

BEFORE



AFTER

VACUUM CHAMBER PM TECHNIQUE VARIAN KESTREL CHARGE EXCHANGE HOUSING

OBJECTIVE:

TO EFFECTIVELY PM THE VARIAN KESTREL CHARGE EXCHANGE HOUSING IN A TIMELY MANNER WHILE HELPING TO REDUCE CLEAN TIME AND IMPROVE TOOL PERFORMANCE

Vacuum Chamber:

VARIAN KESTREL

Vacuum Chamber Process Residue:

PROCESS INDUCED RESIDUE

Vacuum Chamber Components:

CHARGE EXCHANGE HOUSING

Old Procedure:

1+ hours using DI water & IPA with 100+ wipes

Recovery time: ??

Interval: Monthly

New Procedure:

30 minutes using Diamond ScrubPAD,

ScrubWRIGHT™ Pen, Diamond ScrubTIP® MiraWIPE®

Recovery time: ??

Vacuum Chamber Products:

- (1) [HT4528D](#)-10-1 280 Grit Diamond ScrubPAD
- (2) [HT4528DW](#)-1 280 Grit Diamond ScrubBELT®
- (1) [FTPEN](#)-1 ScrubWRIGHT™ PEN
- (1) [HT4754](#) UltraSOLV® Sponge
- (1) [HT5790S](#)-5 MiraWIPES® (5 MiraWIPES®)
- (2) [HT174936D](#)-1 Diamond ScrubTIP®



VARIAN KESTREL CHARGE EXCHANGE HOUSING PM PROCEDURE:

View "How to" instructional videos on <http://www.foamtecintlwcc.com/flash/>

Step 1: Using proper procedures and **safety guidelines** prepare Varian Kestrel Charge Exchange Housing for clean

Step 2: Fill a small container with DI water and place next to the tool (See Fig 1)

Fig 1: Plastic container with DI water



Step 3: Place [HT4528D](#) 280 Grit Diamond ScrubPAD and [HT4754](#) UltraSOLV[®] Sponge into the container of DI water

Step 4: Vacuum out any flakes and loose material from the housing. Wring out the UltraSOLV[®] Sponge and wipe out the housing to pick up any remaining loose material

Step 5: Using the **lightly dampened** 280 Grit Diamond ScrubPAD start to clean a small area in the Charge Exchange Housing (See Fig 2)

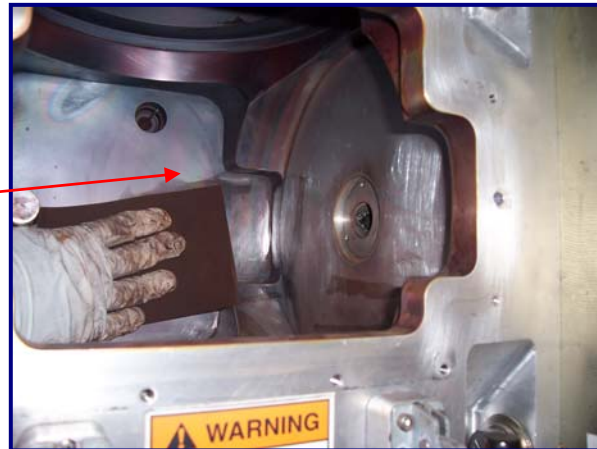


Fig 2: Scrub small area using 280 Grit Diamond ScrubPAD

VARIAN KESTREL CHARGE EXCHANGE HOUSING PM PROCEDURE (CONT'D):

Step 6: Use the lightly dampened UltraSOLV® Sponge to remove the excess deposition from the area that was just scrubbed (See Fig 3)

Fig 3: Wipe with the lightly dampened UltraSOLV® Sponge



Step 7: As Diamond ScrubPAD loads-up with deposition, pull ScrubPAD across damp UltraSOLV® Sponge to properly unload (See Fig 4, 5 & 6)



