

Procedure to remove the SSD from the cone

GEOMETRICAL DESCRIPTION

SSD is a cylinder made of 4 sectors identical 2 by 2 (fig.1)

- 2 sectors made of 3 ladders, top and bottom positions
- 2 sectors made of 7 ladders, north and south positions

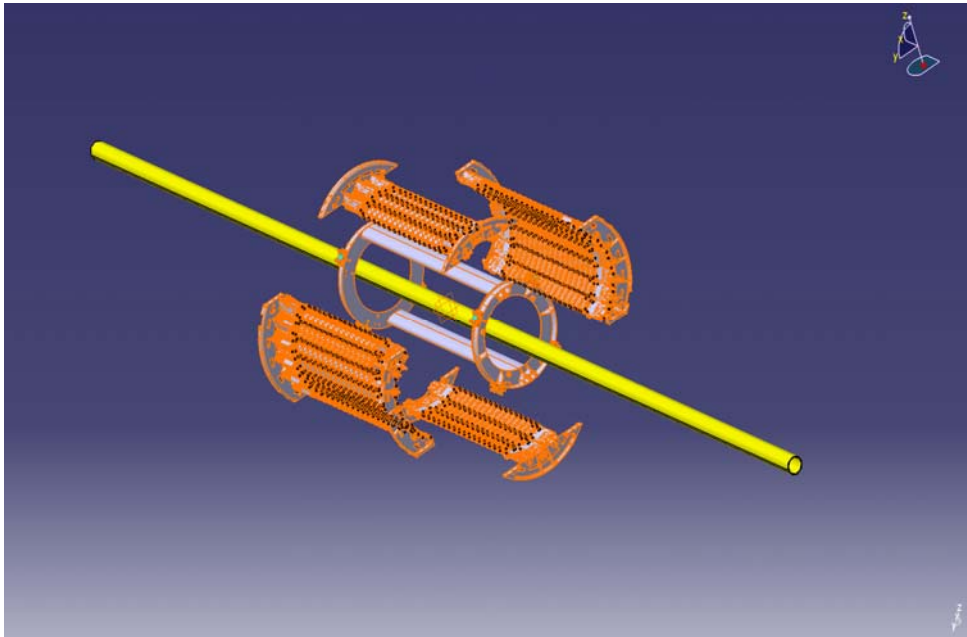


Fig.1: exploded view of SSD around the beam pipe

The SSD is attached to the cone by 4 mechanical pieces at each end of the barrel (Fig.2 and 3). Those parts allow a geometrical adjustment to position the SSD concentrically with the SVT.

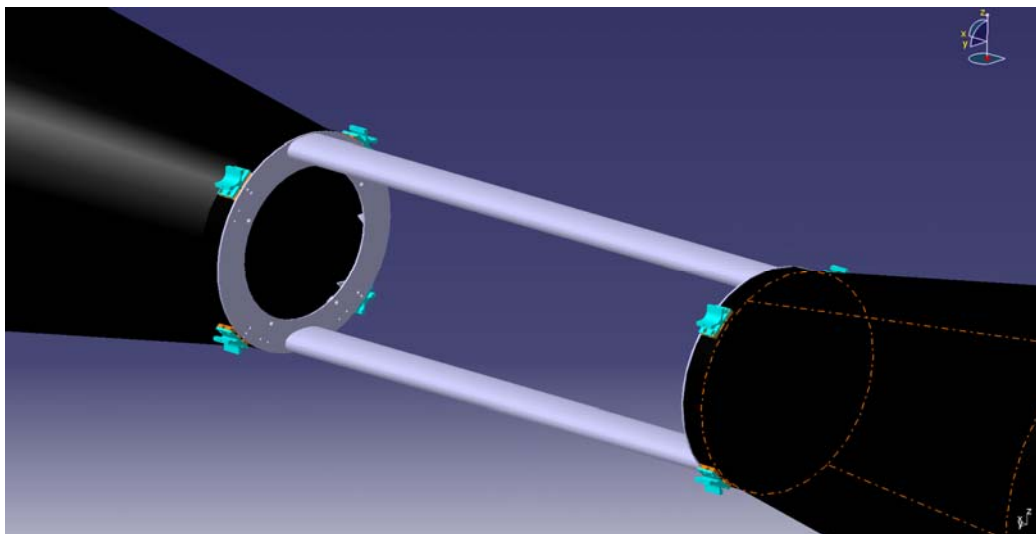


Fig.2: detail of central area of cone with attachment and geometrical tuning parts of the SSD

