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| Traveler Title | End-Dish MDC Valve Sub-Assembly Traveler | | | |
| Traveler Abstract | The following Traveler/Procedure is to define the steps for the assembly of the C75 cavity pair end dish and MDC valve assembly including leak check of MDC valve and End dish Bellows. | | | |
| Traveler ID | C75-CPR-ASSY-EDVLV | | | |
| Traveler Revision | R1 | | | |
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| Traveler Date | 13-Apr-20 | | | |
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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. | | | |
| Magnetic Field Measurement Procedure | [Ionized Nitrogen Cleaning with Particle Counter Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-74896/IonizedNitrogenCleaningParticleCounterProcedure.docx) CP-C75-CPR-CLN-ION |  | Marked-up drawing with magnetic field limit on components | Leak check of small items procedure |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| Step No. | Instructions | Data Input |
| 1 | **End Dish and MDC Valve:**  Record end dish and MDC valve serial numbers.  Check the cleanroom passthru for the following UHV cleaned and baked subcomponents and hardware.  **End Dish Bellows Leak Check:**  Ensure the dish/bellows assembly has passed leak | [[ENDDSN]] <<CAVSN>>  [[MDCVLVSN]] <<CAVSN>>  [[Technician]] <<SRFCVP>>  [[Technician2]] <<SRFCVP>>  [[AssyStartDate]] <<TIMESTAMP>>  [[EndDishLeakTest]] <<FileUpload>>  [[EndDishLeakChckTech]] <<SRFCVP>> |
| 2 | **Componets and Hardware:**  **Dish and Valve Components:**  2 pc. End Dish  2 pc. Gate valve body  2 pc. Gate valve carriage assembly  2 pc. Gate valve bonnet copper gasket  2 pc. Blank 2 3/4" conflat gasket  2 pcs. 2 3/4" conflat gaskets  36 pcs. 1/4"-28 x 1" lg. silver plated bolts  **Protective flange covers and spring clamps needed:**  2 pcs. End Dish flange cover  4 pcs. Gloved Spring Clamps  **Tools needed:**  1/4" x 5/16” combo wrench  1/4" x 5/16” combo wrench with 90 degree bend  Forseps  **Magnetic Field Test:**  Make sure magnetic field check was done before these items came into the clean room. | [[PrepTech]] <<SRFCVP>>  [[MagFieldChckTech]] <<SRFCVP>>  [[MagFieldChckDate]] <<TIMESTAMP>>  [[MagFieldChckComment]] <<COMMENT>> |
| 3 | **Prepare and Organize:**  Clean the handles and upper shelf of a clean room cart with an isopropyl soaked wiper. Clean the cart with ionized nitrogen.. Prepare the cleaned cart with clean room wipes arranged on the upper shelf to place clean components on.  Individually remove MDC valves and End Dish from the plastic container and clean with ionized nitrogen as per Spec 1 of the *Ionized N2 Cleaning* procedure. Visually inspect the oring on the MDC valve and the End Dish sealing surface It should be smooth and free of cracks, scratches, stains, and residual indium.Contact the supervisor if there are any discrepancies. | [[PrepTech]] <<SRFCVP>>  [[Comment]] <<COMMENT>> |

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| 4 | **Assemble the MDC gate valve:**  Clean the gate valve body, carriage assembly and bonnet gasket as per Spec 1 of the  *Ionized N2 Cleaning* ionized nitrogen with particle counter procedure Actuate the valve so the carriage assembly is in the center of its travel and that the tensioning spring is locked in the groove.  Assemble the carriage into the body ensuring the serial numbers or match markings are on the same side.  Install the 1/4 - 28 bolts and tighten valve bonnet seal using a star pattern. | [[VLVassemTech]] <<SRFCVP>> |
| 5 | **Prepare the MDC gate valve for leak testing:**  Open the gate valve and clean the assembled valve as per Spec. 1 of the  *Ionized N2 Cleaning* procedure. Close the valve and clean again. Close the valve and clean again.  Clean the blank conflat flange and gasket as per Spec. 1 of  *Ionized N2 Cleaning* procedure Assemble the blank conflat flange with gasket onto the seal plate side of the gate valve and tighten | [[VLVPrepTech]] <<SRFCVP>> |
| 6 | **Leak test the MDC gate valve assembly:**  Connect the gate valve to the turbo cart.  Open the gate valve and pump down.  Leak test as per the *Leak test cavity components procedure*.  Close the gate valve.  Remove the conflat blank flange and leak test the valve seal.  **The valve seal will show a leak about one minute after spraying with helium. This leak will show a slow steady rise in helium partial pressure.**  **This is due to helium permeating the o-ring and is normal. If a large, quick response is seen contact your supervisor.**  Upload the leak test data file.  Remove the valve from the leak test station | [[GateVlvLeakChckTech]] <<SRFCVP>>  [[GateVlvLeakTest]] <<FileUpload>>  [[GateVlvSN]] <<CAVSN>>  [[LeakCheckPass]] <<YESNO>> |

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| **Step No** |  |  |
| 7 | **Assemble the MDC gate valve onto the end-dish:**  Ensure the dish/bellows assembly has passed leak test and has been documented at the end of the inspection traveler.  Clean the closed gate valve, 2 3/4" conflat gasket and dish assembly as per Spec. 1 of the  *Ionized N2 Cleaning* procedure. Properly orient and assemble the gate valve onto the end-dish and evenly tighten the conflat hardware. The smooth valve seal plate must face the cavity. The valve body must straddle the taped holes of the end dish flange | [[EndDishAssyTech]] <<SRFCVP>>  [[ENDDSN]] <<CAVSN>>  [[EndDishAssemComment]] <<Comment>> |
| 8 | The end-dish assembly can be moved to pair strong-back fixture and is ready for cavity pair assembly. Install end dish assembly in accordance with procedure C75-CPR-ASSY |  |