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| Traveler Title | Pair Assembly Completion | | | |
| Traveler Abstract | The following procedure is to define the steps for completion of the cavity pair. Before initiating this procedure, the cavities must have been processd and assembled with HOM loads and elbows, and field probes. | | | |
| Traveler ID | C75-CPR-ASSY-FNAL | | | |
| Traveler Revision | R2 | | | |
| Traveler Author | D. Forehand | | | |
| Traveler Date | 25-Nov-20 | | | |
| NCR Informative Emails | Forehand | | | |
| NCR Dispositioners | Ciovati,Davis,Macha | | | |
| D3 Emails | Forehand | | | |
| Approval Names | C. Dreyfuss | D.Forehand | K.Macha |  |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Project Manager |  |

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| 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-C75-CPR-ASSY-STBK | [JL0041172--C75 Cavity Pair (002).pdf](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-205690/JL0041172--C75%20Cavity%20Pair%20(002).pdf) |  |  |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | Changed old C50 instructions to match current assembly techniques |

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| Step No. | | Instructions | Data Input |
| 1 | | Record the cavity pair #  Record the serial # of the Lower cavity (Pump end)  Record the serial # of the Upper cavity  Note: Lower and Upper indicates the position in the test stand; Lower position is the ion pump end of the pair.  **The end of strong back fixture with two large bolts is the pump end.**  **When the valves are down and waveguides are facing you, the pump must be on the left side of the pair.** | [[CPRSN]] <<CPRSN>>  [[Technician1]] <<SRF>>  [[Technician2]] <<SRF>>  [[CAVSNLower]] <<CAVSN>>  [[CAVSNUpper]] <<CAVSN>>  [[InitialTime]] <<TIMESTAMP>> |
| 2 | | Preparation for Assembly Steps:  Cavity HOM elbows, HOM loads, and Field Probes must be assembled onto the cavities before the cavities are ready for final assembly. The following components shall be cleaned and made available for assembly by the chemistry staff.  **Inner adapter and assembly hardware:**  1 pc. Inner adapter  4 pcs. Slip flange (tapped holes)  4 pcs. Slip flange (clear holes)  16 pcs. 5/16-24 x 1 1/2 lg. 316 SS hex head CS  64 pcs. 5/16 SS belleville washers    **2 Doglegs and assembly hardware:**  2 pcs. Doglegs  128 pcs. 1/4" SS belleville washers  22 pcs. 1/4-20 x 1.5" lg. 316 SS hex head CS  10 pc. 1/4-20 x 1.75" lg. 316 SS studs  32 pcs. 1/4-20 flat washers  42 pcs. 1/4-20 SiBr hex nut  **2 End Dish sub-assemblies and assembly hardware:**  2 pcs. End Dish Sub-Assemblies  4 pcs. Slip flange (clear holes)  4 pcs. Slip flange stiffening plates (clear holes)  16 pcs. 5/16-24 x 1 1/2 lg. 316 SS hex head CS  64 pcs. 5/16 SS belleville washers  Indium wire 99.99% pure  2 pcs. Indium .040" diameter, 17" long (dog-leg)  4 pcs. Indium .060" diameter, 12" long (beam line) | [[PrepTech]]<<SRFCVP>>  [[PrepTime]]<<TIMESTAMP>>  [[PrepComment]] <<COMMENT>>  [[INADSN1]] <<INADSN>>  [[DGLGSN1]] <<DGLGSN>>  [[DGLGSN2]] <<DGLGSN>>  [[EDSN1]] <<EDSN>>  [[EDSN2]] <<EDSN>> |
| 3 | | **Tooling required for pair assembly:**  Ensure the Pair Assembly Strong-back Fixture Preparation Traveler is complete and record serial #  End dish and cavity alignment tooling  Cavity roll setup plate  Machinist jacks (4)  Dogleg alignment plate  Cavity alignment gauges  **Gather required hand tools** | [[STBKSN]] <<STBKSN>>  [[ToolingPrepTech]] <<SRFCVP>>  [[ToolingPrepComment]] <<COMMENT>> |
| 4 | **Prepare Hardware and Components:**  Prepare a cavity assembly cart for clean assembly with an alcohol soaked clean room wipe.  Spray the cart with ionized nitrogen.  Prpare the following components with ionized N2 IAW | | [[HrdwPrepTech]] <<SRFCVP>>  [[HrdwPrepComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 5 | **Press indium Seals:**  Press indium seals onto the Inner Adapter (Both Sides), both doglegs and both end dish sub-assemblies as per the [Indium Pressing Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11340/).  Cover each end dish with an ionized nitrogen cleaned niobium cover plate and hold in place with two spring clamps.  Cover one end of the inner adapter with the cleaned Teflon former and clamp in place. | [[IndiumSealTech]] <<SRFCVP>>  [[IndiumSealDare]] <<TIMESTAMP>>  [[IndiumSealComment]] <<COMMENT>> |