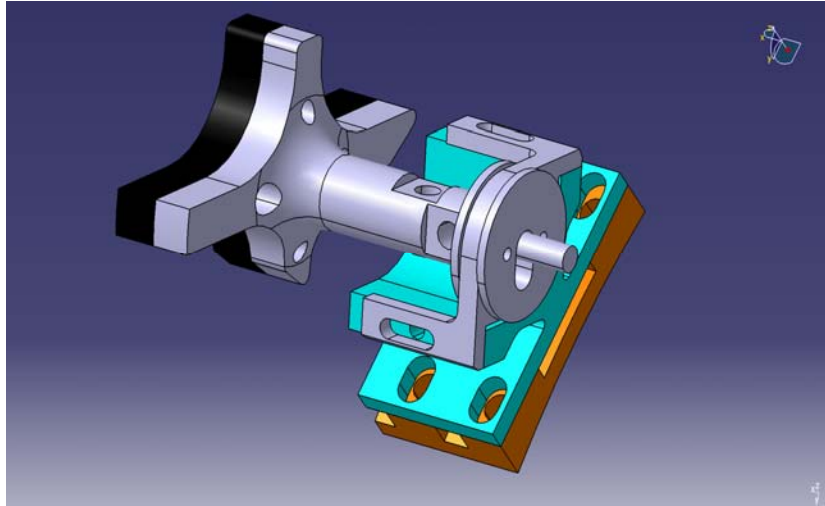


Fig.3: detail of the interface between SSD and cone

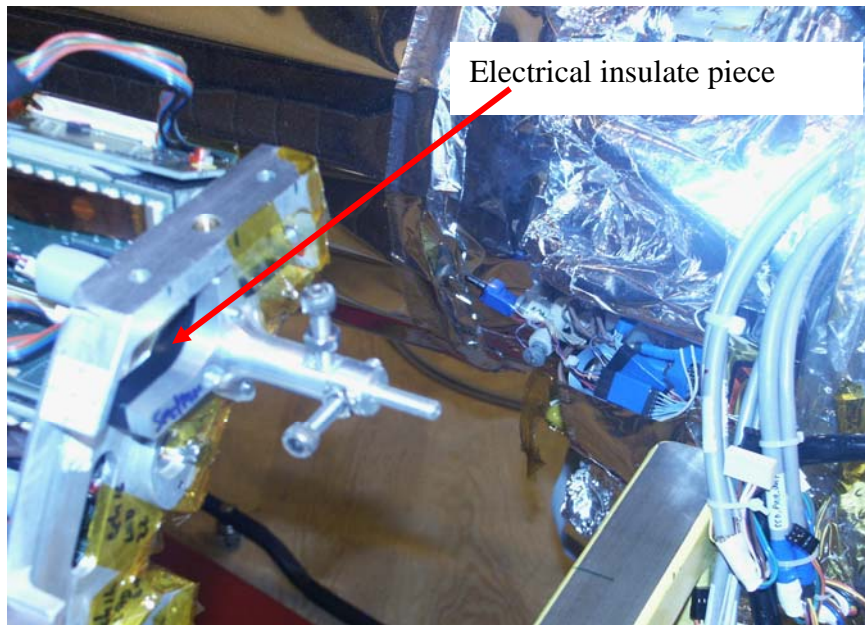


Fig.4: real piece on the clamshell with the electrical insulate piece (black)



Fig.5: real assembling with tuning screws

REMOVAL OPERATIONS OF THE SSD

The removal of the SSD can start once it is out of the TPC, either on the platform or on the roof of the clean room.

