

In addition to Telescope parts following hardware items were essential :

1. For assembly- integration purpose

Mounting brackets, tube support Cradle, rail and guide, low level trolley , special shim washers etc.

2. For handling purpose

- Vertical handling device to lift and maneuver the assembled telescope,
- Vertical handling device to lift and maneuver the assembly of telescope with the vibration fixture.

3. Special Tools:

- Torque wrench extensions, long Allen key wrenches, hole punch

4. To carry out environmental tests

- Vibration Fixture, Tilt fixture, Thermovac trolley with IRCage, Interface plate for thermal control EU unit

5. For transportation purpose

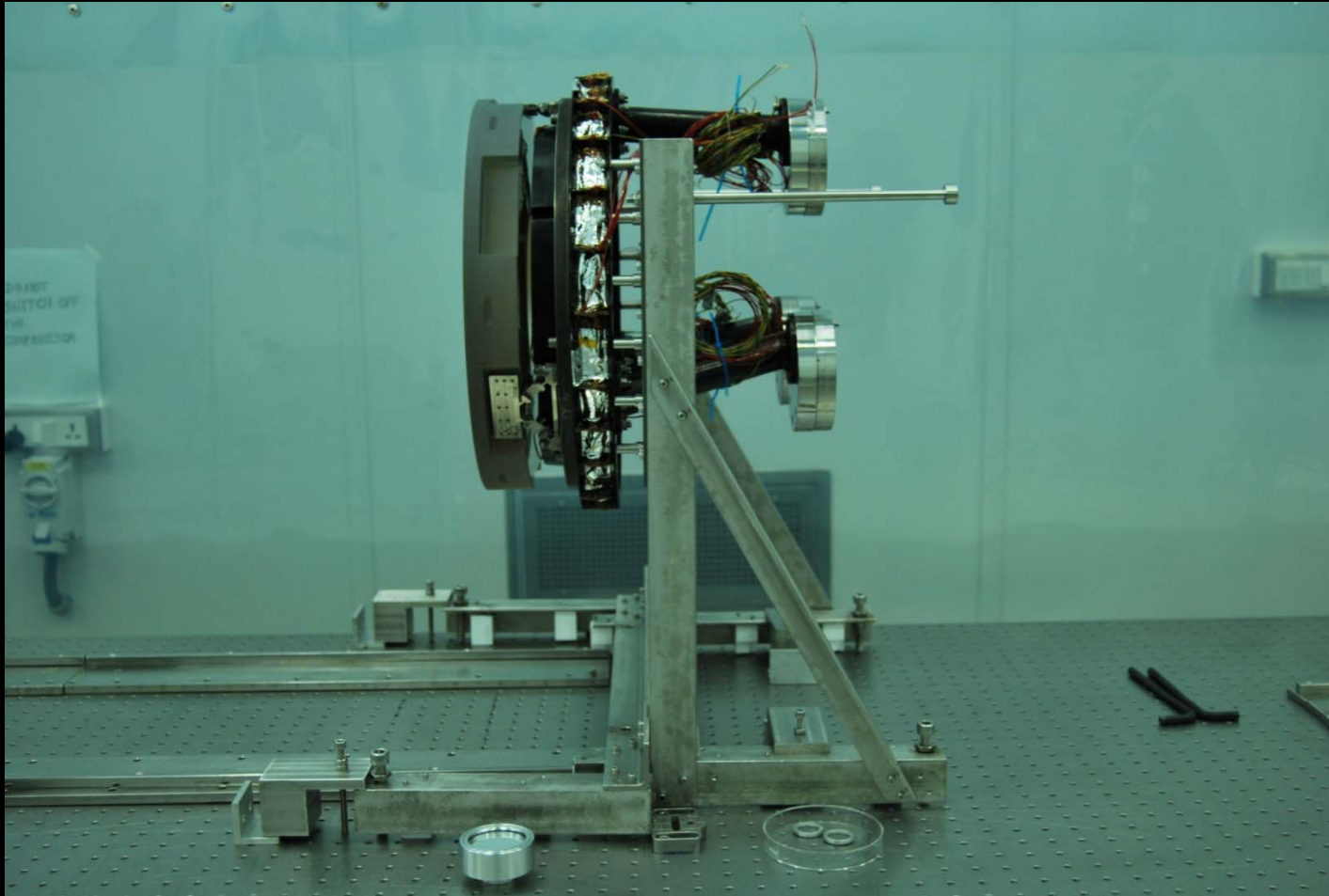
- Transportation containers- Outer container, Inner container, Fixed fixture and adapter ring.

