Parts:
• 1 A2074 laser head board, partially assembled
• 1 Straight 6 way flex cable connector
• 2 5mm aluminum standoffs
• 2 10mm pan head M2.5 screws
• 2 Laser diodes
• 1 NBCAM face plate

Assembly:
• Solder in the flex cable connector, pin side on the bottom, with water-soluble flux. Washing the board after this step may make future washing easier
• Place in the laser diodes in L1 and L2, but not soldered in
• Screw the board into the face plate, ensuring the laser diodes can lay flat in their holes
• Solder the diodes in place with water-soluble flux, checking that they are flush with the plate holes
• Wash the board
• Inspect that the diodes are in fact flush and level with the face plate holes
• Clip the laser diode leads so they can not bend and short during installation

Testing:
• Plug a 6 way flex cable into the laser head and connect the other end to a BCAM (or connect an NBCAM flex connector into the laser head)
• Using LWDAQ Diagnostic, send 1080 to turn on one diode and 0880 to turn on the other, or 1880 to turn on both at once
• Measure the power output of each diode with a photodiode on the outward face of the aluminum. Both diodes can be on at once for this measurement, but a 2-5% drop in power can be noticed in the diodes when both are on
• Make sure each diode’s power is between 1.1mW and 1.4mW outside of the face plate, which corresponds to a current between 430uA and 550uA across the photodiode (SD445, http://alignment.hep.brandeis.edu/Electronics/Data/SD445.pdf) when pressed against the face plate
• If the diode is outside of this range, the photodiode resistor will have to be replaced with a different resistor value. Use the table below to determine the resistor change. Laser source 3 has photoresistor R6, and Laser source 4 has photoresistor R13. They are both P0805.
• If a resistor was switched, retest to ensure the power is now within the expected range
• Using the resistance setting on the DVM, measure the resistance between the pins of the laser diode and the chasis to check for a short between the face plate and the laser diode. If a short is found,

<table>
<thead>
<tr>
<th>Percent Change</th>
<th>New Resistor Value (P0805 5%)</th>
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</thead>
<tbody>
<tr>
<td>+40</td>
<td>24K</td>
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<tr>
<td>+25</td>
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<tr>
<td>+10</td>
<td>30K</td>
</tr>
<tr>
<td>-10</td>
<td>36K</td>
</tr>
<tr>
<td>-15</td>
<td>39K</td>
</tr>
<tr>
<td>-35</td>
<td>43K</td>
</tr>
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