

## SPDP Startup Alignment Check S-AB-P-184 Rev A

**Intent:** This procedure aligns the SPDP laser with the SPDP's upper and lower compressor system cross-hairs. This procedure is performed from within the Laser Bay at the SPDP table, typically at the start of shot operations.

This is a Class 4 laser operating at 1053 at 1058 nm and appropriate eye protection must be worn prior to performing the procedure listed below.

**Prerequisite:** SPDP laser source startup (S-AB-P-042).

**Procedure:**

<b>1</b>	Change the IPG amplifier drive current to 0 amps.	<input type="checkbox"/>
<b>2</b>	Verify that the UC and LC retro corner cubes are inserted.	<input type="checkbox"/>
<b>3</b>	Verify that the UC and LC system cross hairs are inserted.	<input type="checkbox"/>
<b>4</b>	Set the SPDP throttle waveplate and Split waveplates to 20°.	<input type="checkbox"/>
<b>5</b>	Verify that the UC and LC ASP shutters are open.	<input type="checkbox"/>
<b>6</b>	Verify that the pointing arm for each ASP is in the fine pointing mode.	<input type="checkbox"/>
<b>7</b>	Verify that the centering arm for each ASP is in the coarse centering mode.	<input type="checkbox"/>
<b>8</b>	Verify with the imaging GUI that the following software references are displayed. <ul style="list-style-type: none"> <li>• LC coarse centering</li> <li>• UC coarse centering</li> <li>• LC fine pointing</li> <li>• UC fine pointing</li> </ul>	<input type="checkbox"/>
<b>9</b>	Use the 'CENTROID' to measure the pixel separation of the <u>pointing</u> centroid from the reference for both the UC and LC beams. Record the values in the Beamlines log: <div style="text-align: center; margin: 10px 0;">                     UC: x=_____ y=_____                 </div> <div style="text-align: center; margin: 10px 0;">                     LC: x=_____ y=_____                 </div> <ul style="list-style-type: none"> <li>• If any of the displacements are &gt; 15 pixels, realignment of the SPDP table is required (S-AB-P-186). Note: Alert the BLO. Return to step 1 after re-alignment.</li> </ul> <p style="text-align: center;">(continues)</p>	<input type="checkbox"/>

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<b>10</b>	<p>If the x and y centroid displacements are <math>\leq 15</math> pixels, adjust the fine pointing spot to the fine pointing reference (<math>&lt; 2</math> pixels offset) using the mirror below:  UC: SP-SM6  LC: SP-SM10</p>	<input type="checkbox"/>
<b>11</b>	<p>Measure the offset between the SPDP system crosshairs and the coarse centering reference for each beamline. Record the offsets in the Beamlines log:  UC crosshair: x=_____ y=_____  LC crosshair: x=_____ y=_____</p>	<input type="checkbox"/>
<b>12</b>	<p>If the x and y crosshair displacements are <math>\leq 2</math> pixels, centering is acceptable, skip to step 16 below.</p>	<input type="checkbox"/>
<b>13</b>	<p>If the crosshair displacements are <math>&gt; 2</math> pixels, realign the crosshair image to the coarse centering reference using the mirror below:  UC: SP-SM5  LC: SP-SM9</p>	<input type="checkbox"/>
<b>14</b>	<p>After re-centering, recover the pointing centroid to the references as in step 10.</p>	<input type="checkbox"/>
<b>15</b>	<p>Iterate steps 11 through 13 above until the pointing centroid and the crosshair offsets are <math>&lt; 2</math> pixels.</p>	<input type="checkbox"/>
<b>16</b>	<p>Inform the BLO that the SPDP is aligned.</p>	<input type="checkbox"/>
	End of Procedure	

**Document Release:**

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