6. For storage of EM telescope

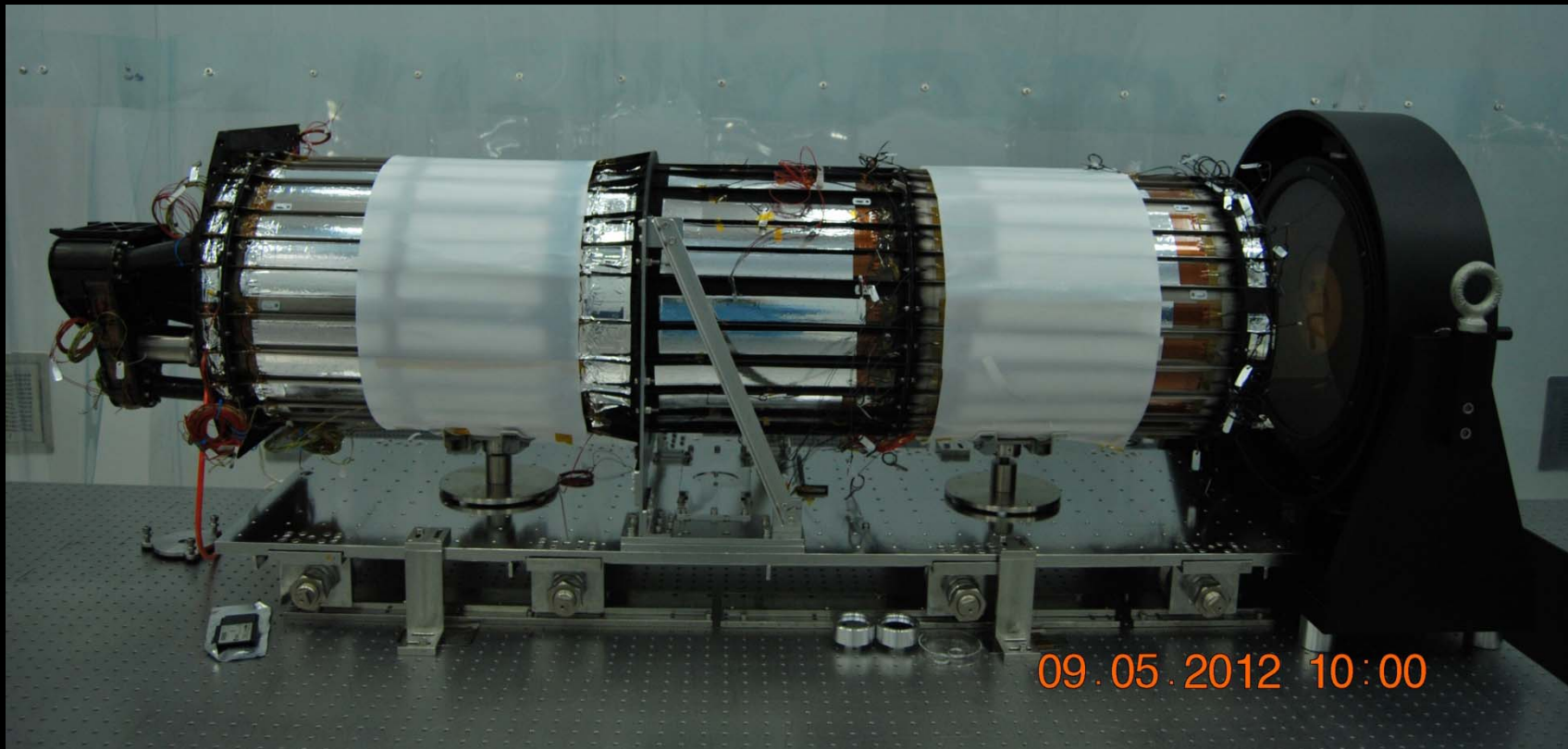
- Parking fixture

- Following slides will vividly demonstrate the requirement of some of the above mentioned hardware items.

