

# AERI-SPARC INTERFEROMETER UNIT INSTALLATION PROCEDURE

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## Scope:

This procedure describes the steps required to install the AERI-SPARC interferometer unit into the SPARC trailer. (See figure on last page.)

## Starting Configuration:

The AERI Interferometer Unit is powered down. All cables from the electronics rack have been de-mated at the interferometer end. The blackbodies have been removed, and their apertures have been temporarily covered. The interferometer has been placed on a cart for transport to the trailer, with four temporary shock mounts positioned under the interferometer baseplate. A temporary cover has been placed over the sky-view aperture. The interferometer mounting stand has previously been installed into the trailer, as has the front end blower (but the vertical duct of the blower has not been installed). The workbench to the left of the mounting stand has not been installed.

## Instrument Parts Required:

- Interferometer on baseplate
- Baseplate mounting fasteners
- Blackbodies and associated mounting fasteners
- Front-end enclosure and associated fasteners  
(the enclosure should be disassembled into 3 parts: back panel; 4 sided box; front cover)
- Sky-view gap filler
- Insulation strip, (¼" thick styrofoam)
- Blower duct section (blower to front-end enclosure)

## Tools and Equipment Required:

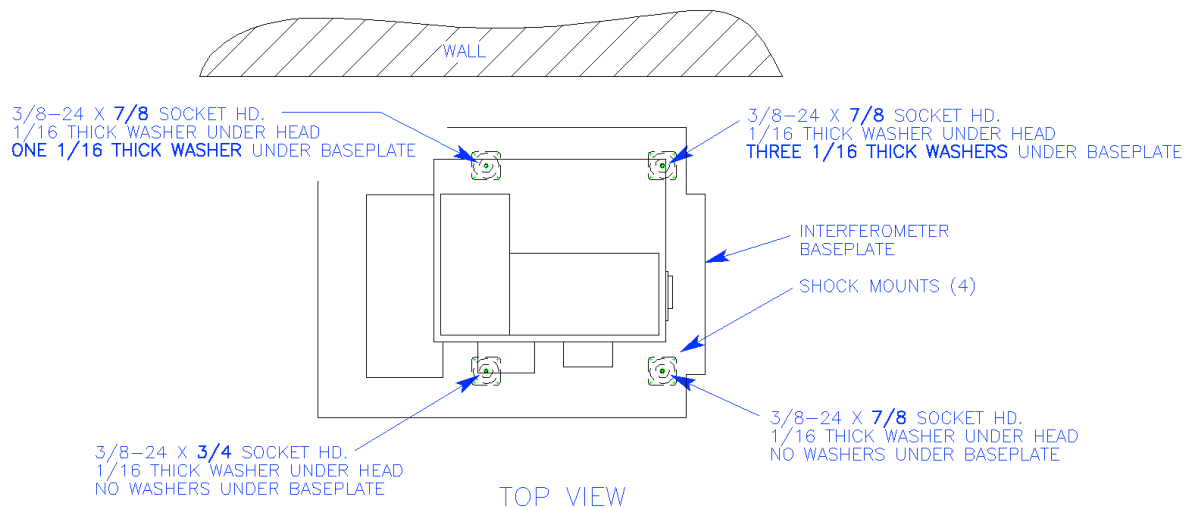
- Rolling cart for interferometer unit
- four shock mounts (temporary - for use with above cart)
- ball driver set
- allen wrench set
- screwdrivers, various
- special screwdriver/holder for nylon thumb screws
- vinyl tape