| 6 | **Clean the Pair Assembly Station:**  Wipe entire strong back assembly, cavity support fixtures, and support pedestal with wipes and isopropyl alcohol. Clean with filtered nitrogen. | [[AssemblyStationClean]] <<SRFCVP>>  [[StationCleanDate]] <<TIMESTAMP>>  [[StationCleanComment]] <<COMMENT>> |
| 7 | **Install Upper cavity end dish into strong-back:**  **The stack-up spreadsheet will indicate if the end dish alignment height needs to be modified.**  Install the upper cavity end dish into the strong-back and align as per the [End Dish Alignment Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-13750/End%20Dish%20Alignment%20Procedure.doc). Record the Dish and Valve serial #s.  Verify that the valve is closed and set screw on the valve handle is tight. Clean the end dish with ionized nitrogen after alignment.  Clean the end dish with ionized nitrogen after alignment. | [[ENDDSNUpper]] <<ENDDSN>>  [[ValveSNUpper]] <<SN>>  [[UpENDDInstallTech]] <<SRFCVP>>  [[UpENDDInstallComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 8 | **Install Upper Cavity into Strong-back Fixture:**  Remove the two nylon tipped 1/4-28 screws that set cavity roll from the base of each outer cavity supports on the strong-back fixture. Set them aside for later use.  Position two of the cavity support fixtures, one of each type, on the strong back assembly so they are about 18.5 inches apart on center. Remove the top collars from both fixtures and set them aside for later use. Slide the remaining supports to the other end so they are out of the way.  Identify which cavity will be the upper cavity of the pair assembly. Verify that the upper cavity is fully assembled, travelers are completed, and ready to be installed in the strong-back fixture. With cage still in BacTech remove all four pins from the cage and separate the cage halves. *Make sure to separate the cage halves evenly.* The cavity must remain in the lower half of the cage. Utilizing two people carefully remove the assembled cavity from the cage half and install it in the previously positioned support fixtures on the strong back .Refer to drawing # CRM-088-2005-0001for proper orientation*. The cavity protection covers must remain in place at all times.* | [[UpCavInstTech]] <<SRFCVP>>  [[UpCavInstDate]] <<TIMESTAMP>>  [[UpCavInstComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 9 | **Cavity Alignment:**  **Set cavity roll:**  Reinstall two of the nylon tipped 1/4-28 cavity roll screws to the base of the support fixture (HOM end) that is supporting the cavity.  Lay the bubble level on a horizontal surface of the HOM arm of the cavity.  Level the cavity by adjusting the cavity roll set screws finger tight against the other HOM arm.  **Align Cavity: The stack-up spreadsheet will indicate if the cavity alignment heights need to be modified.**  Lay two cavity alignment V-blocks on the strong back assembly at each end of the cavity. Position each V-block about one inch from the end of the cavity with the "V" on the rail opposite of the gate valve support screw. *This rail will be referred to as the reference rail for this pair.* Ensure the V-blocks are properly seated on the rail. Slide each V-block underneath the cavity beam line flanges.  