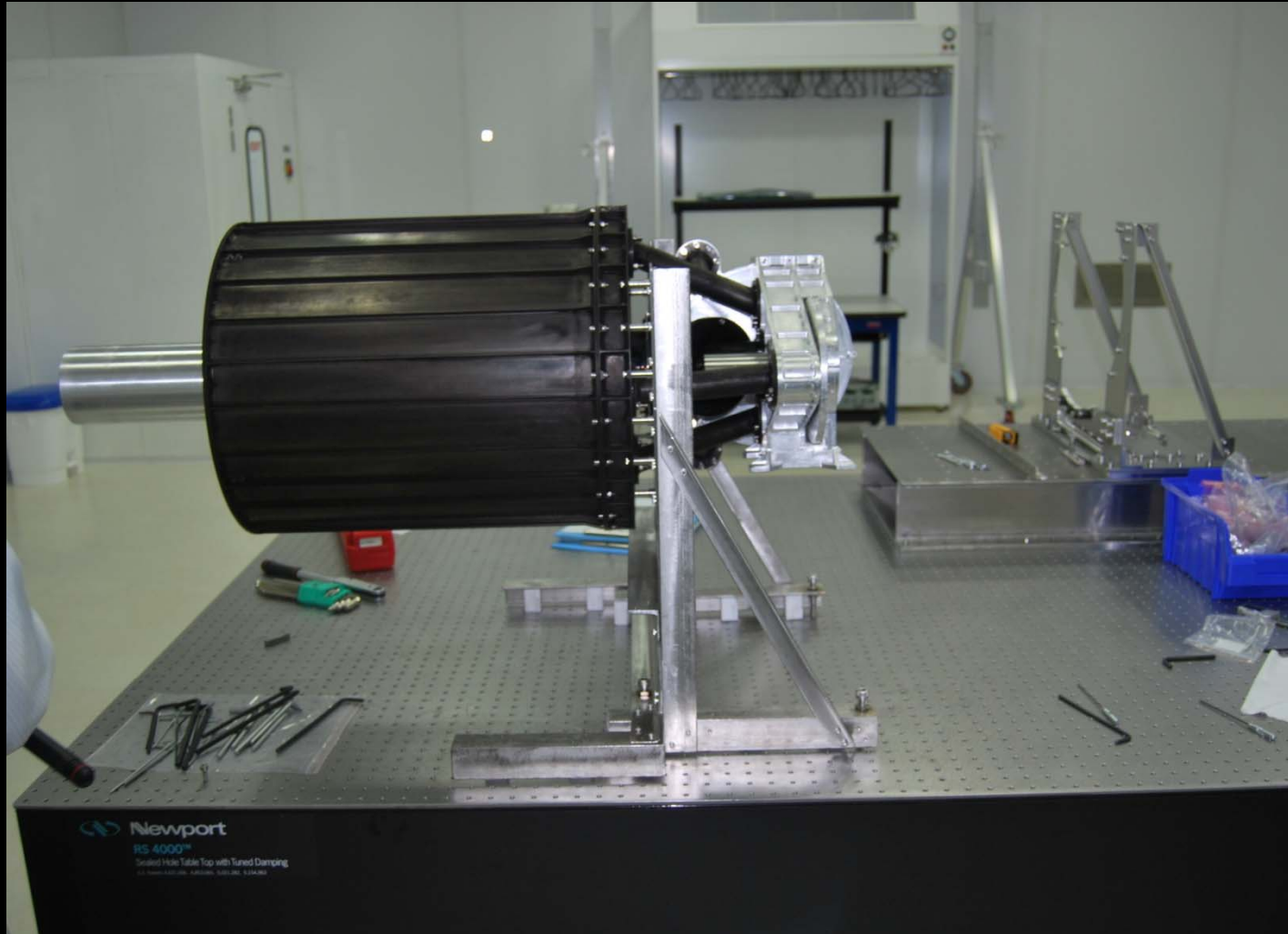
Assembly Fixtures



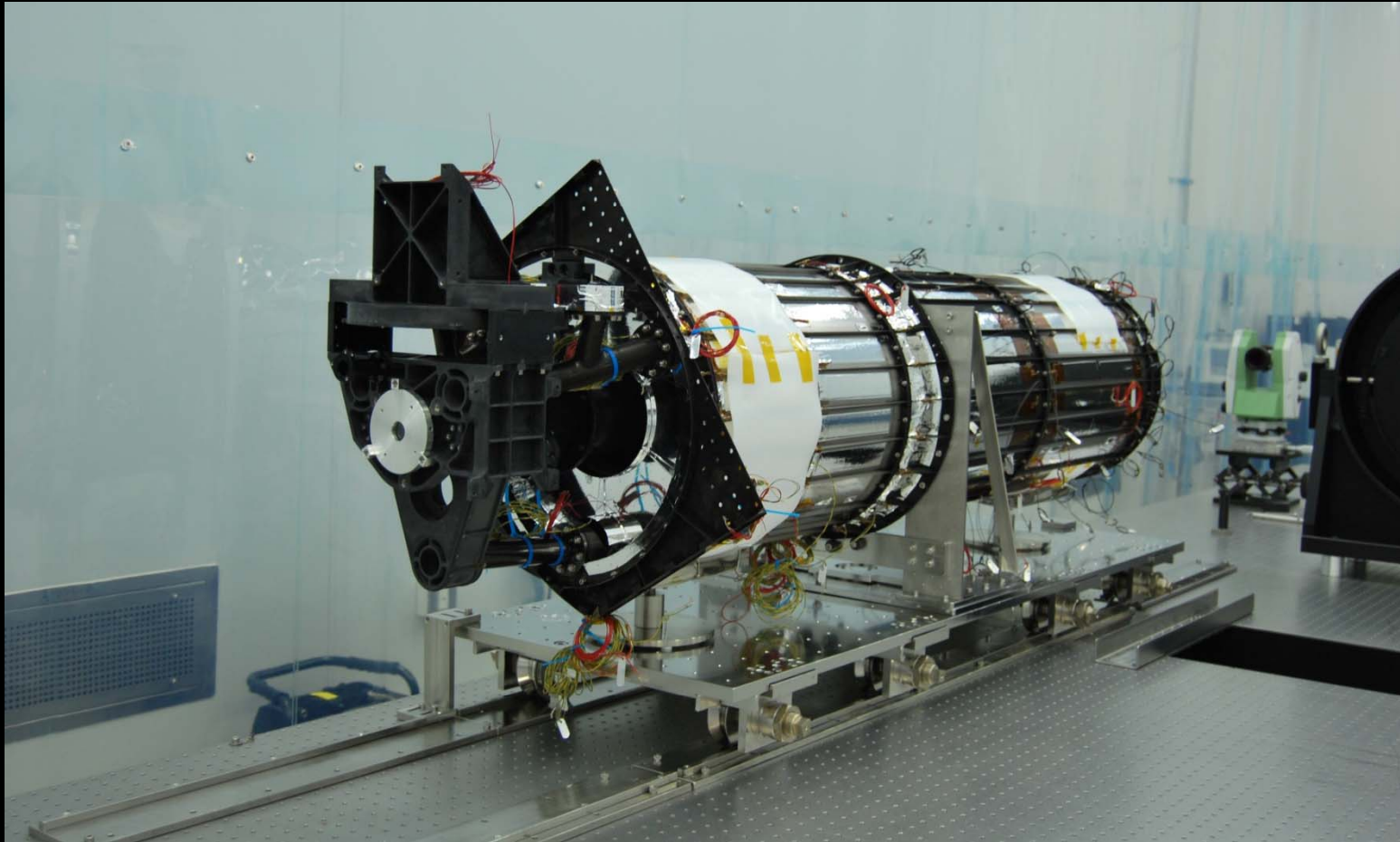
Assembly Fixtures



Assembly Fixtures



Assembly Fixtures



Special Tools

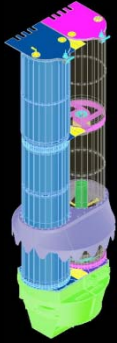


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Low level trolley



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UVIT TRANSPORTATION CONTAINER



Inner Container



Inner Container inside view



Inner Container-fixed fixture



Vibration Fixture

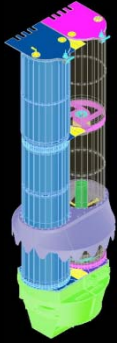


Payload over the vibration fixture



Tilt Fixture





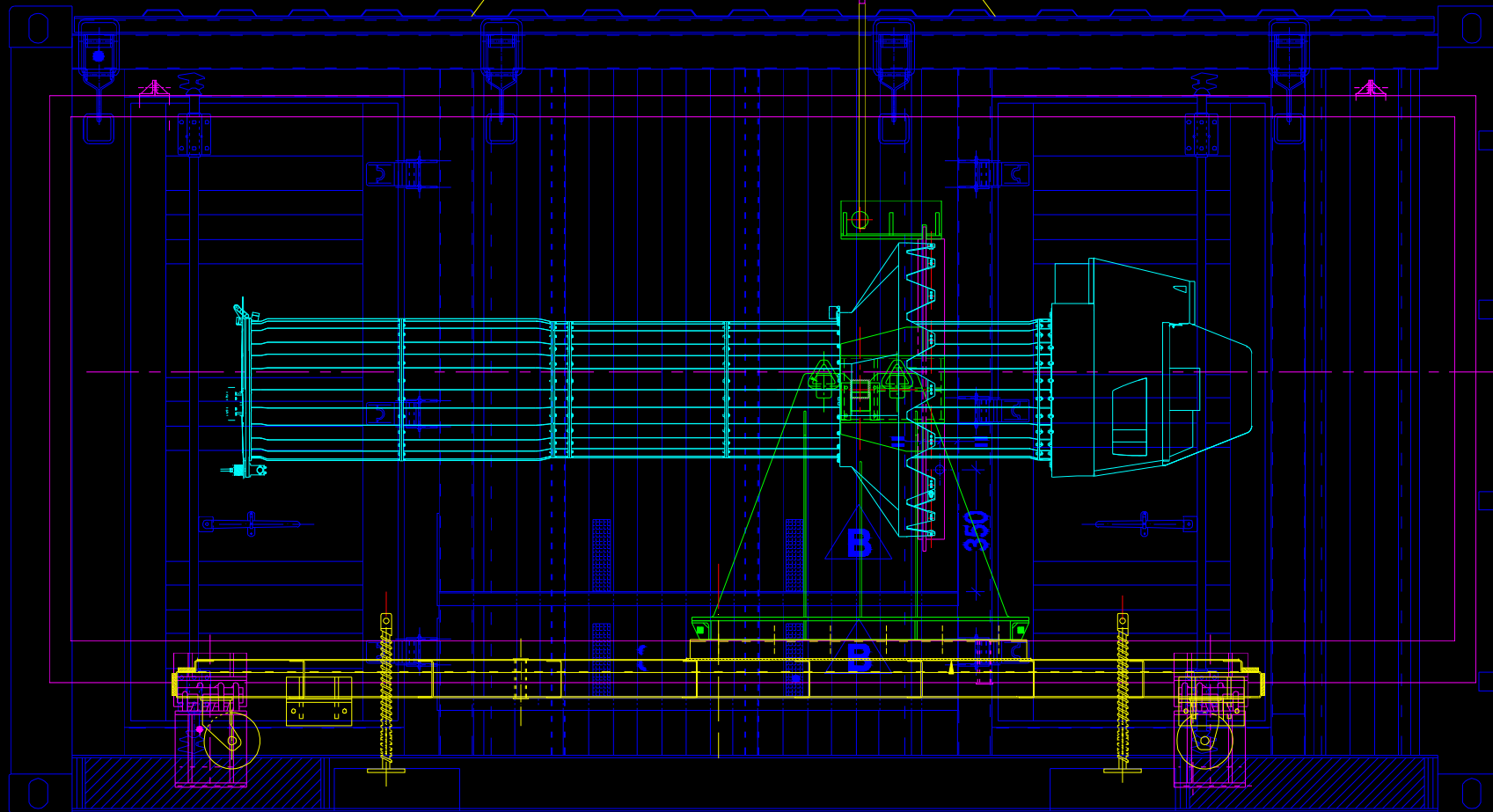
1. OUTER CONTAINER IS REMOVED USING CRANE AFTER DISMANTLING BASE BOLT CONNECTIONS.