1. Remove all shielding and store

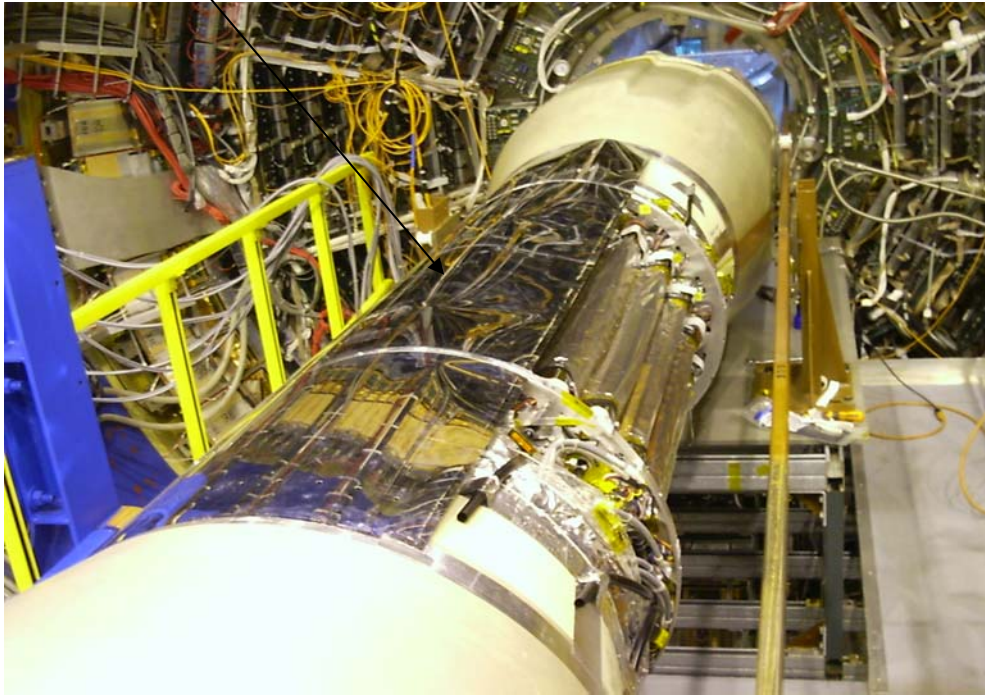


Fig.6: cone out of the TPC on the platform, half of the shielding removed

2. Disconnect all electrical and air cooling connections



Fig.7: disconnection of the bottom sector

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Electrical connections