At both ends of the cavity adjust the cavity support fixture thumbscrews until there is a .002" gap between the outer diameter of the cavity beam line flange and the V-block. You will need to go back and forth to each end of the cavity until the .002" gap is achieved at both V-blocks. Maintain cavity roll during this alignment process, the cavity roll may need to be adjusted as well. | [[CavRollTech]] <<SRFCVP>>  [[CavRollDate]] <<TIMESTAMP>>  [[CavRollComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 11 | **Prepare End-Dish Hardware for Upper Cavity:**  Gather the appropriate tools to torque end-dish/cavity beam line flanges. Clean the tools with ionized nitrogen and place them in the laminar flow station.  Obtain tray with end-dish hardware. Clean the tray of hardware as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/). Transfer the tray of hardware to the laminar flow station for assembly. | [[UpENDDPrepTech]] <<SRFCVP>>  [[UpENDDPrepDate]] <<TIMESTAMP>>  [[UpENDDPrepComment]] <<COMMENT>> |
| 12 | **Assemble the end dish to the cavity:**  Slide the valve-end dish assembly to the end of the strong back fixture. Position the cavity beam-line flange about four inches away from the end dish flange and lock the cavity in place with two rail locks.  Carefully remove the protective cover from the end dish and inspect the indium. It should be smooth and free of gaps and voids. If any discrepancies are noticed, stop the assembly, and inform the supervisor.  Carefully remove the protective cover from the cavity beam-line flange and inspect the sealing surface. It should be smooth and free of scratches and stains. If any discrepancies are noticed, stop the assembly, and inform the supervisor.  Slowly slide the valve-end dish assembly towards the cavity. Before contacting the indium, ensure the cavity flange is centered in the end dish flange counter bore and parallel to it. Adjust the end dish if necessary to inprove alignment.  Slide the valve-end dish assembly until the indium makes contact with the cavity flange, keep gentle pressure on the valve-end dish assembly. This will ensure that the indium will stay in place and the flanges will not separate. | [[UpENDDAssyTech]] <<SRFCVP>>  [[UpENDDAssyDate]] <<TIMESTAMP>>  [[UpENDDAssyComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 13 | **Assemble the end dish to the cavity: (Continued)**  Install the end dish flange hardware as per Drawing #CRM-088-2005-0001. While keeping pressure on the flange seal.  Using a star pattern, incrementally torque the bolts to 40, 70, 90, and 125 in-lbs.  Remove the end dish holding fixture from the strong-back fixture. | [[UpENDDAssyTech2]] <<SRFCVP>>  [[UpENDDAssyDate2]] <<TIMESTAMP>>  [[UpENDDAssyComment2]] <<COMMENT>> |
| 14 | **Install Lower Cavity End Dish into Strong-back:**  **The stack-up spreadsheet will indicate if the end dish alignment height needs to be modified.**  Install the lower cavity end dish into the strong-back and align as per the [End Dish Alignment Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-13750/End%20Dish%20Alignment%20Procedure.doc). Record the Dish and Valve serial #s.  Verify that the valve is closed and set screw on the valve handle is tight.  Clean the end dish with ionized nitrogen after alignment. | [[ENDDSNLower]] <<ENDDSN>>  [[ValveSNLower]] <<SN>>  [[LowENDDInstallTech]] <<SRFCVP>>  [[LowENDDInstallDate]] <<TIMESTAMP>>  [[LowENDDInstallComment]] <<COMMENT>> |
| 15 | **Install Lower Cavity into Strong-back Fixture and Align:**  Refer to Steps 6,7, & 8 for details:  Remove the lower cavity from the cage and install it into the cavity strong-back fixture.  Align the lower cavity in the strong-back fixture. | [[LowCavInstTech]] <<SRFCVP>>  [[LowCavInstDate]] <<TIMESTAMP>>  [[LowCavInstComment]] <<COMMENT>> |

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| 16 | **Prepare End-Dish Hardware for Lower Cavity:**  Gather the appropriate tools to torque end-dish/cavity beam-line flanges. Clean the tools with ionized nitrogen and place them in the laminar flow station.  Obtain tray with end-dish hardware. Clean the tray of hardware as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/). Transfer the tray of hardware to the laminar flow station for assembly. | [[LowENDDPrepTech]] <<SRFCVP>>  [[LowENDDPrepDate]] <<TIMESTAMP>>  [[LowENDDPrepComment]] <<COMMENT>> |