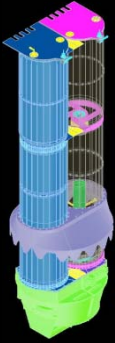
2. BASE PLATE WITH PAYLOAD SLIDED OUT FROM INNER CONTAINER.

3. LIFT THE BASE ASSEMBLY USING JACK.

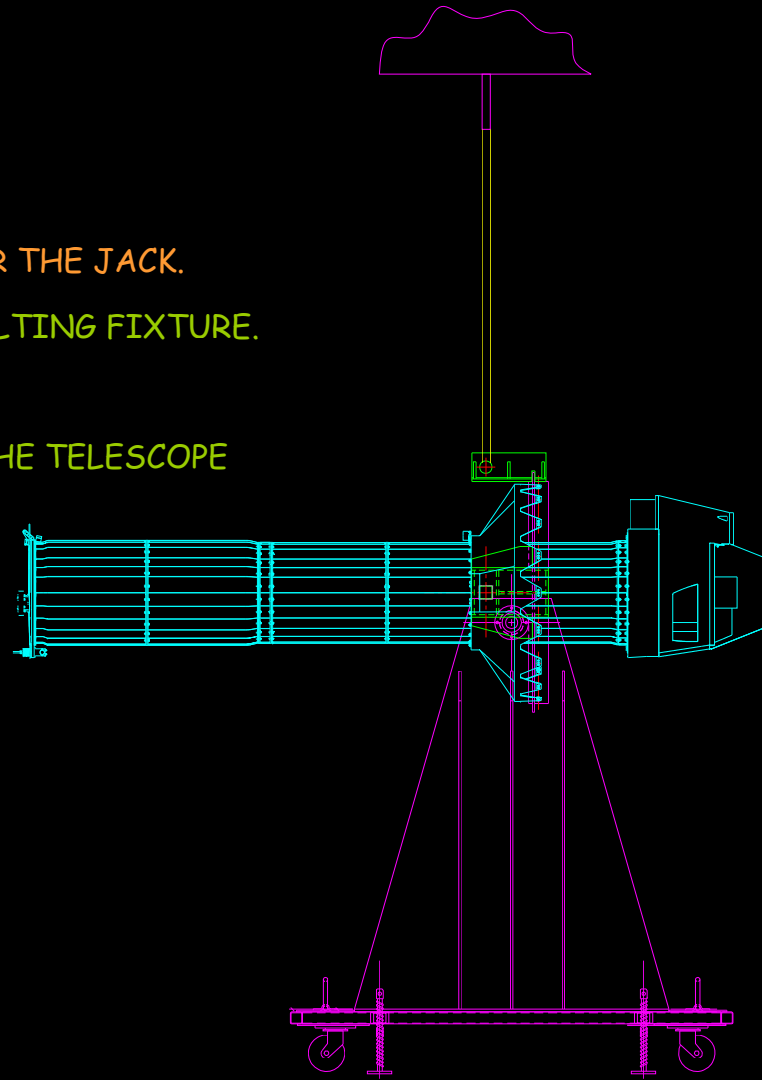
4. CONNECT THE LIFTING SLINGS TO THE LIFTING BRACKET.

5. LIFT THE MODULE FROM THE FIXED FIXTURE.





1. POSITION THE TILTING FIXTURE OVER THE JACK.
2. MOUNT THE TELESCOPE ON TO THE TILTING FIXTURE.
3. REMOVE THE SLING.
4. ROTATE THE TILT FIXTURE TO BRING THE TELESCOPE TO VERTICLE ORIENTATION

