Standard Operating Procedure

for mounting the TANSPEC

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Scope

This document provides the standard operating procedure to mount the TIFR-ARIES Near-IR Spectrograph to the 3.6m Devasthal Optical Telescope.

Contents

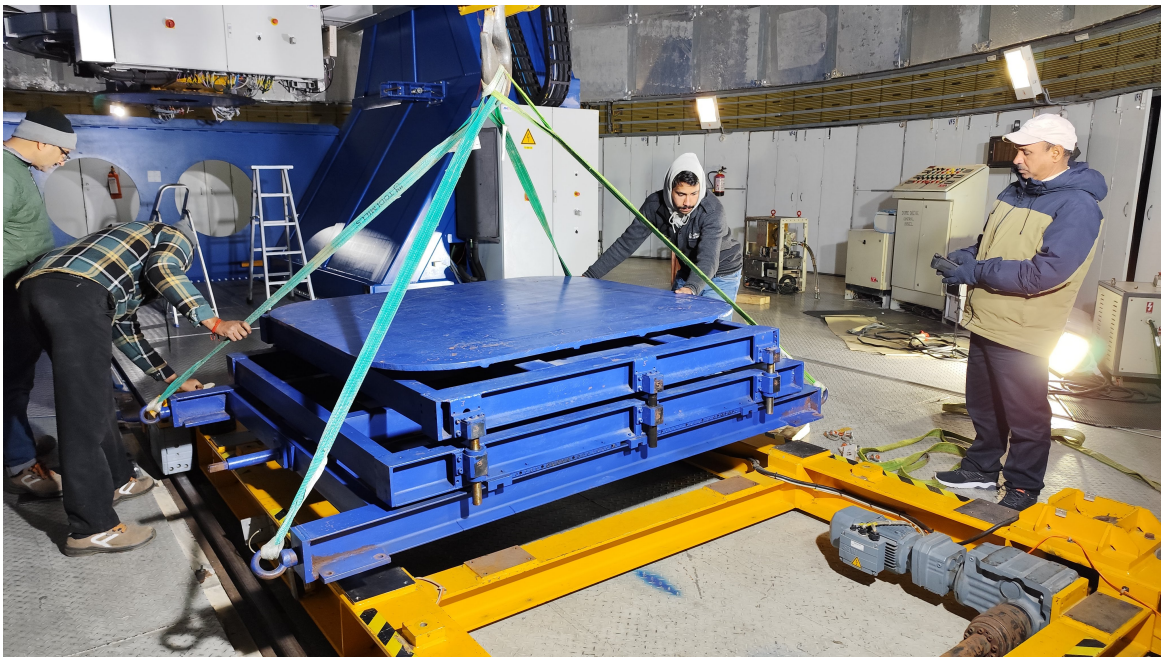

Figure 1: The transfer trolley of TANSPEC at the telescope floor

1 Procedure

These are the steps to be followed while mounting TANSPEC to the axial port of the 3.6m Devasthal Optical Telescope.

1. Start evacuating TANSPEC 5 days before the mounting day. Follow the SOP for evacuation and cooling of TANSPEC.
2. Stop the evacuation and remove the vacuum pump before moving the TANSPEC to the telescope floor.
3. Remove the earthing wire and the structure established to cover it.
4. First, move the transfer trolley of TANSPEC to the telescope floor with the help of the crane, as shown in Fig. 1.
5. Put the TANSPEC cover before connecting TANSPEC to the hooks and slings as shown in Fig. 2.
6. Put the rubber padding on the ground floor transfer trolley before putting the TANSPEC on it.
7. Move it to the telescope floor with the help of the crane. During this procedure, the speed should be very slow to avoid damage to the instrument as shown in Fig. 3.
8. Land it on the transfer trolley and make sure the holes for the screws match in both the stand and the instrument as shown in Fig. 4.
9. Attach the instrument with transfer trolley with the help of screws.
10. After this, store all the hooks and slings safely for subsequent use.

