


Traveler Title	BPM Magnet Sub-assembly Traveler			
Traveler Abstract	This traveler is for capturing data for the sub-assembly of the LCLS-II BPM magnet beam-line and VAT valve. The assembly will be assembled on the lollipop tooling, leak tested and bleed-up in preparation for further assembly onto the cavity string.			
Traveler ID	L2PRO-CST-ASSY-BPM			
Traveler Revision	R2			
Traveler Author	Kurt Macha			
Traveler Date	17-AUG-2015			
NCR Emails				
Approval Names	Kurt Macha	Ari Palczewski	Tony Reilly	
Approval Signatures				
Approval Dates				
Approval Title	Author	Reviewer	Project Manager	
References	List and Hyperlink all documents related to this traveler. This includes, but is not limited to: safety (THAs, SOPs, etc.), drawings, procedures, and facility related documents.			
CP-L2PRO-CST-TLNG Lollipop tooling assembly procedure	BPM Lollipop Tooling Tooling with BPM sub-assembly installed.	Ionized Nitrogen Cleaning Procedure	Leak testing with an RGA procedure	CP-L2PRO-CST-SLBUP LCLS-II Slow bleed-up procedure
F10009887				
Revision Note				
R1	Initial release of this Traveler.			
R2	Added hyperlinks and holdpoints			

Step No.	Instructions	Data Input
1	<p>Select the serial number of the cavity string that the BPM sub-assembly to be assembled for.</p> <p>Preparation: Assumptions: The rail and the BPM sub-assembly lollipop have been cleaned and staged in the clean room ready for use as per the CP-L2PRO-CST-ASSY-TOOL procedure. The BPM sub-assembly vacuum components are properly cleaned and staged in the clean room ready for assembly. Such components include: BPM housing, 4 BPM feedthrus, magnet beam-line, 4 VAT valve, Zero length reducer valve, 2 ¾ angle valve, BPM blank cover flange, all required gaskets and required bolt hardware.</p>	<p>CMSN <input type="text" value="- 0 -"/></p> <p>Assumptions have been verified complete and ready for the BPM sub-assembly. Ready (Yes?) <input type="checkbox"/></p> <p>PreperationComments <input type="text"/></p> <p>TechnicianVerification <input type="text" value="- 0 -"/></p>
2	<p>With standard clean assembly practices, assemble the four BPM feedthrus onto the BPM housing using the proper gaskets and hardware. Individually clean each component and the completed assembly as per the ionized nitrogen cleaning procedure. Record the serial numbers of the four BPM feedthrus and the BPM housing in this traveler. Properly torque the BPM feedthrus and record the torque value.</p>	<p>AssyStarts <input type="text"/></p> <p><input type="button" value="NOW"/></p> <p>(ex format 18-Jun-2005 16:30)</p> <p>BPMFeedthru1 <input type="text"/></p> <p>BPMFeedthru2 <input type="text"/></p> <p>BPMFeedthru3 <input type="text"/></p> <p>BPMFeedthru4 <input type="text"/></p> <p>BPMHousing <input type="text"/></p> <p>BPMFeedthruTorquedTo <input type="text"/></p> <p>BPMAssembly2 <input type="text"/></p> <p>TechnicianBPMAssembly <input type="text" value="- 0 -"/></p>