### Precautions:

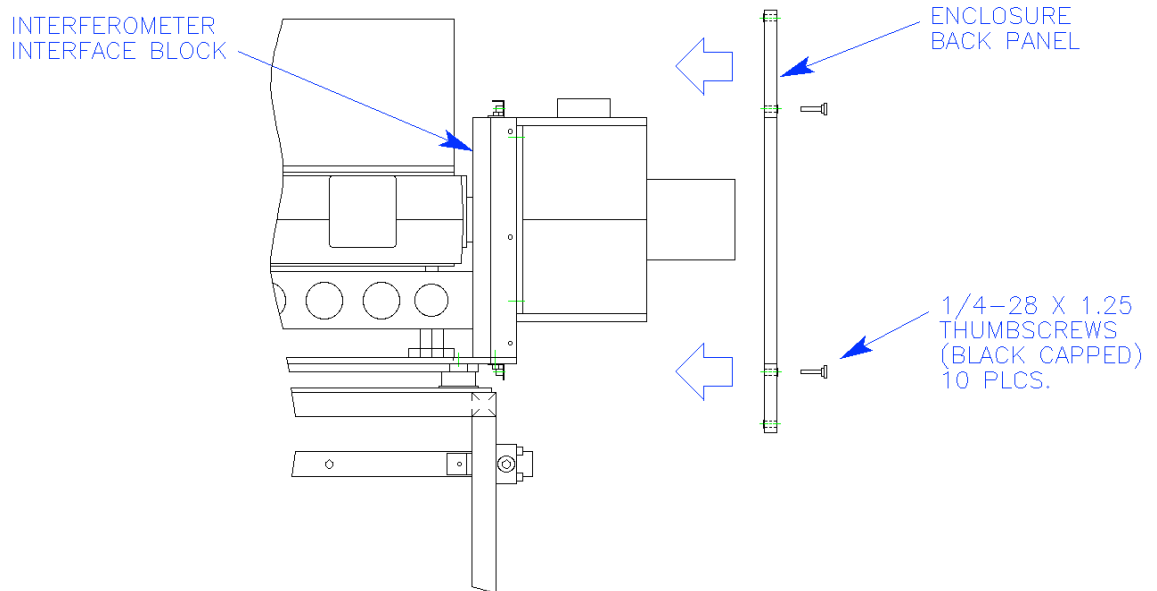
- The sky-view gap filler should not be in place when the vehicle is moving. Remove it prior to vehicle movement. (Failure to do so may damage the front-end enclosure.)
- The sky-view gap filler should be in place during observations.
- The front-end enclosure panels are fragile – handle them with care.
- Keep the blackbody cavities clean by having their apertures covered until they are mounted on the instrument.
- Keep the scene mirror clean by having the sky-view aperture covered until the interferometer is installed in the trailer.

### Procedure:

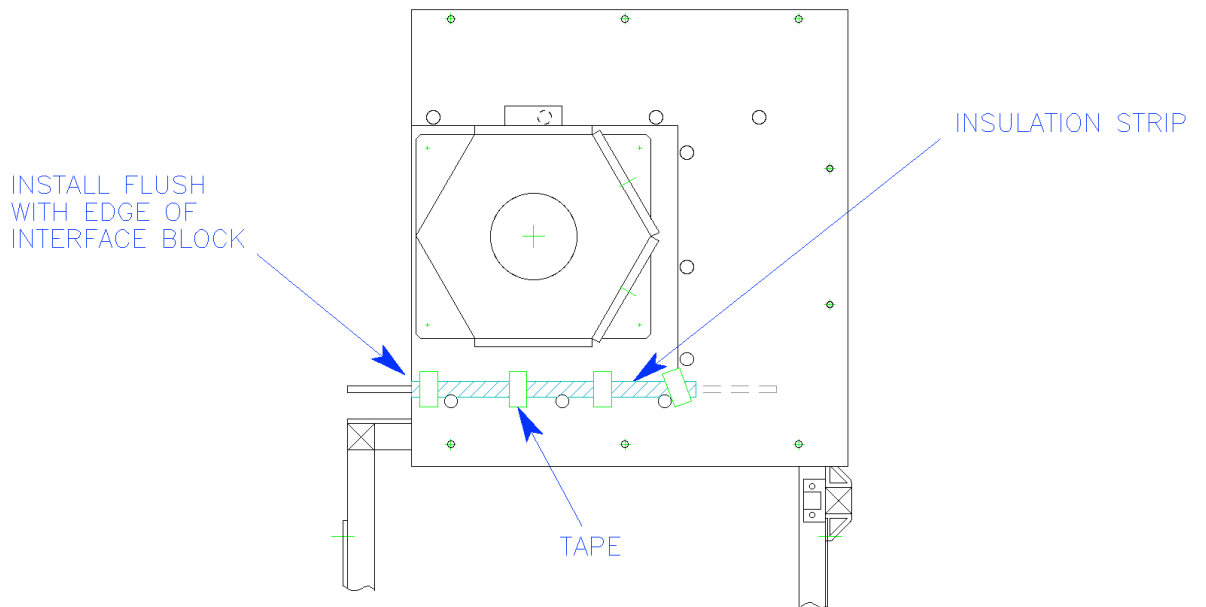
1. Roll the AERI interferometer into the trailer via the back door.  
(*Caution:* The interferometer is “loose” on the cart, and could slide off.)
2. Remove the mounting fasteners that may be stored in the four stand shock mounts.  
(Note that there are different lengths of screws and a varying number of washers at the four locations. See step 4.)
3. Lift the interferometer onto the stand onto the four shock mounts. (Four persons required, one at each corner. Weight  $\approx$  200 lbs.)  
(*Caution:* There is limited clearance with the ceiling. Do not let the interferometer bump the ceiling.)
4. Install the four mounting screws (with washers) that attach the interferometer baseplate to the shock mounts. Note that one screw is a different length, and that there are additional spacer washers to be placed under the baseplate at two locations. Place the fasteners in their original locations per the figure below.