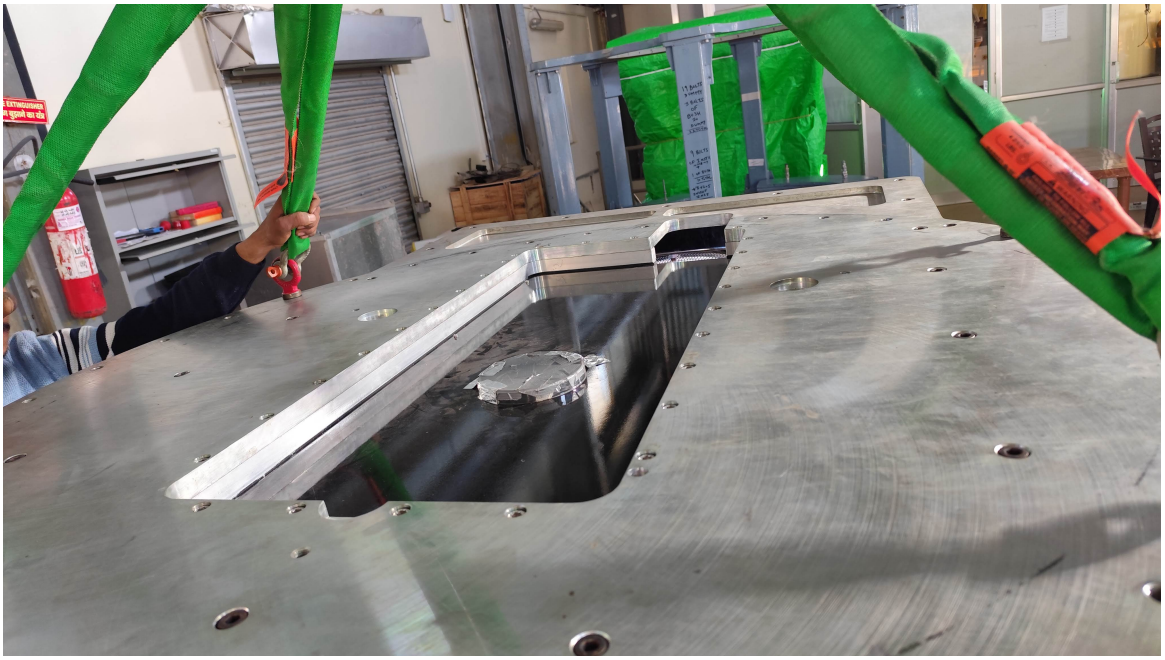

Figure 2: The top view of TANSPEC after connecting the hooks and slings.

Figure 3: The TANSPEC is being carried to the telescope floor from the ground floor.

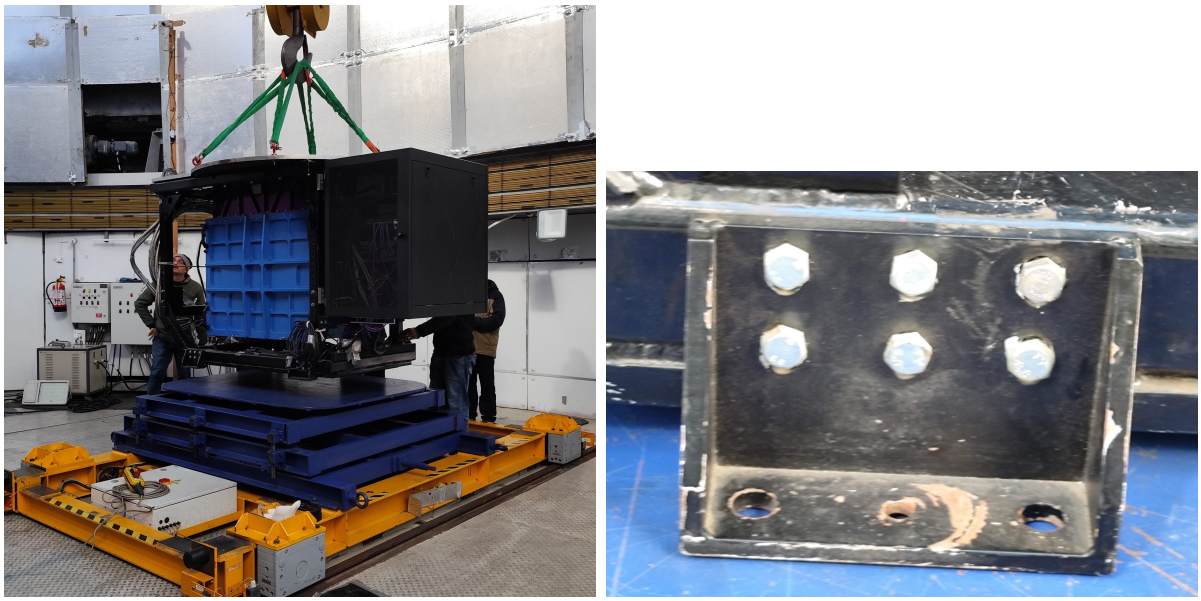

Figure 4: The TANSPEC is landed on the transfer trolley. Screws to be matched in instrument and transfer trolley.