Air cooling connection on each ladder

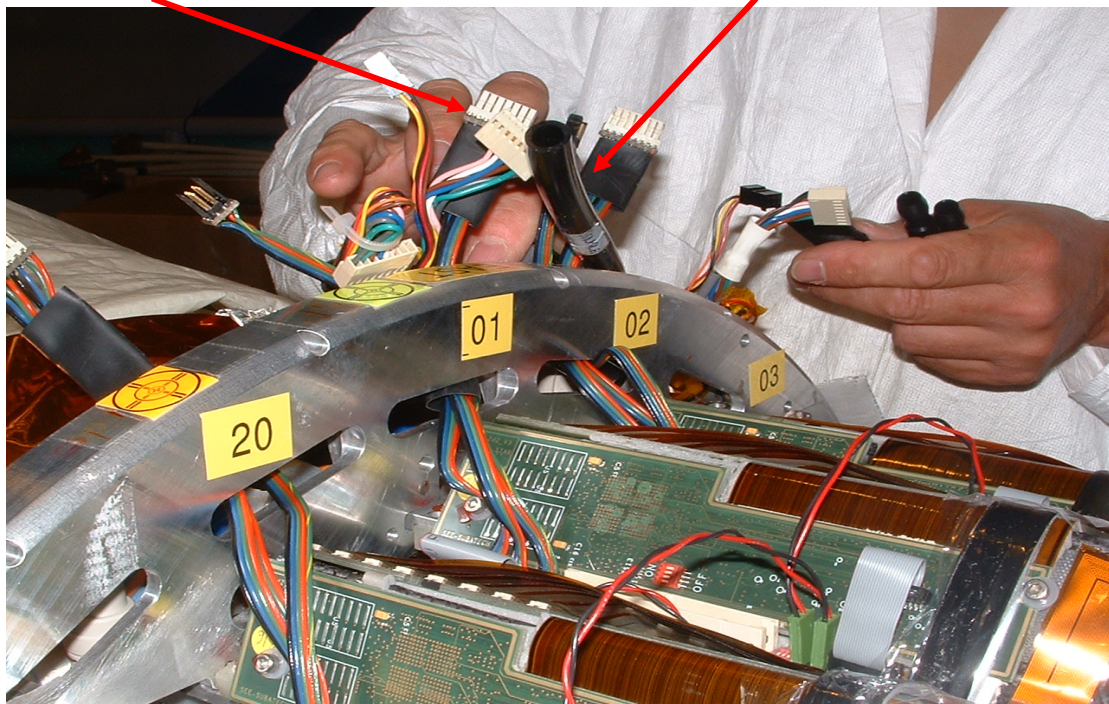


Fig.8: disconnection of the top sector

3. Remove successively and handle the top and bottom sectors

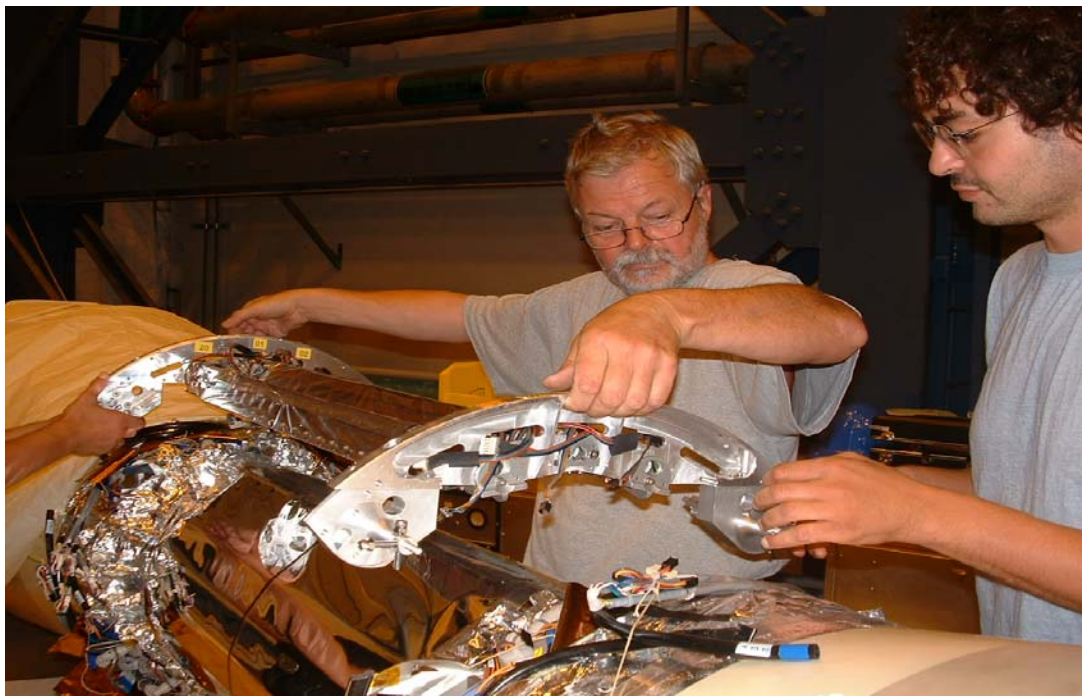


Fig.9: removal of the top sector.

- Put successively the sectors on the carbon trays and store in the little white box

