

Report on the TIRCAM 2 Instrument

TIRCAM 2 was mounted on side port 1 of 3.6m DOT by 26 Sep 2024 and further prepared for observations under 3.6m DOT schedule for cycle DOT-2024-C2.

The heater power of TIRCAM 2 has a nominal value of 20 and the warning is below 18%. The heater power of TIRCAM 2 went quite low and was reported at 9 % and 11 % on 14 November 2024. Following this, the compressor of TIRCAM 2 was switched off on 14 November 2024.

TANSPEC PI informed that 13 November 2024 was the last night for TANSPEC and it has to be switched off in the morning, following which the TANSPEC chiller and compressor etc. were switched off in the morning of 14 November 2024.

The unmounting of TANSPEC from the axial port of DOT and the mounting of ADFOSC under the Instrument Change Time (ICT) was scheduled for 16 November 2024. TANSPEC was unmounted from DOT, following which the mounting of ADFOSC on DOT was taken up. Mounting of ADFOSC involves mounting its dummy with the telescope before the instrument is mounted. ADFOSC dummy during mounting comes out of the telescope interface flange. To facilitate ADFOSC dummy mounting, the helium lines of TIRCAM 2 were arranged/loosened near the SPIM instrument (mounted on side port 2) of the telescope. The outer diameter of each braided flexible helium pipe is about 23 mm. While tightening the ADFOSC dummy the two helium lines somehow came one over the other and got stuck between the flange of the ADFOSC dummy and the bottom plate of the SPIM instrument whose gap goes to about 37 mm (Figure 1) after tightening which resulted in the damage in the helium pipe leading to leakage of helium. The dummy was loosened, and subsequently pipes were taken out. TIRCAM 2 damaged Helium pipe was replaced and routed with the telescope, however, it was not connected to the instrument.

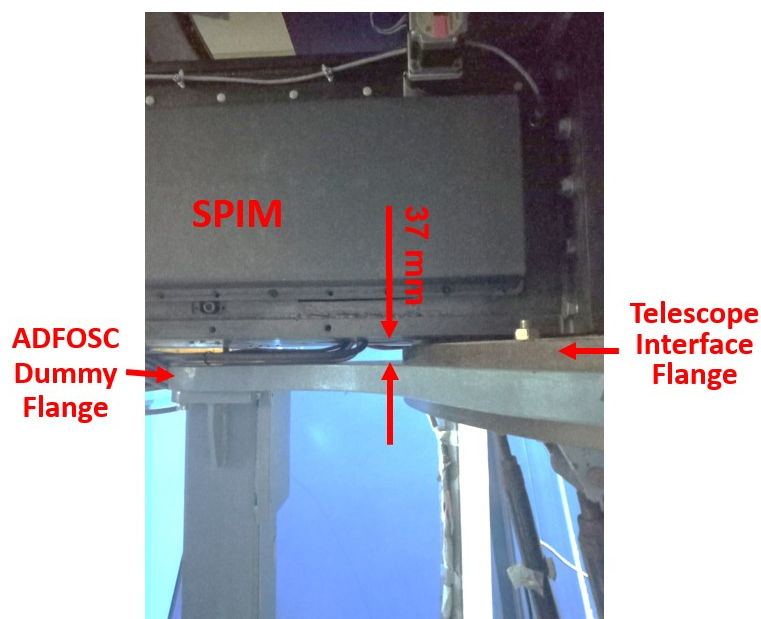


Figure 1

A meeting was held between ARIES and TIFR teams on 18th November 2024, following which vendor specializing in serving cryo-pumps were contacted. A procurement for a new cryo compressor for TIRCAM2 was also initiated.

The TIRCAM 2 Vacuum was tested in the daytime on 19 November 2024 for around 8 hours, and the Dewar Vacuum looked fine. The vacuum log is shown in Table 1

Date	Time	Vacuum	Remarks
19-11-2024	03:30	3.05×10^{-5} mbar	Stand by on
19-11-2024	04:05	2.50×10^{-3} mbar	Dewar valve open completely with <u>stand by</u> on
19-11-2024	05:00	2.38×10^{-4} mbar	Stand by on
19-11-2024	07:40	5.51×10^{-5} mbar	Stand by on
19-11-2024	12:05	2.20×10^{-5} mbar	dewar valve closed and pump disconnected.

Table 1

The service engineers visited the site from 29 to 31 January 2025, changed the absorbers of the cryo-pump, and did the required servicing. According to their report:

- 1) Compressor static pressure: 250 psi, Dynamic Running Pressure: 290 psi for 50 feet lines.
 - 2) Pump cool down time: Pump cool down to 150k only. Need to check the cold head part
- (Need visual inspection and to be rebuilt with a service kit).