11. Keep ready the screw tray to mount the instrument.
12. Move the instrument below the telescope and remove its cover as shown in Fig. 5.
13. Align the instrument in such a manner so that the holes for screws in the instrument, as well as the telescope, are also aligned. Two arrows are marked on the instrument and the telescope; the alignment can be confirmed by matching these arrows as shown in Fig. 6.
14. Now secure the instrument on the telescope with the help of designated screws as shown in Fig. 7. **While doing so, make sure all the wires from the side port instrument are safe and not coming in between the instrument and telescope flench.**
15. Now connect the Helium pipes to the compressor (located close to the bathroom on the ground floor) and instrument via the port below the telescope as shown in Fig. 8.
16. Now, put some sponge or rubber between the clamps to secure the pipes so there is no compression on the pipes, and cover all the joints with thermocol paper as shown in Fig. 9.
17. Connect the coolant pipes to the instruments also. Tie the electrical and optical fibers with the vertical rod so they will not tangle during the telescope operations, as shown in Fig. 10.
18. Connect the optical fiber cables to the instrument as shown in Fig. 11.
19. Connect the optical fiber cables to the distribution box located on the telescope and the corresponding wires to the TANSPEC PC as shown in Fig. 12.
20. Now, again, start the evacuation of the instrument.
21. On reaching the vacuum level of 10^{-6} close the vacuum pump.