| 17 | **Assemble Lower end dish to the cavity:**  Refer Steps 9 & 10 for details:  Assemble the lower end dish to the lower cavity. Ensure the indium seal and flange seal surfaces have not been compromised. Make sure particle counting data is being taken.  Ensure hardware has been inserted and torqued. | [[LowENDDAssyTech]] <<SRFCVP>>  [[LowENDDAssyDate]] <<TIMESTAMP>>  [[LowENDDAssyComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 18 | **Prepare Upper Cavity For Inner Adapter:**  Position one of the cavity alignment V-blocks on the strong back assembly about one inch from the FPC beam line flange.  Make sure the "V" of the alignment block is on the reference rail. (the rail opposite of the gate valve support screw)  Verify upper cavity is still aligned in the strong back fixture by measuring the gap with a feeler gauge, at the FPC end, between the alignment V-block and the cavity beam line flange. The gap should measure .002" Adjust the three thumbscrews as necessary.  Slide the upper cavity as close to the end of the strong back fixture as possible. The FPC end of the cavity should be fairly close to being centered on the strong back fixture.  Lock linear movement of the cavity.  Install two (2) machinist jacks between the lower portion of the fundamental power coupler (FPC) and the frame of the strong back on the upper cavity. This will prevent the cavity from rotating while assembling the inner adapter. | [[INADSN2]] <<INADSN>>  [[UpINADTech]] <<SRFCVP>>  [[UpINADDate]] <<TIMESTAMP>>  [[UpINADComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 19 | **Prepare Inner Adapter/Hardware:**  Gather the appropriate tools to torque inner adapter/cavity beam line flanges. Clean the tools with ionized nitrogen and place in the laminar flow station  Obtain the tray with inner adapter hardware. Clean the tray of hardware as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/). Transfer the tray of hardware to the laminar flow station for assembly.  Obtain the inner adapter. Remove the spring clamp and protective cover. Inspect the indium pressed on both flanges. It should have a uniform radius and be free of flat spots or voids along its entire length.  Wipe a stainless perforated tray with an isopropyl alcohol soaked wiper and clean it with ionized nitrogen. Place the tray on a clean bench away from the ionized nitrogen cleaning station.  Individually clean the Teflon protective cover and inner adapter as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/). Place the Teflon cover in the cleaned stainless steel tray with the indium groove facing up.  Place the cleaned inner adapter into the Teflon cover making sure the indium on the inner adapter, engages with the groove in the Teflon cover. *Do not rotate the parts once they are together.*  Clean the spring clamps with ionized nitrogen. Carefully install the spring clamps onto the inner adapter/Teflon cover assembly and transport to the laminar flow station for assembly to the upper cavity. | [[UpINADPrepTech]] <<SRFCVP>>  [[UpINADPrepDate]] <<TIMESTAMP>>  [[UpINADPrepComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 20 | **Install Inner Adapter to Upper Cavity:**  Carefully remove the protective cover from the upper cavity and visually inspect seal path. There should be no stains or visible scratches.  Visually align and install open end of the inner adapter to mating flange of the upper cavity. *The outer diameters of both mating flanges must be perfectly aligned.*  Install two threaded split flange clamps behind upper cavity flange. Install two through-hole split flange clamps behind the inner adapter flange. Rotate the through-hole clamps so the split is 90° from the split of the clamps on the cavity.  Align the screw holes and install four opposite bolts with washers into backing rings finger-tight. Insert remaining bolts with appropriate washers and thread into backing rings and hand-tighten.  