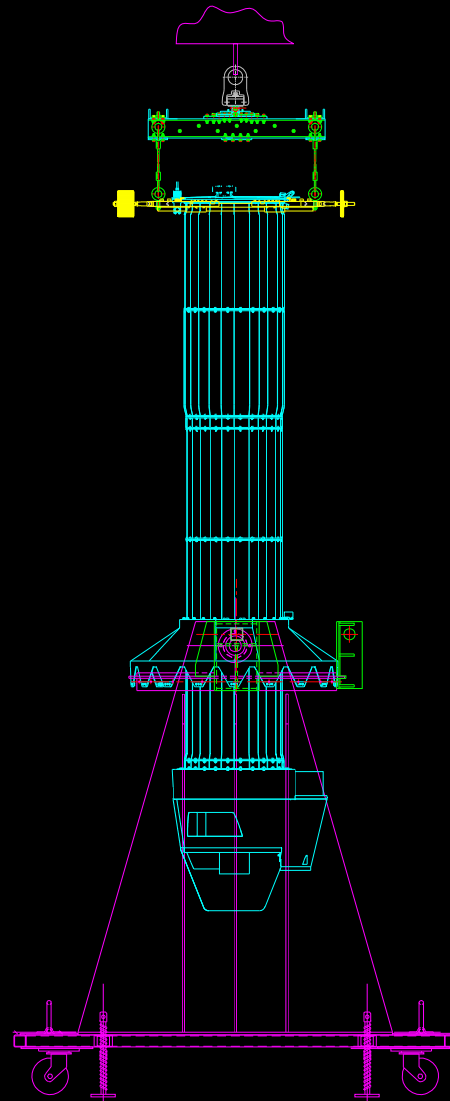


Vertical Handling Fixture



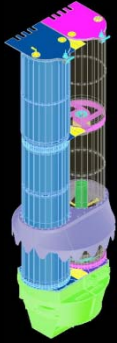


1. CONNECT THE VERTICAL HANDLING FIXTURE TO THE SLINGS AND ATTACH TO THE TELESCOPE TOP END



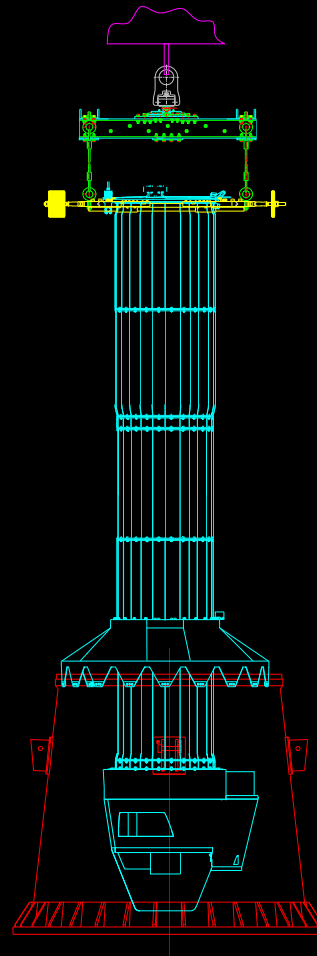
2. REMOVE THE BOLTS FROM THE ADAPTER.

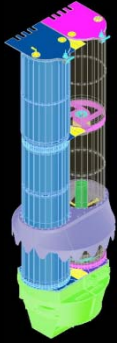
3. LIFT THE UVIT ASSY FROM THE TILTING FIXTURE.



1. BRING THE UVIT MODULE THROUGH VERTICAL HANDLING FIXTURE, AND INSERT TO VIBRATION FIXTURE.

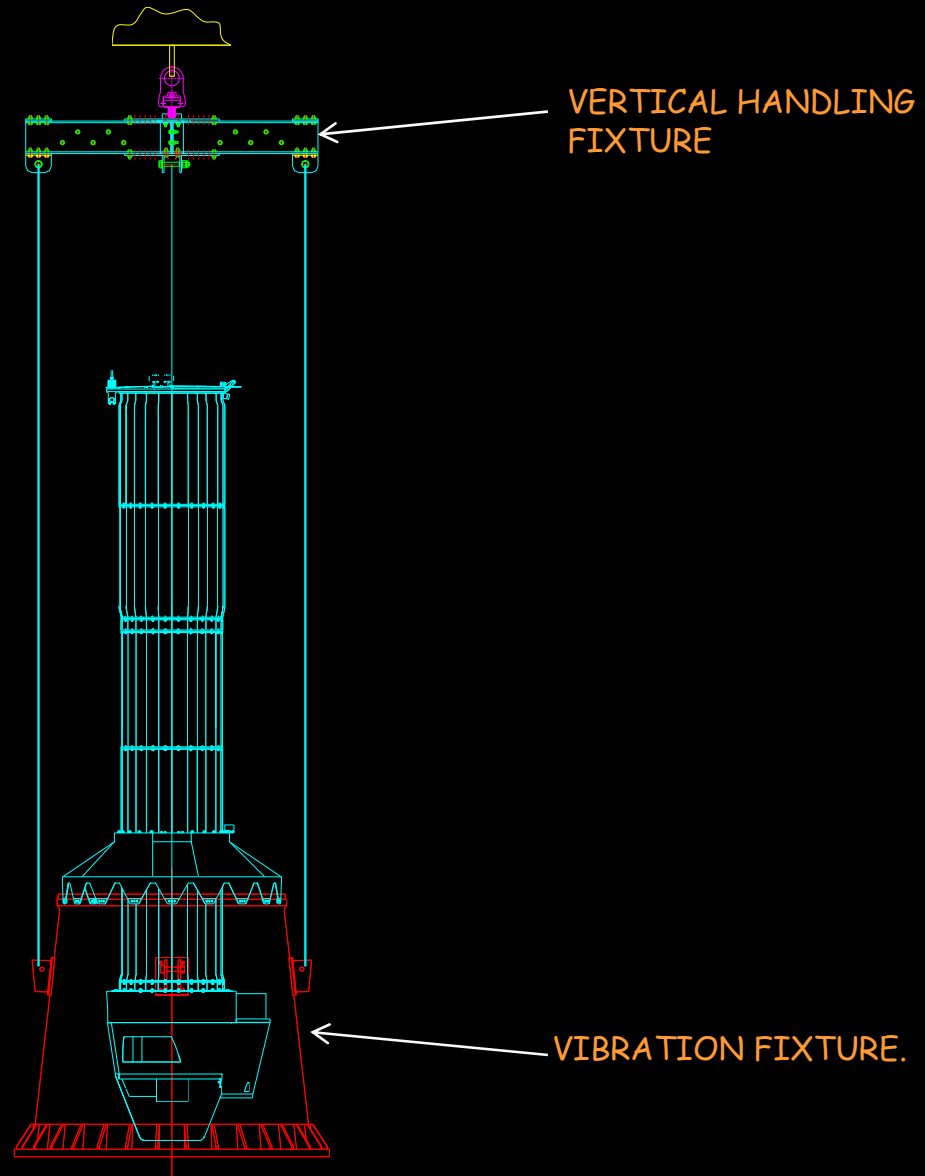
2. REMOVE THE VERTICAL HANDLING FIXTURE.

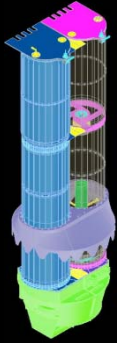




1. BRING VERTICAL HANDLING FIXTURE AND ATATCH TO THE VIBRATION FIXTURE.

2. LIFT THE UVIT MODULE ALONG WITH VIBRATION FIXTURE.



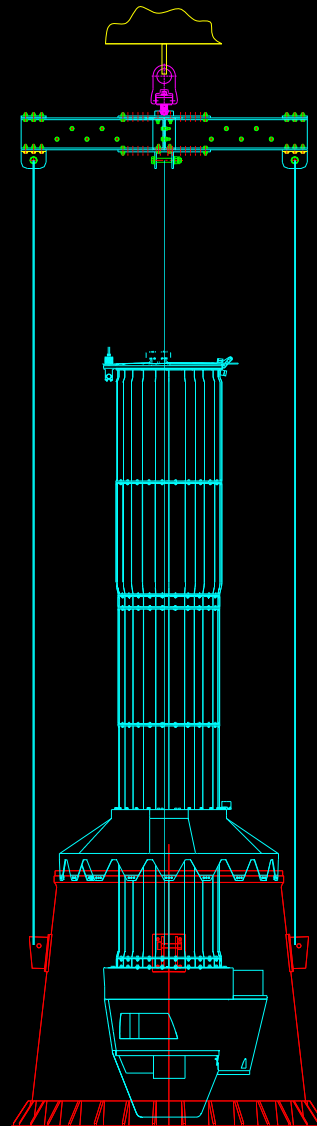


1. PLACE THE UVIT MODULE ALONG WITH VIBRATION FIXTURE ON SHAKER TABLE.

2. REMOVE THE VERTICAL HANDLING FIXTURE.

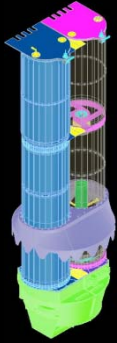
3. CONNECT THE VIBRATION FIXTURE TO THE SHAKER TABLE.