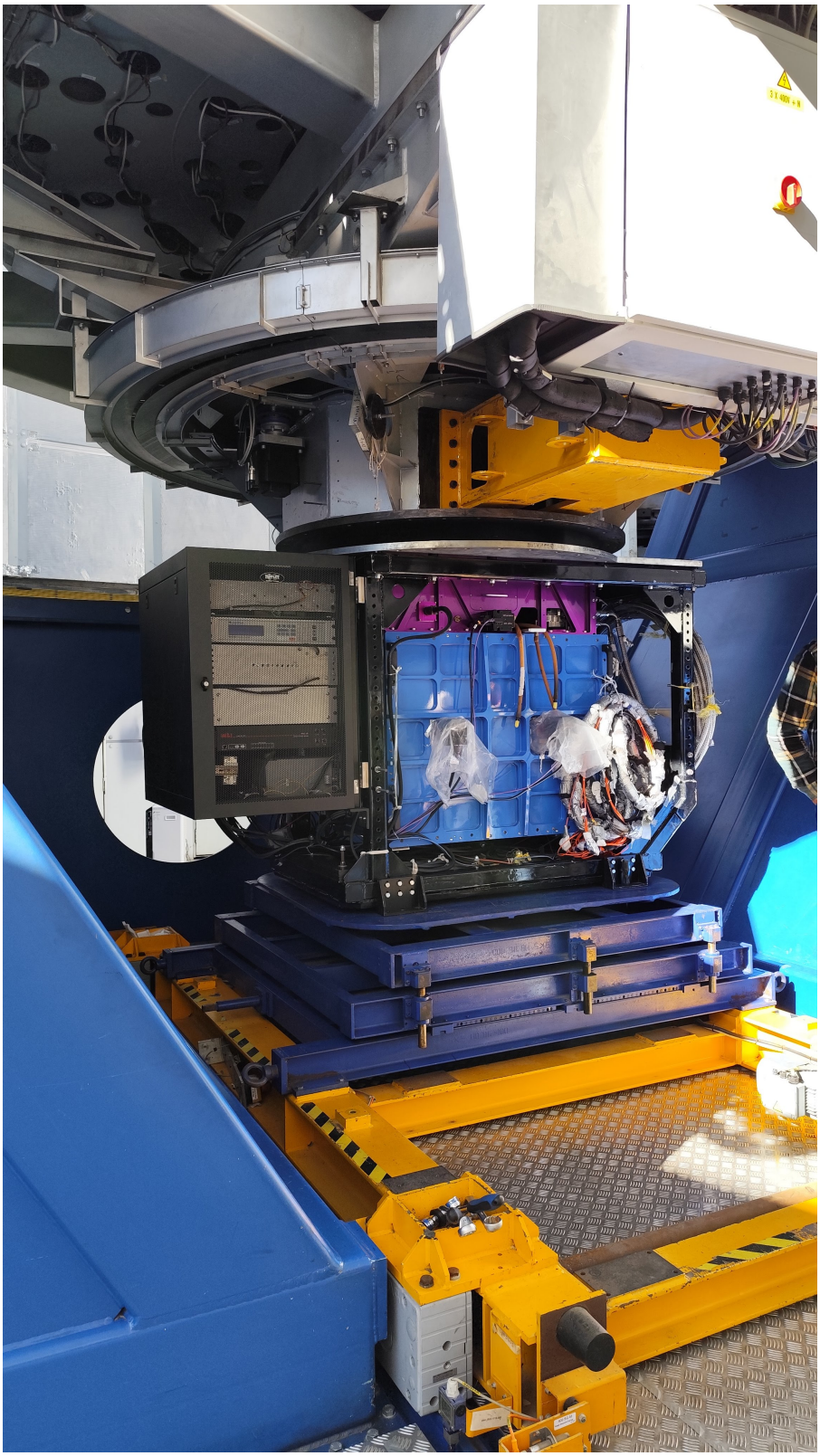

Figure 5: The TANSPEC is moved below the telescope.

Figure 6: The location of the arrows to match.

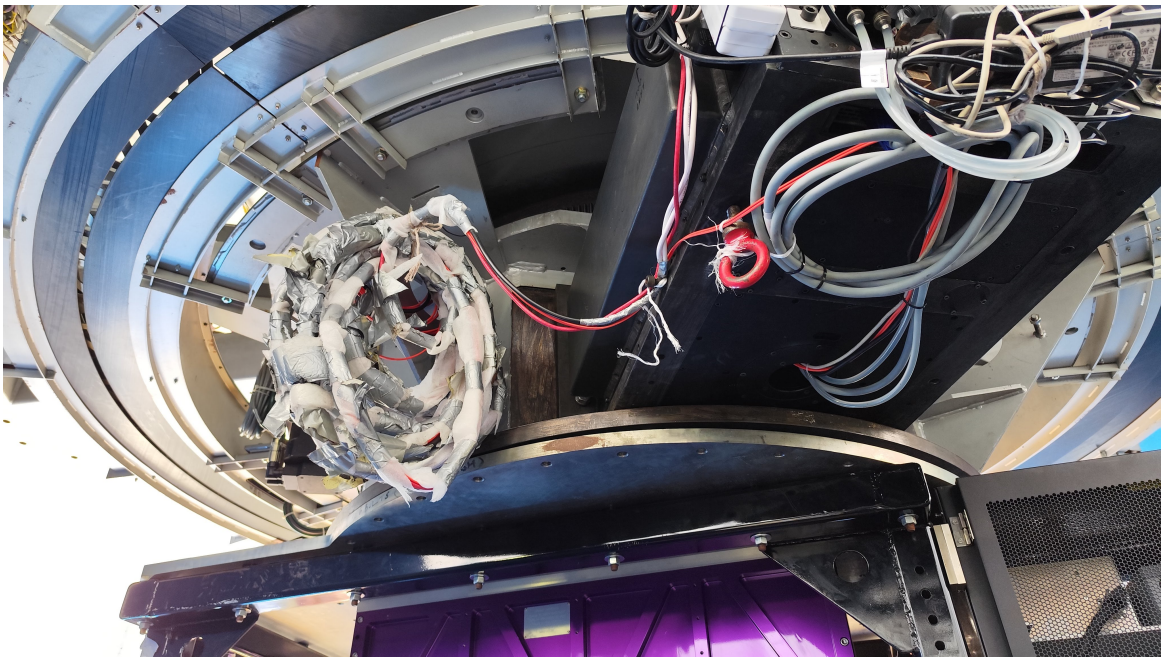

Figure 7: Secure the wires of side port instruments.

Figure 8: The compressor supply and return pipes coming from the port below the telescope. The supply and return pipes of the coolant are connected to the compressor.

Figure 9: Secure the coolant pipes with a clamp and thermocol paper.

22. Check the water level of the chiller used for TANSPEC, which is located on the ground floor near the aluminisation chamber. If the water level is not sufficient, then fill the water.

23. Turn on the chillers and ensure these **should be turned on before starting the compressor**.

24. Turn on the compressor of the TANSPEC located near the bathroom on the ground floor and the Lakeshore to monitor the instrument's temperature.

25. Fill the liquid nitrogen in the TANSPEC dewar.

26. When the desired temperature is reached in all chambers of TANSPEC, connect the optical fibers of the instrument with the TANSPEC PC in the TCS room. The desired temperatures for A, B, and C are 75 K, and for D, it is 100 K.

27. Now turn on the TANSPEC PC, open the GUI, and verify all the connections.

Figure 10: Connect the coolant pipes to the instrument and secure them with the vertical pipe.

Figure 11: Connect the optical fibers to the instrument.

Figure 12: Connect the optical fibers to the distribution box located on the telescope and TANSPEC PC.