5. Carefully install the front-end enclosure back panel to the interferometer interface block: Slide the panel in at an angle from the wall side, then lift it about 1/4" over some sky-view aperture screws, then set it in place around the interface block. (If having difficulty removing the panel, temporarily remove the sky-view aperture.) Install ten 1/4-28 x 1.25" long thumbscrews (steel screws with black caps). Do not tighten the screws until all of them have been threaded most of the way into the nuts. (*Caution:* The enclosure panels are fragile – handle them with care.)

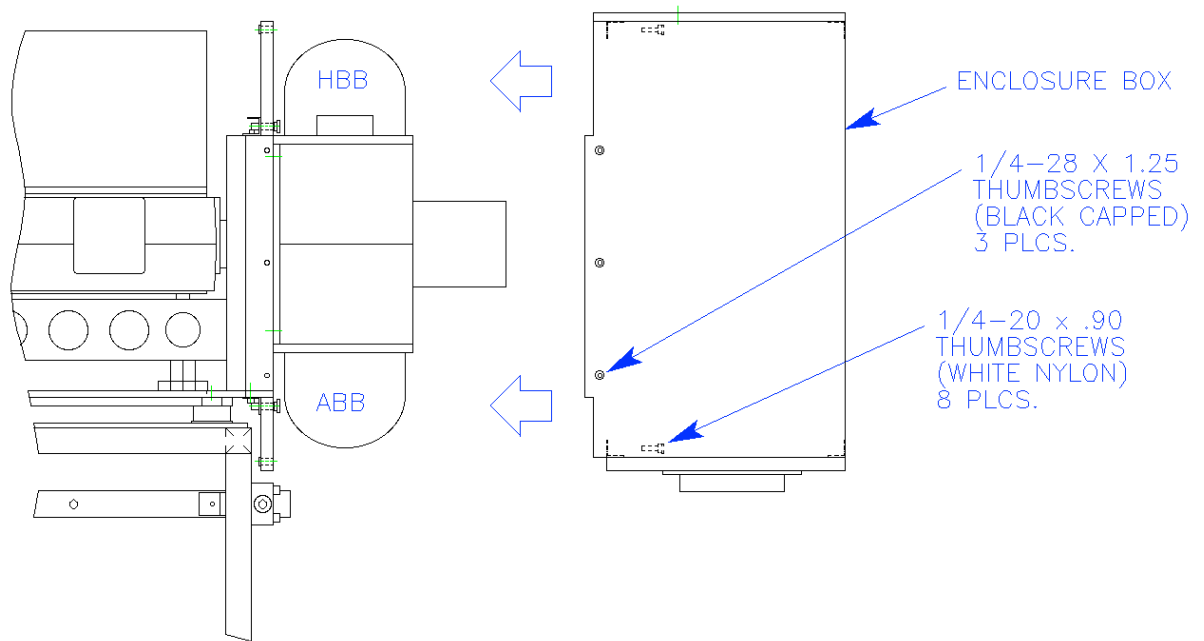


6. Tape the insulation strip over the exposed edge of the interferometer baseplate. The strip fits behind 3 thumbscrew flanges. Use vinyl tape.