4. START THE VIBRATION TEST.



5. BRING THE VERTICAL HANDLING FIXTURE AND CONNECT TO THE VIBRATION FIXTURE.

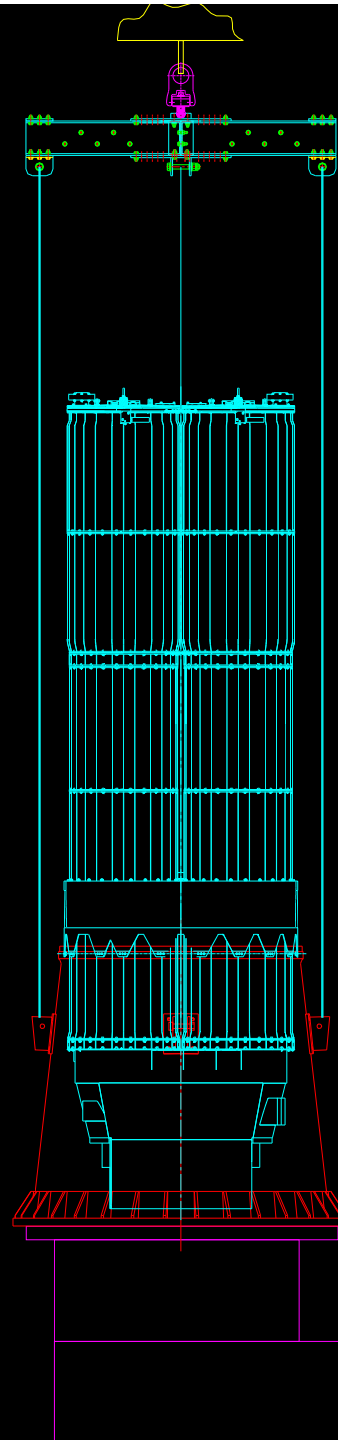
6. LIFT THE VIBRATION FIXTURE WITH UVIT MODULE.



1. PLACE THE UVIT ASSY THROUGH VERTICAL HANDLING FIXTURE ON SHAKER TABLE.

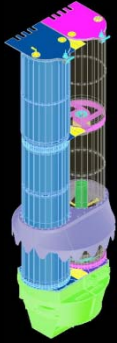
2. REMOVE THE VERTICAL HANDLING FIXTURE.

3. START THE VIBRATION TEST.

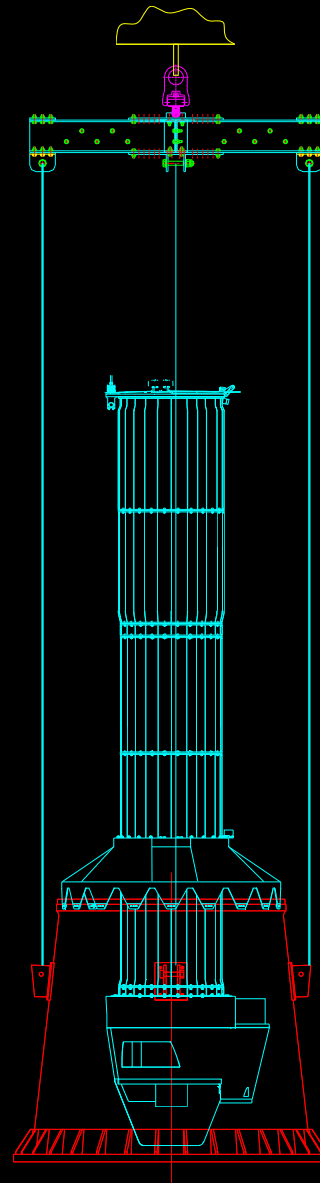


4. BRING THE VERTICAL HANDLING FIXTURE AND CONNECT THE VIBRATION FIXTURE.

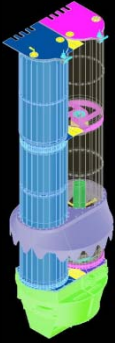
5. LIFT THE VIBRATION FIXTURE WITH UVIT MODULE THROUGH VERTICAL HANDLING FIXTURE.



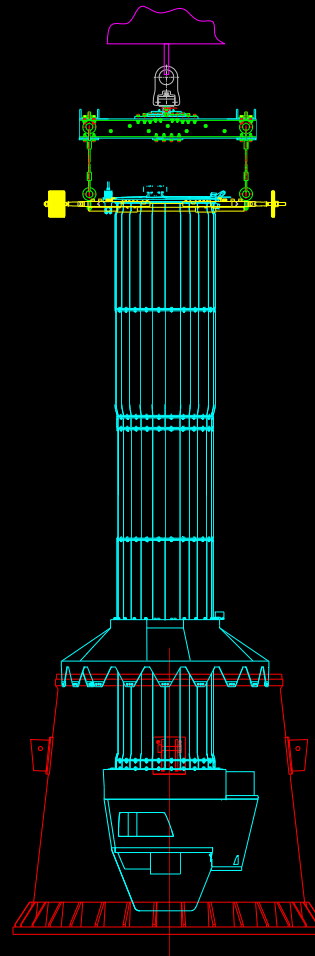
1. PLACE THE UVIT ASSY THROUGH
VERTICAL HANDLING FIXTURE ON
GROUND.