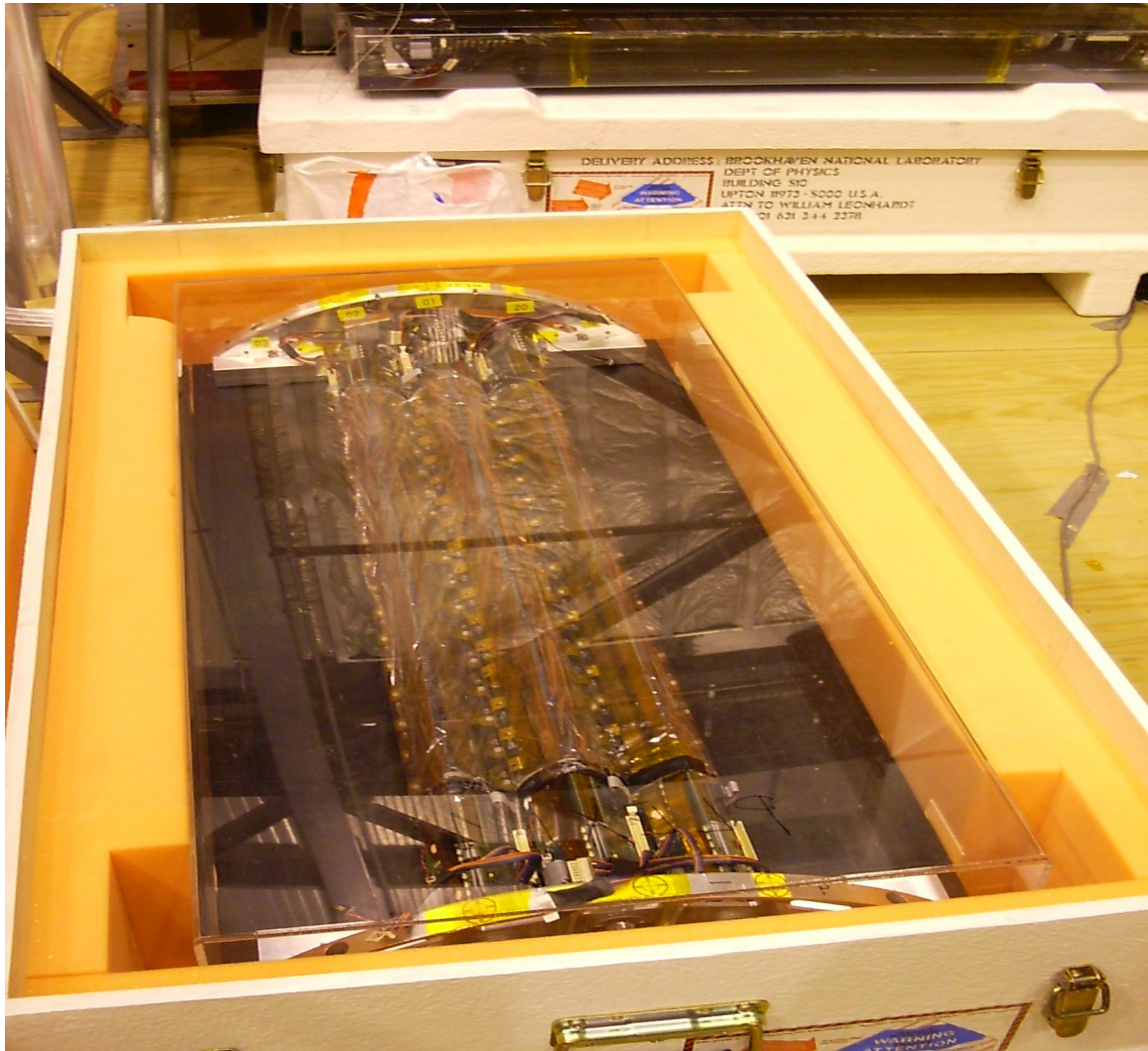


Fig.10: top or bottom sector in its storage box

- Remove the north and south sectors using the dedicated tool to handle the sectors, put on your tray and in the large box.

Comments:

- All screws on SSD are metric except on the cone.
- There is a specific tool (rails and support) to install and remove the north and south sectors but the cramped space on the platform gives his use critical or almost impossible (Fig.11)
- The north and south sector (7 ladders one) are always manipulated with the handling tool (Fig.12)
- For a simple removal of the north and south sectors, the handling tool is enough.
- For a longer intervention it is preferable to install the complete cone on the roof of clean room with the lifting beam.
- Lifting engine is necessary to put the storage boxes (carbon tray + Plexiglas cover) on the platform or the roof of the clean room.



Fig.11: north sector on the rail equipped with its handling tool before installation on the cone (identical for the south sector)