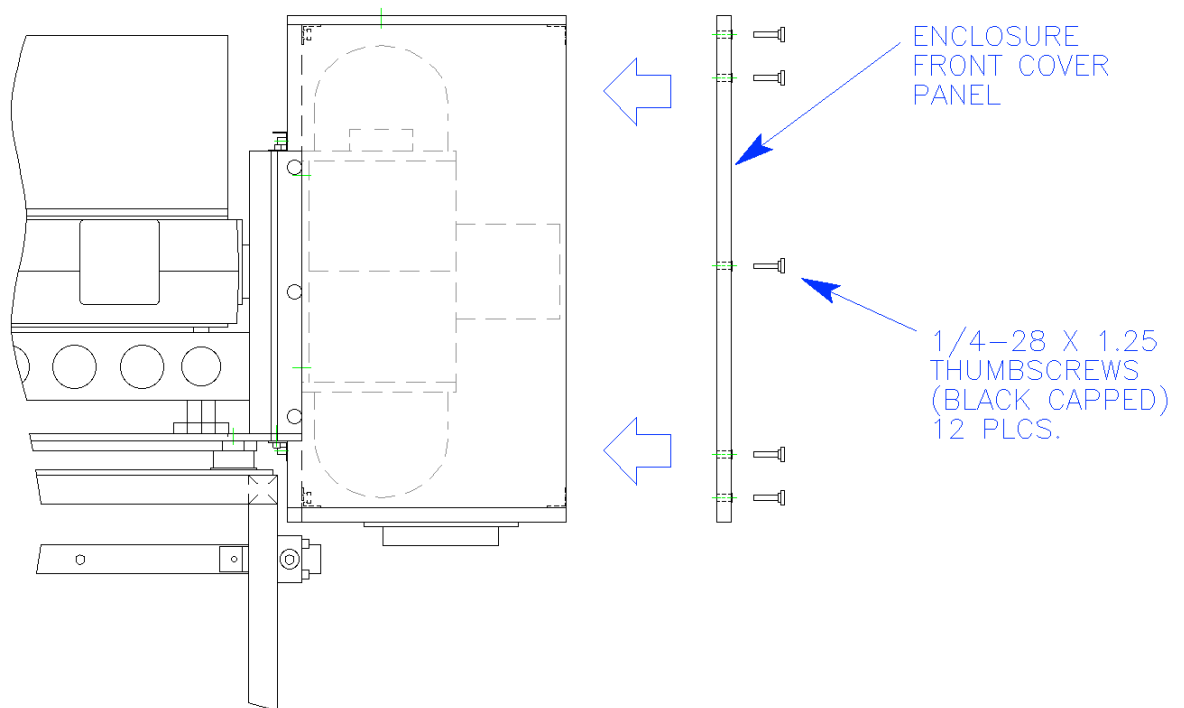
7. Install the two blackbodies in their correct positions and rotational orientations. (*Note: Remove aperture covers before installing, and bag them for storage.*)
8. Mate the blackbody connectors.
9. Ensure that there are no air gaps in the cable feed-thru in the interface block. Plug gaps with foam if necessary. Underneath the ABB, tie the cable bundle against the underside of the ABB case.
10. Install the front-end enclosure box. (See figure on next page.) Use three different kinds of thumbscrews:
  - six 1/4-20 x 0.90" long white nylon thumbscrews at the "interior" gray PVC angles, except at the upper right & lower right corners.
  - two modified 1/4-20 x 0.90" long white nylon thumbscrews (knob tops are slotted) at the upper right & lower right corners. Use the special tubular screwdriver tool.
  - three 1/4-28 x 1.25" long thumbscrews (steel screws with black knobs) on the exterior aisle-side of the box.

Do not tighten the screws until all of them have been threaded most of the way into the holes.