Using a star pattern, incrementally torque the bolts to 40, 70, 90, and 125 in-lbs. | [[UpINADInstTech]] <<SRFCVP>>  [[UpINADInstDate]] <<TIMESTAMP>>  [[UpINADInstComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 21 | **Set Roll of Lower Cavity:**  Verify lower cavity is still aligned in the strong back fixture using the V-block and .002" feeler gauge. Adjust if necessary.  Verify that the FPC flange of lower cavity is level. Adjust if necessary.  Place the FPC flange alignment plate on the granite surface plate and set both indicators to zero.  Clean the FPC flange alignment plate as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/) Transport the alignment plate to the laminar flow station.  Carefully remove the cover clamps from the FPC flange of both cavities. *Do not remove the protective covers.*  Position the particle counter head directly beneath the flange to be assembled. | [[AlignmentPlateChecked]] <<CHECKBOX>>  [[AlignmentPlateTech]] <<SRFCVP>>  [[AlignmentPlateDate]] <<TIMESTAMP>>  [[AlignmentPlateComment]] <<COMMENT>> |
| 22 | **Set Roll of Lower Cavity: (continued)**  Slowly slide the lower cavity towards the inner adapter until the flange covers are about 1" apart. Lock the linear motion of the lower cavity.  Attach the FPC cavity roll plate to the upper cavity with the two dial indicator contact tips oriented down toward the lower cavity FPC flange. Insert four 1/4-20 x 1.75" long screws into the outermost holes of the alignment plate and into the upper cavity flange. The indicator tips must be centered on each flange. Evenly tighten all four screws and nuts firmly by hand.  Observe readings of both dial indicators on the FPC cavity roll plate. Rotate the lower cavity with the two adjusting screws near the lower HOM elbow until both indicators show the same value.  Lock the adjustment screws. Verify that the dial indicators still show the same value and adjust if necessary. | [[DialIndicatorValve]] <<FLOAT>>  [[DialIndicator]] <<FLOAT>>  [[DialIndicatorTech]] <<SRFCVP>>  [[DialIndicatorDate]] <<TIMESTAMP>>  [[DialIndicatorComment]] <<COMMENT>> |

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| 23 | **Assemble Lower Cavity to Inner Adapter:**  Carefully remove protective covers from inner adapter and beam line flange of lower cavity. Unlock the lower cavity clamps and gently slide the lower cavity towards the inner adapter attached to the upper cavity until they make contact. *Maintain lower cavity/inner adapter contact until the beam line clamping hardware is properly installed and tightened.* Keep slight pressure on the lower cavity to keep contact of flanges.  Install two threaded split flange clamps behind lower cavity flange. Install two through-hole split flange clamps behind the inner adapter flange. Rotate the through-hole clamps so the split is 90° from the split of the clamps on the cavity.  Align the screw holes and install four opposite bolts with washers into backing rings finger-tight. Insert remaining bolts with appropriate washers and thread into backing rings and hand-tighten.  Using a star pattern, incrementally torque the bolts to 40, 70, 90, and 125 in-lbs.  Remove the FPC cavity roll plate. | [[LowINADAssyTech]] <<SRFCVP>>  [[LowINADAssyDate]] <<TIMESTAMP>>  [[LowINADAssyComment]] <<COMMENT>> |

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| 24 | **Assemble Dogleg Windows to Alignment Fixture:**  Locate the four FPC flange alignment pins. Clean with filtered nitrogen as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/)  Identify the dogleg windows that are to be used on the pair assembly. Inspect the sealing surfaces of both dogleg flanges, they must be free of scratches and voids. Inspect the indium that is pressed onto the small flange. It should be in the shape of a "V" and be smooth and uniform. Stop and report to supervisor if there are any discrepancies.  Determine from the Stack-up spreadsheet the proper location and orientation for each dogleg. Log the dogleg serial #s  Locate dogleg alignment plate and thumbscrews. Attach the large flange of each dogleg window to the alignment plate with silicon bronze thumbscrews. *Do not damage sealing surfaces or indium while attaching the alignment plate.* Evenly tighten thumbscrews by hand. | [[DGLGSN3]] <<DGLGSN>>  [[DGLGSN4]] <<DGLGSN>>  [[DGLGTech]] <<SRFCVP>>  [[DGLGComment]] <<COMMENT>> |