<p>3</p>	<p>Assemble the magnet beam-line to the BPM: With standard clean assembly practices, assemble the magnet beam-line to the BPM housing sub-assembly. Two alignment pins are used to set rotation between the two components. Install the proper gasket and secure with the proper hardware set. Individually clean each component and the completed assembly as per the ionized nitrogen cleaning procedure. Record the serial number of the magnet beam-line section in this traveler. Properly torque the BPM to beam tube and record the torque value.</p>	<p>MagnetBTube <input type="text"/> BTubetoBPMTorquedTo <input type="text"/> BPMAssembly3 <input type="text"/> TechnicianBPMBTubeAssembly <input type="text" value="- 0 -"/></p>
<p>4</p>	<p>Assemble the VAT valve to the BPM beam tube assembly: Prepare the VAT 4 valve: Clean the VAT valve with ionized nitrogen while cycling the valve open and closed as per the ionized nitrogen cleaning procedure. Using the proper gasket and hardware set, assemble the VAT valve to the magnet beam line sub-assembly. Align the BPM housing and the VAT valve so the side of the valve and one feedthrough flange on the BPM are parallel by eye. Record the serial number of VAT valve in this traveler. Properly torque the VAT valve to magnet beam tube flange and record the torque value.</p>	<p>BPMVATValve <input type="text"/> VATtoBTube <input type="text"/> VATtoBTubeAssembly <input type="text"/> TechnicianVATtoBTubeAssembly <input type="text" value="- 0 -"/></p>

<p>5</p>	<p>Vacuum assembly continued: Install the sub-assembly onto the lollipop. With standard clean assembly practices; Assemble the blank off flange onto the BPM housing. Install the proper gasket and hardware. Use the Delrin gasket holding tools to keep the gasket in place while assembling. Tighten the blank test flange and torque properly. With standard clean assembly practice; Sub-assemble a 2 ¾ CF valve onto the zero length reducer flange. Install the proper copper gasket and hardware and tighten. Individually clean each component and the completed assembly as per the ionized nitrogen cleaning procedure. Assemble the angle valve reducer flange onto the 4 VAT valve. Orient the angle valve so the turbo vacuum pump can easily be installed. Install the proper gasket and hardware. Use the Delrin gasket holding tools to keep the gasket in place while assembling. Tighten the blank test flange and torque properly. Enter the torque value for the zero length reducer flange to 4 VAT valve.</p>	<p>VATPumpPort <input type="text"/></p> <p>VATtoBTubeAssembly5</p> <p><input type="text"/></p> <p>TechnicianVATtoPumpAssembly</p> <p>- 0 - </p>
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<p>Pump and Leak test: Install the turbo pump vacuum line to the pump valve. Close the 2 ¾ pump valve on the BPM sub-assembly. Open the 4 VAT valve. Ensure the nitrogen purge line is closed at the turbo. Ensure the pump isolation and foreline valves are open. Start the turbo pump and then quickly open the 2 ¾ Conflat valve at the BPM sub-assembly. Allow the assembly to pump and leak test. Start the RGA and leak test the string as per the leak testing with an RGA procedure. If any leaks are found report to your supervisor for plan of action.</p>	<p>SubAssyLeakTest</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>SubAssyLeakTight (Yes?) <input type="checkbox"/></p> <p>Must submit traveler before attaching files. Must submit traveler before attaching files.</p> <p>TechnicianLeakTest - 0 - ▼</p>
<p>Vent in preparation for string assembly: Bleed-up the sub-assembly as per the slow bleed-up procedure and disconnect the vacuum hose to the turbo pump. Clean the pump Place a clean blank conflat flange onto the pump port of the sub-assembly and secure with a clean gasket and hardware.</p>	<p>VentSubAssembly</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>TechnicianVent - 0 - ▼</p>

	<p>Align the sub-assembly to the rail. Using the Dial indicator template tool align the BPM sub-assembly end flanges to the rail. Set flange positions to be at the same center line as the cavities will be for the string. Use the adjustment on the lollipop tooling to position. Install dowel pins into the holes that will be used for clocking the magnet assembly. Install a precision level onto the dowel pins and level the assembly by adjusting the support screws under the VAT valve. Repeat the alignment process checking alignment to the rail and roll until no adjustment is required.</p>	
	<p>Verify this traveler is complete and the sub-assembly is ready for assembly onto a cavity string.</p>	<p>SubAssyComplete <input type="text"/> (ex format 18-Jun-2005 16:30) TechnicianReadyforString <input type="text" value="- 0 -"/> <input type="button" value="NOW"/></p>
6	Holdpoints	