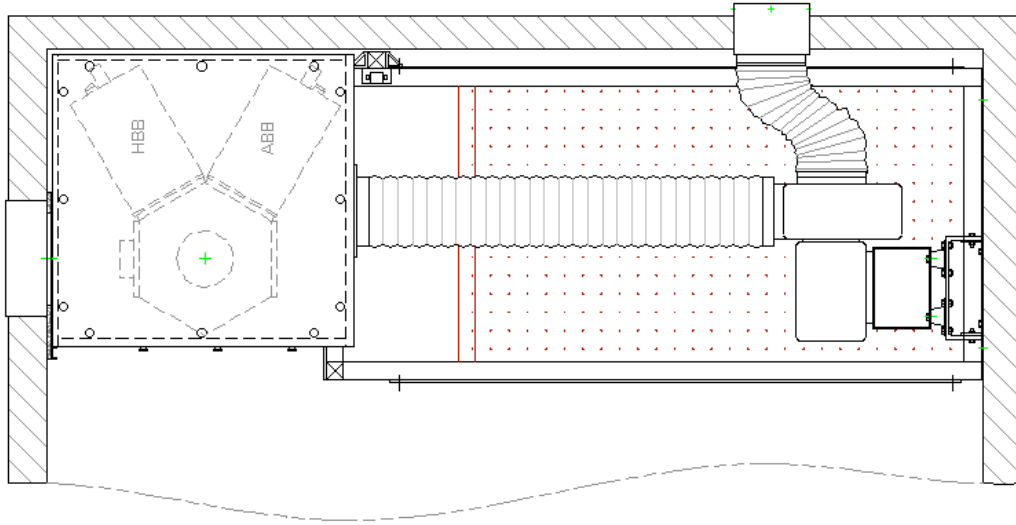


11. Remove the cover on the sky-view aperture.

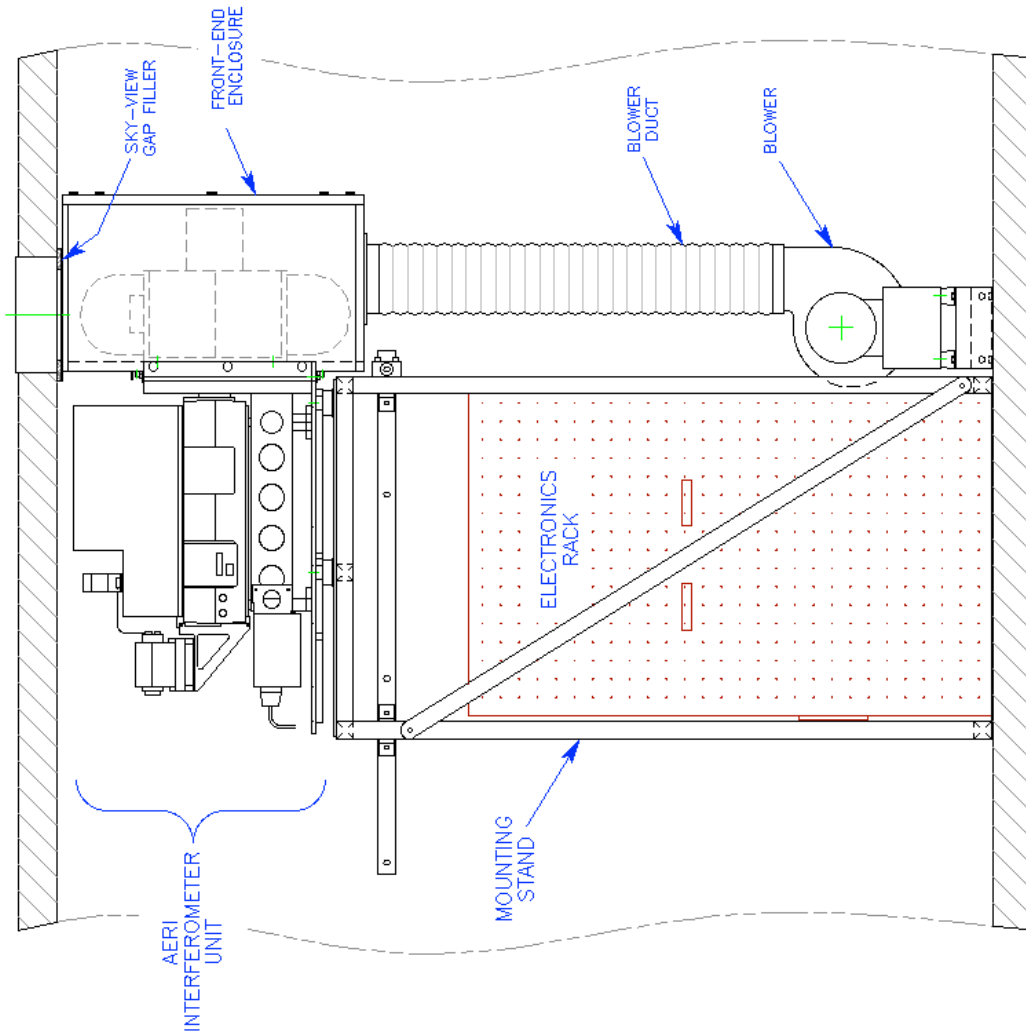
12. Install the front cover panel using twelve 1/4-28 x 1.25" long thumbscrews (steel screws with black caps). Do not tighten the screws until all of them have been threaded most of the way into the nuts.



13. Carefully slide the sky-view gap filler into place between the top of the front-end enclosure and the trailer ceiling, aligning it with marks on the ceiling.  
(Note: You may need to compress the interferometer shock underneath the sky-view to make the gap filler easier to slide in. Pull down on the interferometer interface block to do this.)
14. Mate the cables that originate from the electronics rack:
- eight "D" connectors mate to the IPSD box
  - one "D" connector mates to the interferometer case
  - one power cord plugs into the IPSD box
15. Secure the above cable bundle to the AERI stand and/or wall, as necessary.
16. Install the workbench to the wall (on the left of the instrument).
17. Install the blower duct section between the blower and the front-end enclosure.



(LOOKING FWD IN THE TRAILER)



**AERI-SPARC INSTALLED**  
(LOOKING STARBOARD IN THE TRAILER)