| 25 | **Prepare Doglegs and Hardware:**  Clean doglegs and fixture assembly as per the [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/).  Clean Dogleg hardware as per [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-11342/)  In the main assembly room, secure the alignment plate on top of the Dogleg Installation Fixture with two thumbscrews. Properly install and orient each dogleg to the underside of the alignment plate with two thumbscrews in opposite corners. Make sure dogleg serial numbers match up to the cavity it is to be installed onto. Install five of the 1/4-20 studs with four belleville washers and a nut to each of the five inner holes of the small dogleg flange. Repeat for the other dogleg. Refer to drawing.  Zero the dogleg alignment fixture indicator gauges with the appropriate tooling. | [[DGLGPrepTech]] <<SRFCVP>>  [[DGLGPrepDate]] <<TIMESTAMP>>  [[DGLGPrepComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 26 | **Install the doglegs onto the cavities:**  Position the particle counter head directly beneath the flange to be assembled.  Roll the lift cart with doglegs and installation fixture into the appropriate position over the pair. Align the doglegs with the FPC flanges by sight as close as possible. Lower them until the studs are about two inches above the FPC flange covers. Lock the wheel brake on the lift cart. Carefully remove the FPC flange covers and install the doglegs. Make sure the studs do not scratch the FPC sealing surfaces.  Utilizing two people, carefully install the doglegs to the cavity pair. Ensure dogleg flanges are centered over the FPC flanges and the studs engage the proper FPC flange holes on each cavity. Do not damage sealing surfaces or indium while attaching the doglegs to the cavity pair. The indicator tips from the alignment fixture should contact the center of each large dogleg flange. The doglegs are aligned to the pair when both indicators show the same value. Evenly lower the doglegs to the pair and secure with four bolts.  Remove the two thumbscrews holding the alignment plate to the installation fixture. Install the remaining dogleg hardware and tighten by hand. Torque all dogleg fasteners using the proper torque pattern, except corners, incrementally to 30, 40, and then 55 in. lbs. Torque corner bolts to 40 in. lbs. Recheck final torque of all bolts. Repeat for the remaining dogleg window. Remove the thumbscrews from each dogleg and carefully remove the alignment plate. *Do not damage sealing surfaces while removing the alignment plate.* | [[DGLGInstTech]] <<SRF>>  [[DGLGInstDate]] <<TIMESTAMP>>  [[DGLGInstComment]] <<COMMENT>>  [[IndicatorUpper]] <<FLOAT>>  [[IndicatorLower]] <<FLOAT>> |

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| 28 | **Record Serial #s:**  Record all components serial #s for the Upper cavity | [[UpperCav180HOMESN]] <<HOMESN>>  [[UpperCav90HOMESN]] <<HOMESN>>  [[UpperCav180HOMLSN]] <<HOMLSN>>  [[UpperCav90HOMLSN]] <<HOMLSN>>  [[UpperCavFPFTSN]] <<FPFTSN>> |

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| Step No. | Instructions | Data Input |
| 29 | **Record Serial #s: (Continued)**  Record all components serial #s for the Lower cavity  Record Inner adapter serial # | [[LowerCav180HOMESN]] <<HOMESN>>  [[LowerCav90HOMESN]] <<HOMESN>>  [[LowerCav180HOMLSN]] <<HOMLSN>>  [[LowerCav90HOMLSN]] <<HOMLSN>>  [[LowerCavFPFTSN]] <<FPFTSN>> |
| 30 | **Traveler is Complete:**  The cavity pair is now ready for evacuation and leak test. | [[TravCompleteTech]] <<SRF>>  [[TravCompleteDate]] <<TIMESTAMP>>  [[TravCompleteComment]] <<COMMENT>> |