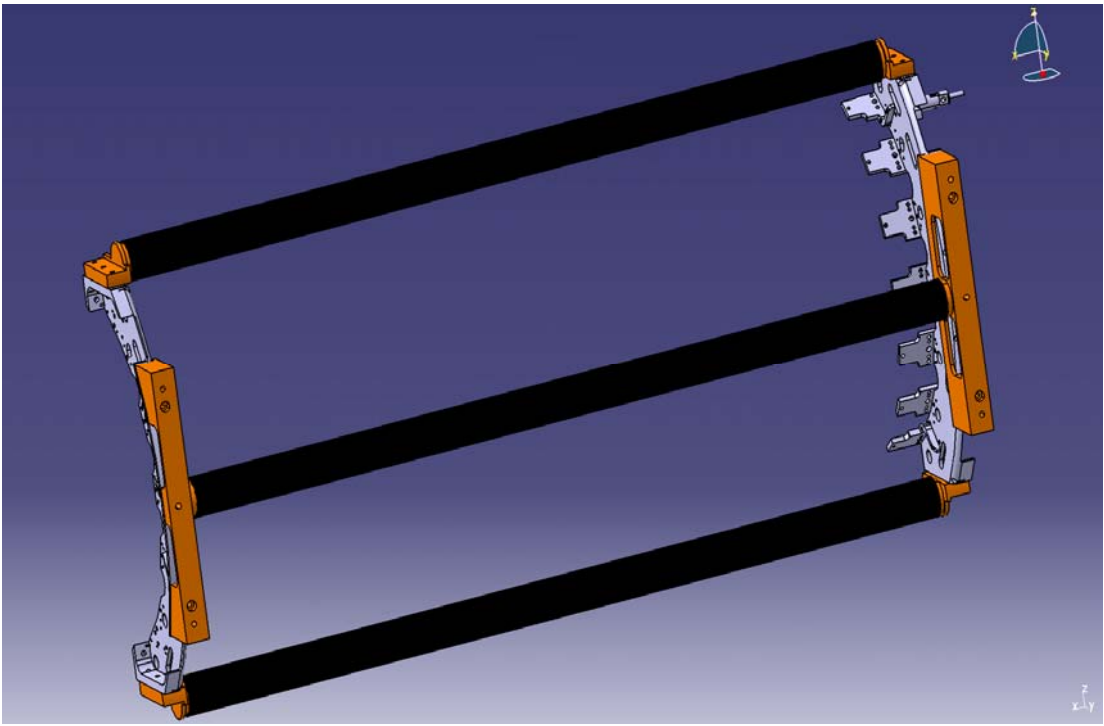


Fig.12: tool to handle the north or south clamshell

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Fig.13: cone on the TPC clean room



Fig.14: lifting operation of the cone with it dedicated lifting beam.

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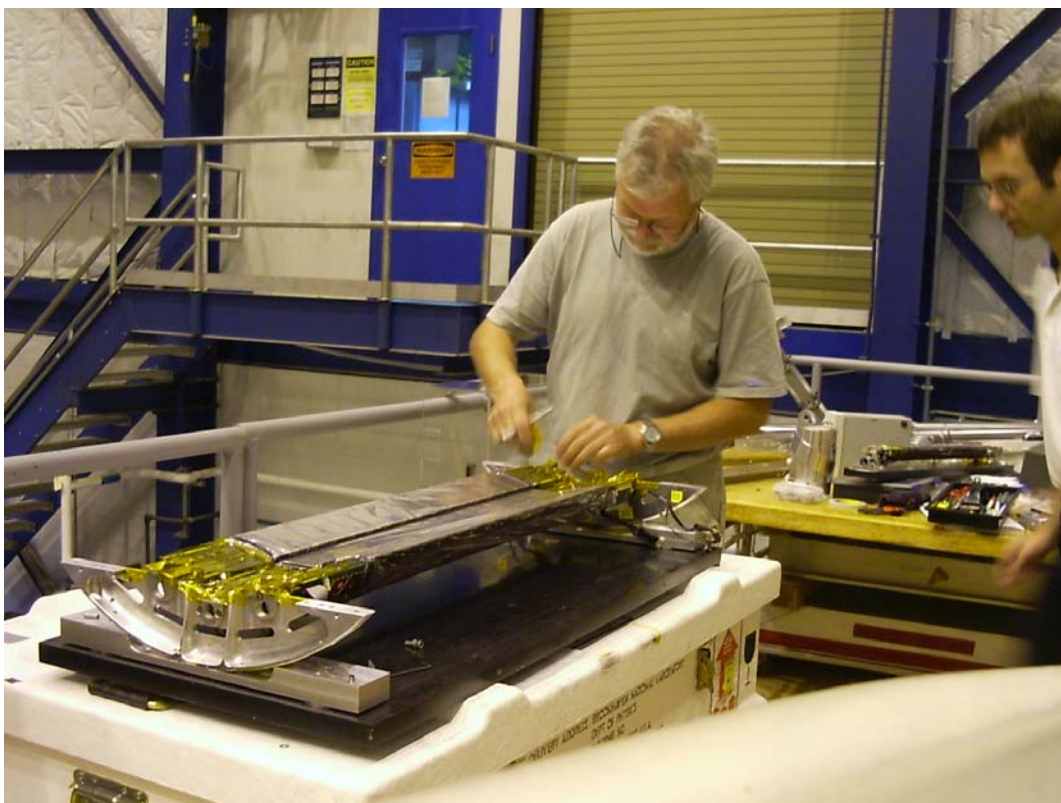


Fig.16: Top or bottom clamshell on its carbon tray, this carbon tray can also use working table.