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| Traveler Title | L2HE Single Cell and Nine Cell Cavity Transfer to Test Stand | | | |
| Traveler Abstract | This traveler verifies proper transfer of L2HE single cell and 9-cell cavities to test stands in preparation for VTA testing. | | | |
| Traveler ID | L2HE-CLNRM-CAV-TSTD | | | |
| Traveler Revision | R3 | | | |
| Traveler Author | T. Ganey | | | |
| Traveler Date | 21-Jun-21 | | | |
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| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | 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. | | | |
| L2PRO Cavity Transfer to Test Stand Procedure (link not available) |  |  |  |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | Updated title and abstract to include single cell and 9-cell cavities; updated steps 3 & 4 to mass 1-100 scan |
| R3 | Copied steps from L2HE-CLNRM-CAV-TSTD5-R2 |

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| Step No. | Instructions | Data Input |
| 1 | At this point the cavity is ready for transfer to a test stand in the VAA. If the cavity has arrived from the vendor, it had incoming RF and dimensional inspections. It has been wiped down by the chemistry staff and passed into the clean room on a CTV. Otherwise, it had HPR and assembly.  Transfer the cavity into the two-arm cavity lifting fixture and move it into the VAA. | [[CAVSN]] <<CAVSN>>  [[Technician1]] <<SRFCVP>>  [[Technician2]] <<SRFCVP>>  [[CavComment]] <<COMMENT>> |
| 2 | For 9-cell cavities: Hang cavity in the test stand with the lifting fixture and secure the plates to the square blocks attached to the helium vessel.  For single cell cavities: Hang cavity by its upper large beamline flange in the test stand.  Verify that the cavity isolation valve is in the fully closed position. Remove four bolts from the bellows blank on the test stand down-tube. Spray the flange and holes with ionized nitrogen while watching a particle counter. Wait until the counts are below fifty at all sizes for a minimum of ten seconds. Repeat this procedure for the blank flange located on the right angle cavity isolation valve.  Remove the remaining two bolts on the valve blank and spray the inside of the right angle valve (bellows area) until the counts are less than ten at all sizes for ten seconds.  Remove the remaining two bolts from the test stand bellows blank on the down-tube. DO NOT spray the bellows flange after the blank is removed.  Place a clean copper gasket onto the joint and connect the test stand flange to the right angle cavity isolation valve. Tighten all fasteners.  If the cavity is not already under vacuum from the vendor, start the pumping system on the test stand top plate. Slow pump-down is not necessary at this point if this cavity is already under vacuum from the vendor. | [[TestStand]] <<VTATSSN>>  [[Isolation\_Valve\_Closed]] <<YESNO>>  [[HangComment]] <<COMMENT>> |
| 3 | Test stand flange to cavity isolation valve joint is ready to be leak checked after the vacuum is below 8e-7 mbar. Set the RGA for an analog scan looking at mass 1 thru 100. Leak check this joint while the valve is still closed using the RGA system attached to the test stand. There shall be no detectable leak on this joint with an MDL less than 4E-10 std cc/sec. Upload lk check file.  Valve can be slowly opened while the vacuum system is being monitered for maximum visible pressure. Record the highest pressure observed. | [[Isolation\_Valve\_Open]] <<YESNO>>  [[ObservedPressure]] <<SCINOT>>mbar  [[TestStandAnlogScan]] <<FILEUPLOAD>>  [[TestStandLeakCheck]] <<FILEUPLOAD>>  [[TestStandLkComment]] <<COMMENT>>  [[TestStandLkDate]] <<TIMESTAMP>> |
| 4 | The cavity is ready for a leak test after the vacuum system is below 8e-7 mbar. Set the RGA for an analog scan looking at mass 1 thru 100. Upload scan. Leak check all mechanical joints on the cavity and the burst disk using the RGA system attached to the test stand. There shall be no detectable leak on this joint with an MDL less than 4E-10 std cc/sec. Upload leak check file.  Cavity is ready to be moved to VSA for sensor attachment, HOM tuning and VTA test. | [[CavityAnalogScan]] <<FILEUPLOAD>>  [[CavityLkChk]] <<FILEUPLOAD>>  [[CavityLkComment]] <<COMMENT>>  [[CavityLkDate]] <<TIMESTAMP>> |
| 5 | Test stand flange to cavity isolation valve joints are ready to be leak checked after the vacuum is below 8e-7 mbar. Set the RGA for an analog scan looking at mass 2 thru 100. Leak check this joint while the valve is still closed using the RGA system attached to the test stand. There shall be no detectable leak on this joint with an MDL less than 4E-10 std cc/sec. Upload lk check file.  Isolate the turbo-pump from the test stand and slowly open only cavity isolation valves that do not have red tape indicating they are new from vedor cavities, while observing test stand pressure. Record the highest pressure reached with all reworked cavities opened and no active pumping on stand.  Carefully open the turbo-pump isolation valve to allow for active pumping on all reworked cavities. | [[StandLkChkTechnician]] <<SRFCVP>>  [[ObservedCavitiesPressure]] <<SCINOT>>mbar  [[StandLkChkComment]] <<COMMENT>>  [[StandLkChkDate]] <<TIMESTAMP>> |
| 6 | Only for rework cavities, i.e. cavities WITHOUT tape on they right angle valve (RAV): Isolate the turbo-pump from the test stand and slowly open the RAV on the reworked cavities. Perform a slow pump down until the system is below 8e-7 mbar. Set the RGA for an analog scan looking at mass 2 thru 65. Upload scan. Leak check all mechanical joints on cavities with open RAV using the RGA system attached to the test stand. There shall be no detectable leak with an MDL less than 4E-10 std cc/sec. Upload leak check file. In the case of a leak and more than one re-worked/non-taped cavity, isolate the affected cavities and leak checked individually. The files for these leak checks shall be uploaded to a D3 associated with this traveler.  After the leak check, close all open RAVs and remove the tape from closed RAVs."  If any leak shows up on the RGA, all three cavities must be isolated and leak checked individually. The files for these leak ckecks shall be uploaded to a D3 associated with this traveler.  After all three cavities are proven to be leak tight, the test stand can be moved to the VSA for sensor attachment, HOM tuning and VTA test. | [[CavitiesAnlogScan]] <<FILEUPLOAD>>  [[CavitiesLkChk]] <<FILEUPLOAD>>  [[CAVPosition1LkTight]] <<YESNO>>  [[CAVPosition2LkTight]] <<YESNO>>  [[CAVPosition3LkTight]] <<YESNO>>  [[CavitiesLkChkTechnician]] <<SRFCVP>>  [[CavityLkComment]] <<COMMENT>>  [[CavityLkDate]] <<TIMESTAMP>> |