CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

INSTALLATION SPECIFICATION

E000117-A-W	DOC NO. - REV. - GID
DATE: 3/6/00	
1	E000117-A-W
SHEET 1 OF 4	

TITLE

ETMy Realignment and Related tasks

APPROVALS:	DATE	APPROVALS:		DATE
DRAWN: Doug Cook and Betsy Weaver	3/6/00	CHECKED: Stan Whitcomb		3/6/00
CHECKED: Stan Whitcomb	3/6/00	CHECKED: Dennis Coyne		3/6/00
CHECKED:		DCN NO	APPROVED	DATE
CHECKED:				

1 SCOPE

Seven tasks are to be performed in the WBSC 6 chamber during the next vented period. These tasks include: Installation of RGA leaks on the RGA ports, Re-fine aligning the ETMy optic using the PAM screws, Verifying suspension control signals, Conical Baffle replacement, Installation of a ground strip on the optics table, Documenting the in-vacuum equipment layout, and chamber cleanup. *Activity that actually took place is noted in red italics.*

2 APPLICABLE DOCUMENTS

Listed below are all of the applicable and referenced documents for this task procedure. This list gives the latest revisions of the documents; within the installation steps, only the document number (and not the revision) is quoted.

D000068-A	Access Cable
M990034-B	Contamination Control Plan
E000062-C	LOS Installation Procedures
E000116-00	Procedure for Realignment of Large Suspended Optics
M980133-B	Vent Isolatable Volumes
M980101-B	Procedure for Isolatable Volume Pump Down
M980136-A	HAM Chamber Access Door Removal Procedure Note: No procedure currently exists for BSC door removal with the engine hoist; Adapt this procedure in the meantime.
E000065-04	Chamber Entry/Exit Checklist

3 PRE-REQUISITES

- ☑ 1. A BSC cleanroom must be in place over WBSC6 and operable.
- ☑ 2. The vacuum equipment purge air system must be operable before starting the task.

4 PREPARATION

All preparation must be in accordance with the Contamination Control Plan (M990034).

- ☑ 3. Clean the VEA, particularly the floor; Particulates and dust should be removed by mopping with clean water.
  Clean the BSC chamber (wipe or mop with clean water) from the stiffening ring above the door down, as well as the floor in the vicinity of the chamber well in advance of the opening of the vacuum system.
- ☑ 4. Insure that there are no large openings to the exterior or the beam tube enclosure where insects or dust can get into the VEA.
- ☑ 5. Transport the following items to the Y-Mid:
  - ☑ Appropriate cleanroom garb
  - ☑ Gloves
  - ☑ In-Chamber Overshoe Covers
  - ☑ Foil
  - ☑ Large Ameristat Bag for Rewrapping Baffle
  - ☑ A flashlight
  - ☑ Conical Baffle Installation Tools
  - ☑ One Conical Baffle
  - ☑ Conical Baffle hardware
  - ☑ CLASS A Ground Strip
  - ☑ CLASS A 1/4-20x1/2” SHCS
  - ☑ COS Tool pan (wrenches and allen keys)
  - ☑ Oscilloscope
  - ☑ 10Hz Low Pass Filter
  - ☑ BNC cables
  - ☑ Function Generator
  - ☑ Camera and lens
  - ☑ CLASS B vacuum hoses and nozzels
  - ☑ *“Dirty” in-house vacuum system hose and long attachment*
  - ☑ CO2 gun and portable bottle
  - ☑ Portable HP Dynamic Signal Analyzer
  - ☑ Small loud speaker or Headset
  - ☑ Radioshack VU Meter
  - ☑ *Tripod*
  - ☑ *Ruler*
  - ☑ *Stainless Steel Stool*
  - ☑ *Level*

5 TASK STEPS

All tasks must be in accordance with the Contamination Control Plan (M990034)..

