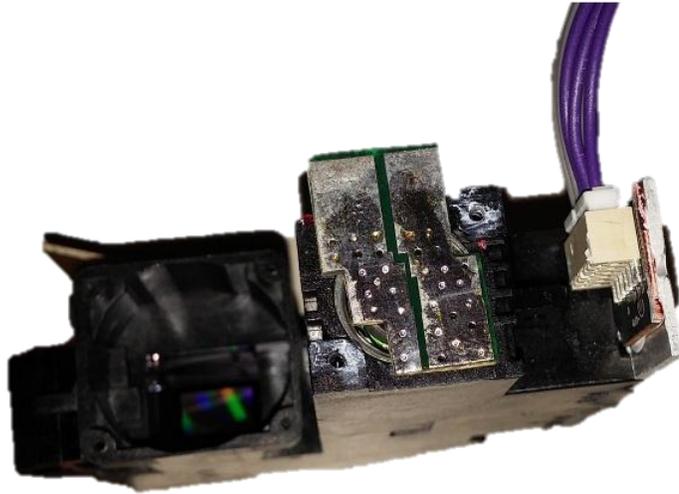
2. Remove the 6 screws holding the LED board retaining bracket into the light engine, all circled in red.



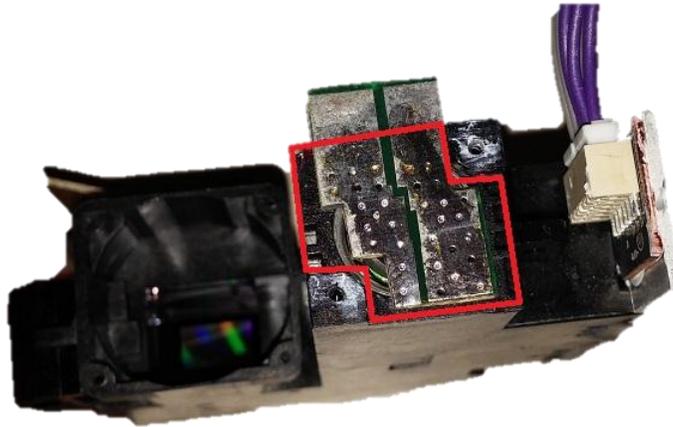
3. Remove the L-shaped LED board retaining bracket. Pull the blue LED from the light engine, freeing it from the silicone glue keeping it adhered to the engine. The blue LED board is located on the small board at the end of the light engine, highlighted in red.



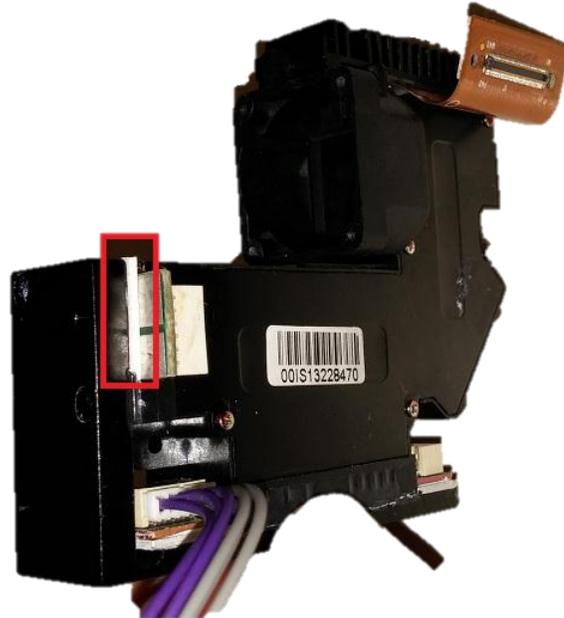
4. Set the replacement LED assembly with the 420 nm LED in the socket where the blue LED was. Center the replacement LED assembly as shown in the picture below.



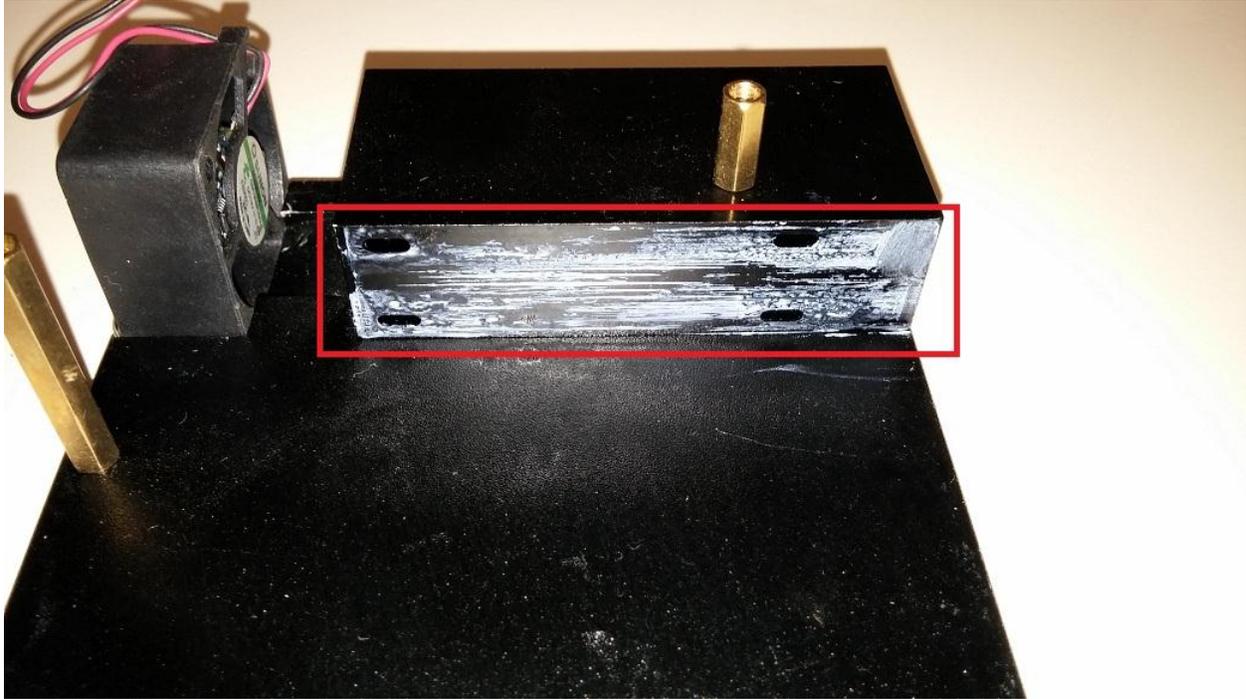
5. Place a thermal pad on the back of the replacement LED board. Cut a piece of thermal pad to cover the back of the LED board but not the alignment notches. The area to cover with thermal pad is outlined in red. Thermal pad used in the TIDA-00293 design is 3M 5592 series P/N : 5592 210 MM X 300 MM 1.0 MM



6. Place the LED board retaining bracket back on the light engine and replace the 6 screws connecting the bracket to the light engine.



7. Reapply a thin layer of thermal grease to the heat sink on the DLP LightCrafter 4500 chassis.



8. Reassemble the DLP LightCrafter 4500 by reversing the steps performed in the disassembly.