2. REMOVE THE VERTICAL
HANDLING FIXTURE.



1. CONNECT THE VERTICAL HANDLING FIXTURE TO THE SLINGS AND ATTACH TO THE UVIT ASSY.



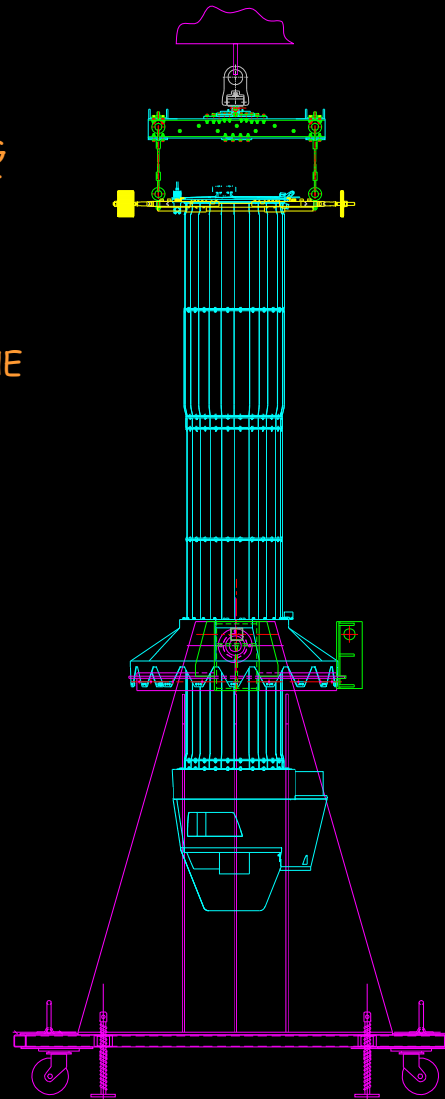
2. LIFT THE UVIT ASSY THROUGH VERTICAL HANDLING FIXTURE FROM THE TILTING FIXTURE.