Fig 4: ScrubPAD loaded with deposition

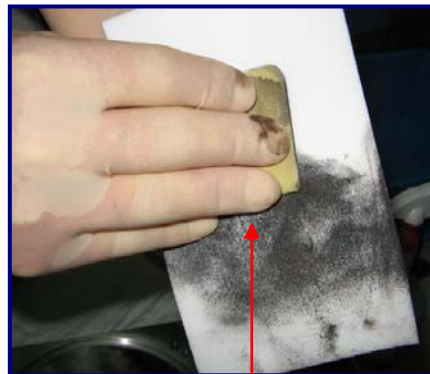


Fig 5: Pull ScrubPAD across UltraSOLV® Sponge



Fig 6: Unloaded ScrubPAD

Step 8: Ensure to unload UltraSOLV® Sponge as much as possible by placing it back in container of DI water and **RINSE-OUT** thoroughly (See Fig 7 & 8)



Fig 7: Loaded-up UltraSOLV® Sponge

Fig 8: UltraSOLV® Sponge AFTER rinse



VARIAN KESTREL CHARGE EXCHANGE HOUSING PM PROCEDURE (CONT'D):

Step 9: For tight corners and edges, place the [HT4528DW-1](#) ScrubBELT® onto the [FTPEN-1](#) ScrubWRIGHT™ Pen and proceed to scrub these areas with the tip of the ScrubWRIGHT™ Pen. Use the same unloading procedure for the ScrubBELT® as described above and ensure to rotate the ScrubBELT® as necessary to prevent from breaking (See Fig 9 & 10)



Fig 9:
ScrubWRIGHT™ Pen
[FTPEN-1](#)



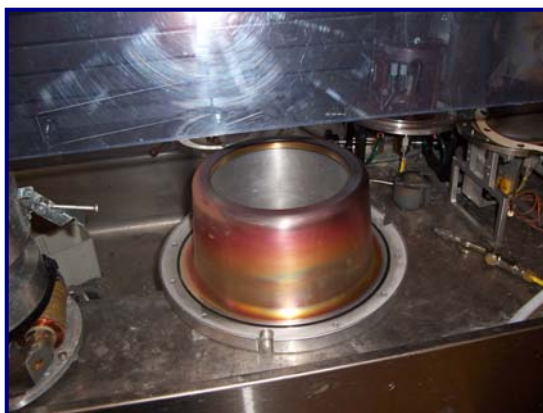
Fig 10:
ScrubWRIGHT™ Pen
cleaning edge

Step 10: Repeat steps 5 – 9 for all remaining areas throughout Charge Exchange Housing. Remember to unload ScrubPAD and UltraSOLV® Sponge accordingly

Step 11: Take source housing, source magnet, and cell manipulator to an exhausted work bench for cleaning

Step 12: Using the same technique described above clean deposition off of the source housing using the [HT4528D](#) 280 Grit Diamond ScrubPAD and the [HT4754](#) UltraSOLV® Sponge (See Fig 11 & 12)

BEFORE



AFTER



Fig 11 & 12: Source housing after 5 minutes of cleaning

VARIAN KESTREL CHARGE EXCHANGE HOUSING PM PROCEDURE (CONT'D):

Step 13: Use the [HT174936D](#) Diamond ScrubTIP® to remove deposition from the inside lip of the source housing (See Fig 13)

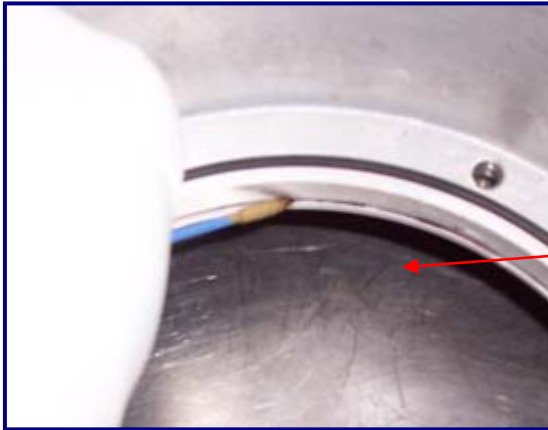


Fig 13: Remove buildup from the inside lip of the source housing using 360 Grit Diamond ScrubTIP®