- ☑ 6. Verify optic location, settings and damping status. (Doug)
- ☑ 7. Null the optical lever ~~and calibrate~~. (Doug)
- ☑ 8. Vent the Y-Mid station volume (per procedure M980133)
- ☑ 9. Install the leaks on the RGA port. (Mark Lubinski)
- ☑ 10. Remove doors. (Bobbie and Brenda)
- ☑ 11. Turn up purge air.
- ☑ 12. Betsy, enter chamber.
- ☑ 13. Clamp the optic with the 8 chamfer stops. (Betsy)
- ☑ 14. John, enter the chamber.
- ☑ 15. Remove conical baffle from inside the 80k pump. (John and Betsy)
- ☑ 16. Pass the removed baffle out to ~~Doug~~ *Larry and Gerardo*.
- ☑ 17. Receive the new baffle from ~~Doug~~ *Larry and Gerardo*.
- ☑ 18. Install the baffle in the 80k pump. (John and Betsy)
- ☑ 19. Wrap the removed baffle to prevent contamination. *(Larry and Gerardo)*
- ☑ 20. John and Betsy exit chamber.
- ☑ *21. Larry enter chamber and execute relevant chamber entrance tasks.*
- ☑ 22. *Larry exits chamber.*
- ☑ 23. Doug *and Rai* enter chamber.
- ☑ 24. Install the access cable (D000068) from the kapton cable connector to the optics table. This cable is inserted into the J2 connector in the position adjacent to the Side (S) OSEM connector (see the sketch on page 9 of E000062). Record the position of the table connection of this cable as an "as-built" mark-up for drawing revision. *Location of table connection from table center: 1 table hole (2 inches) South, 11 holes (22 inches) West.*
- ☑ 25. Re-align the ETMy described in E000116. (Doug *and Rai*)
- ☑ 26. Measure the wire resonance using a loadspeaker near the wire to excite the mode.

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- ❑ 27. Take pictures of the magnet positions in the OSEM heads and of the magnet adhesive bonds to the optic. *Magnet positions in the OSEMS were visually inspected and verified to be well centered. We forgot the camera at this point, so no pictures were taken.*
- ❑ 28. Measure the PAM screw length projecting out of the back of the OSEM. *Measured before re-alignment: UL 2.5cm, UR 2.8cm, LL 2.5cm, LR 2.5cm. We forgot to re-measure after the re-alignment.*
- ☑ 29. Execute relevant chamber exit checks per E000065.
  Release the chamfer stops.
  (Note: This is steps 56 and 57 of E000062-C with more detail.)
- ☑ 30. Re-install the chamber doors per M980132.
- ☑ 31. Pump down the BSC chamber volume per M980101
- ☑ 32. Make an Elog entry pertaining to the task completed, including any deviations, recorded values, and notes.

WAIVER
from Rai Weiss regarding equipment used for wire resonance measurement 3/1/00. (See item 26 above.)

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On Thu, 2 Mar 2000, Betsy Weaver wrote:
>
> Hi Rai-
>
> Could you please email me back an acknowledgment of the
> waiver we used yesterday with our equipment setup of the
> wire resonance measurement? The waiver is as follows:
>
> 1. We wrapped the feet of a tripod with Al. foil and placed the
> tripod into WBSC 6.
> 2. On top of the tripod, we mounted a UV meter with an
> unwrapped cable running through the chamber, out the
> door (care was taken so the cable did not touch anything
> UHV sensitive).
> 3. A small unwrapped loud speaker was taken into the chamber
> and held near the ETMy suspension wire for excitation
> (another unwrapped cable was strung from the hand held
> speaker out through the chamber door - the above
> care was taken with this equipment as well).
> None of the above equipment was cleaned or airbaked.
>
> Thank you!
> Betsy

On Thu, 2 Mar 2000, Rai Weiss wrote:
Betsy,
Your description is correct.
However, the instruments short of the tripod legs, which were covered
with
aluminium foil, never were intended to touch the inside wall of the
chamber.
RW
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