1. BRING THE UVIT ASSY THROUGH VERTICAL HANDLING FIXTURE AND INSERT TO TILT FIXTURE.

2. CONNECT THE BOLTS TO THE ADAPTER.

3. REMOVE THE VERTICAL HANDLING FIXTURE.

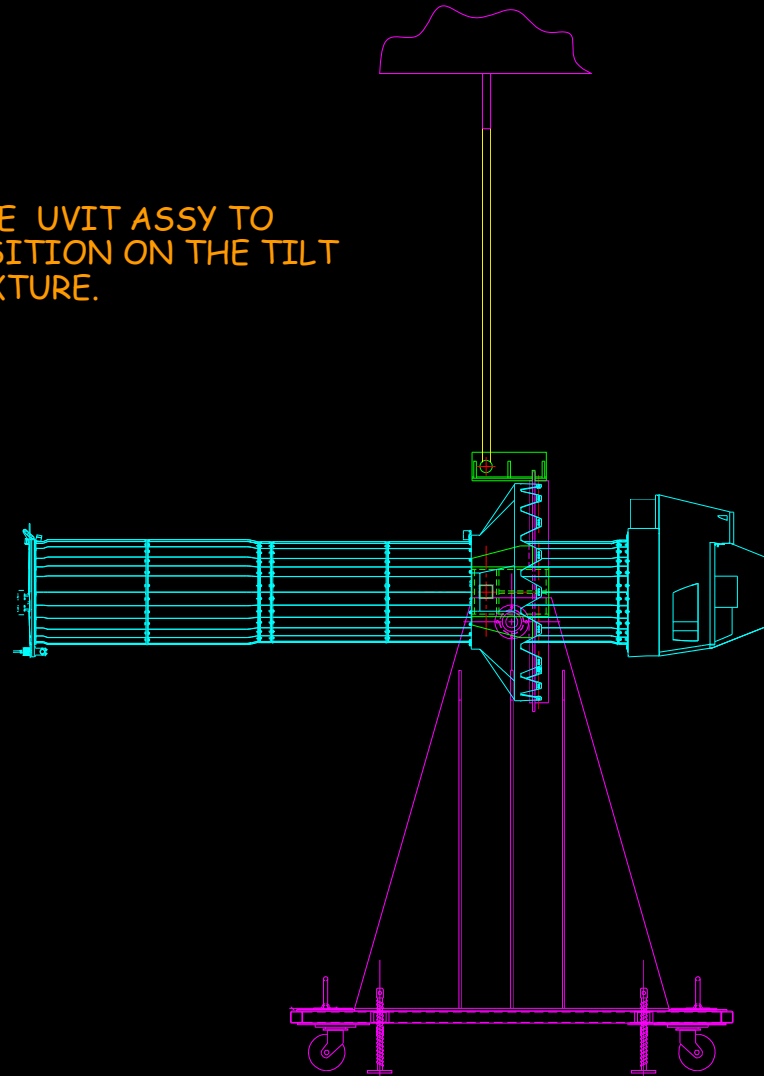


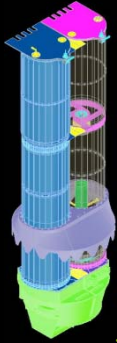


1. ROTATE THE UVIT ASSY TO HORIZONTAL POSITION ON THE TILT FIXTURE.

2. CONNECT THE SLING.

3. LIFT THE UVIT ASSY FROM THE TILT FIXTURE.





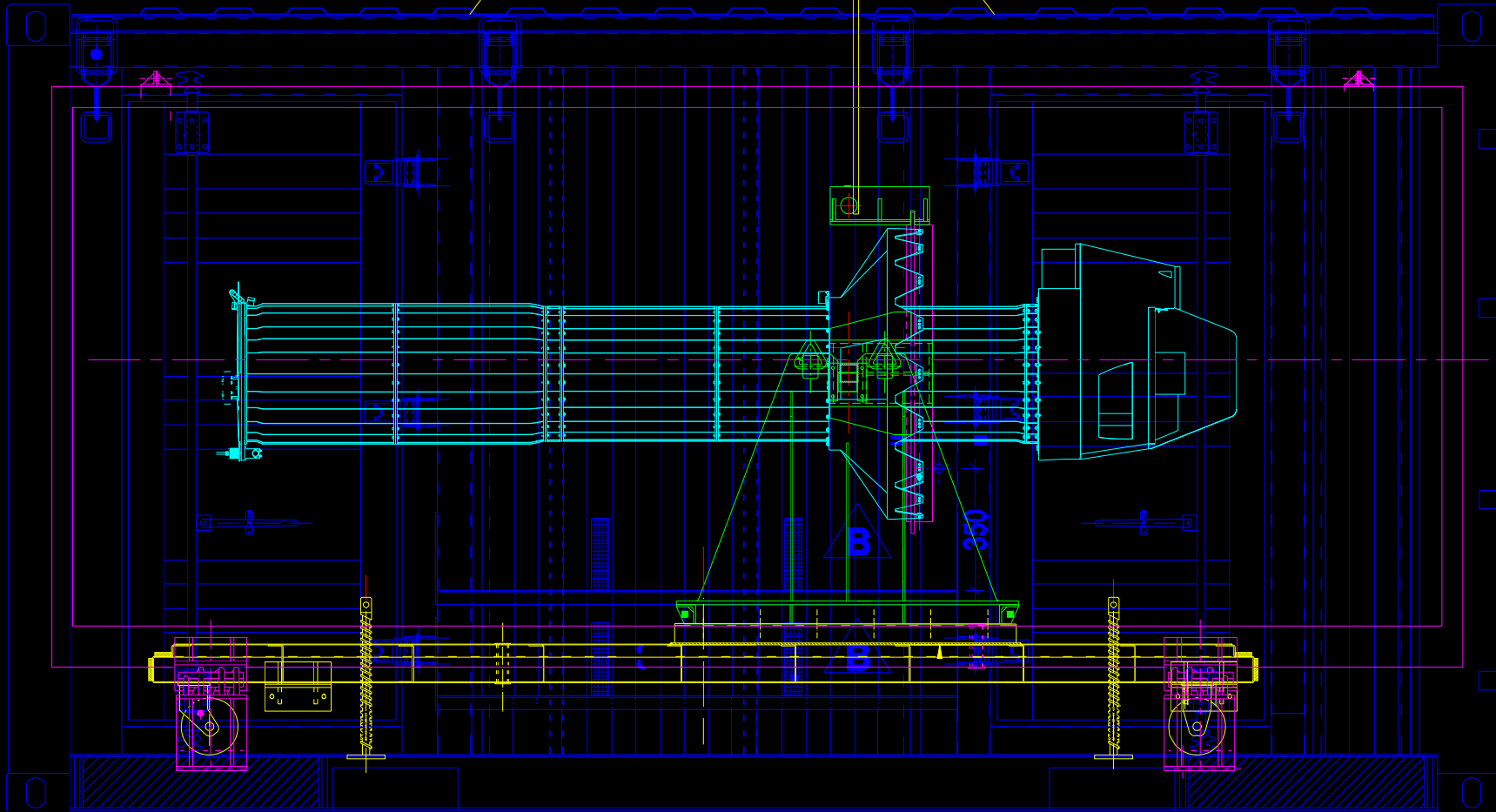
1. BRING THE BASE ASSEMBLY AND LOCK IT THROUGH JACK.

2. CONNECT THE UVIT ASSY TO THE FIXED FIXTURE.

3. REMOVE THE LIFTING SLINGS FROM THE LIFTING BRACKET.

4. RELEASE THE BASE ASSEMBLY

5. BASE ASSY WITH PAYLOAD SLIDED OUT INTO INNER CONTAINER.



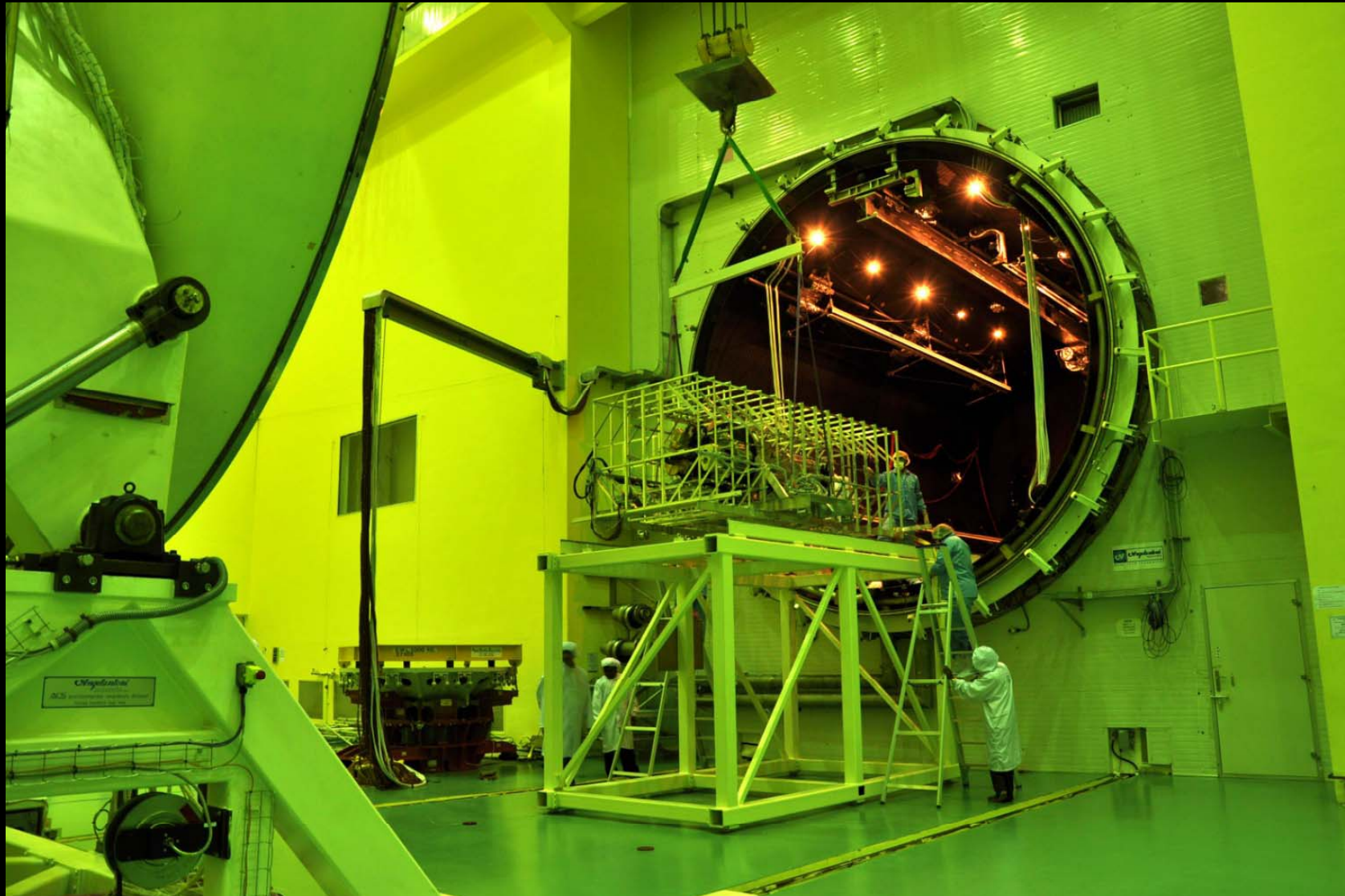
Thermovac Trolley



Thermovac trolley-IR cage



Payload at Thermo-vacuum chamber at ISITE/ISRO





THANK YOU