Step 14: Using the same technique described above, clean deposition off of the source magnet and cell manipulator baseplate using the [HT4528D](#) 280 Grit Diamond ScrubPAD and the [HT4754](#) UltraSOLV® Sponge (See Fig 14, 15 & 16)



Fig 14, 15 & 16: Remove buildup from the source housing and cell manipulator baseplate with 280 Grit Diamond ScrubPAD



VARIAN KESTREL CHARGE EXCHANGE HOUSING PM PROCEDURE (CONT'D):

- Step 15:** When scrub portion of clean is complete prepare housing and assemblies for FINAL WIPE PROCEDURE by rinsing out UltraSOLV[®] Sponge with fresh DI water and performing a complete final Charge Exchange Housing wipe using the dampened UltraSOLV[®] Sponge
- Step 16:** Prior to final wipe, remove and replace your gloves with a clean pair
- Step 17:** If available, use clean dry N₂ to blow out the small areas, feedthroughs, screw holes and tight corners where DI water may have accumulated during the wet clean

FINAL WIPE PROCEDURE:

VERY IMPORTANT NOTE

THE USE OF HT5790S MiraWIPES[®] DURING THE FINAL WIPE PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVE PARTICLE DEFECTS AND IMPROVE TOOL RECOVERY

NOTE: Figure below shows how much more deposition the Foamtec International MiraWIPE[®] can remove from a critical surface compared to the standard fab wiper, making the MiraWIPE[®] Final IPA Wipe the most **CRITICAL STEP** of the PM procedure (See Fig 17a & 17b)



Fig 17a: Current fab wiper after completely wiping chamber

Fig 17b: Particles picked up using [HT5790S MiraWIPES[®]](#) after completely wiping with current fab wiper

MiraWIPES[®] are the KEY STEP for DEFECT REDUCTION and IMPROVED TOOL RECOVERY

VARIAN KESTREL CHARGE EXCHANGE HOUSING PM PROCEDURE (CONT'D):

Step 18: Saturate the [HT5790S](#) MiraWIPE® with IPA and perform a thorough wipe of the Charge Exchange Housing (See Fig 18)

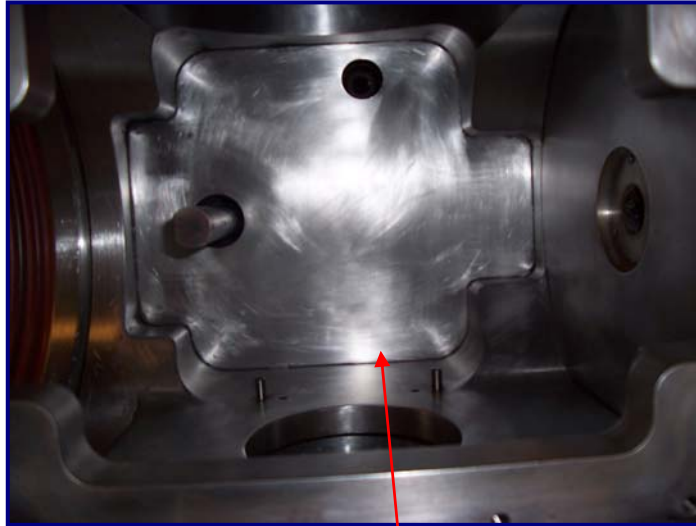


Fig 18: Perform a thorough wipedown on all areas of the housing with MiraWIPES® and IPA

Step 19: Using the approved safety procedures and guidelines return the tool back to production



Fig 19



Fig 20: Total amount of hazardous waste generated using Foamtec Vacuum Chamber PM Technique