Rapid removal and Coupling of Auxiliary system for Cavity Tuning

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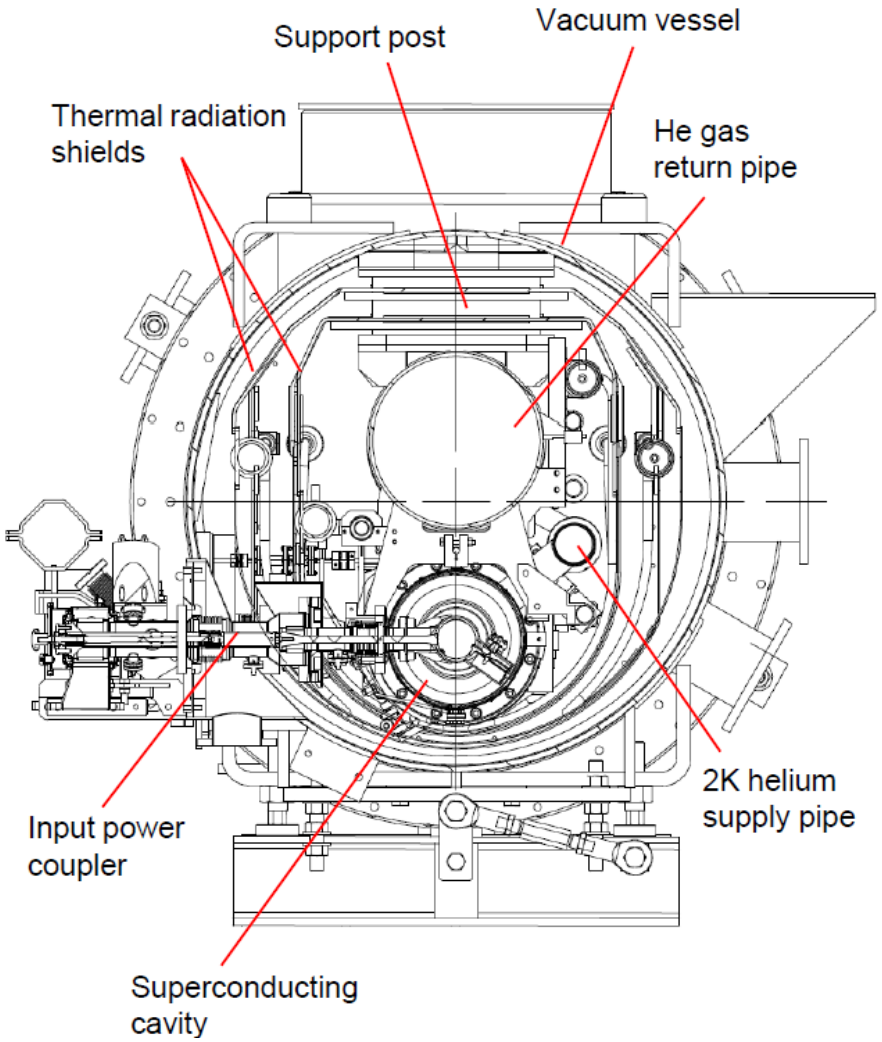
The Background

- We were contemplating a system to take care of “more than occasional” failure of tuner motor.
- In the last webex we were told to provide access ports for replacing tuner motor.
- The location of the tuner motor when we look in our 3-D model does not appear very conducive for a rapid removal.
- The motor along with the gear box is pretty long (140mm) which necessitates a big port. Or a very complicated operation where we decouple the motor turn it by 90 degrees. Do vice versa for the new motor.

REMOVAL OF DEFECTIVE AND INSTALLATION EXRCISE FOR TUNER MOTOR

Starts looking more like a Laproscopic surgery!!!!



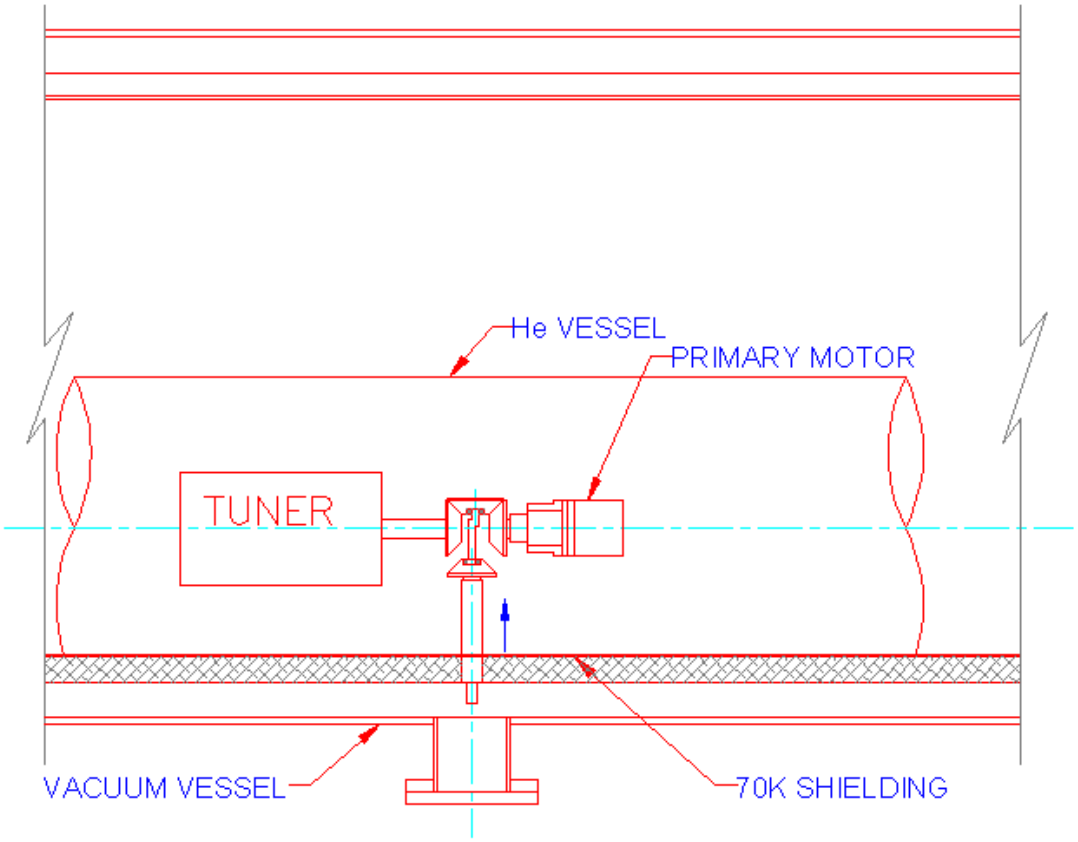
The Concept

- We want to design a mechanism which can be used to decouple the defective tuner motor with greater ease.
- This alternate mechanism will carry a motor which will drive the tuner subsequently.
- The tuner will be given a drive by an auxilliary system
- This arrangement will continue till there is a major maintenance schedule when this arrangement will be taken out and the motor will be installed at it's designated place.
- BUT THIS CONCEPT requires

  Making certain changes in the tuner motor coupling as it stands today

  Vacuum will have to be broken for coupling this system

1st Stage- Primary tuning motor is engaged and working alright

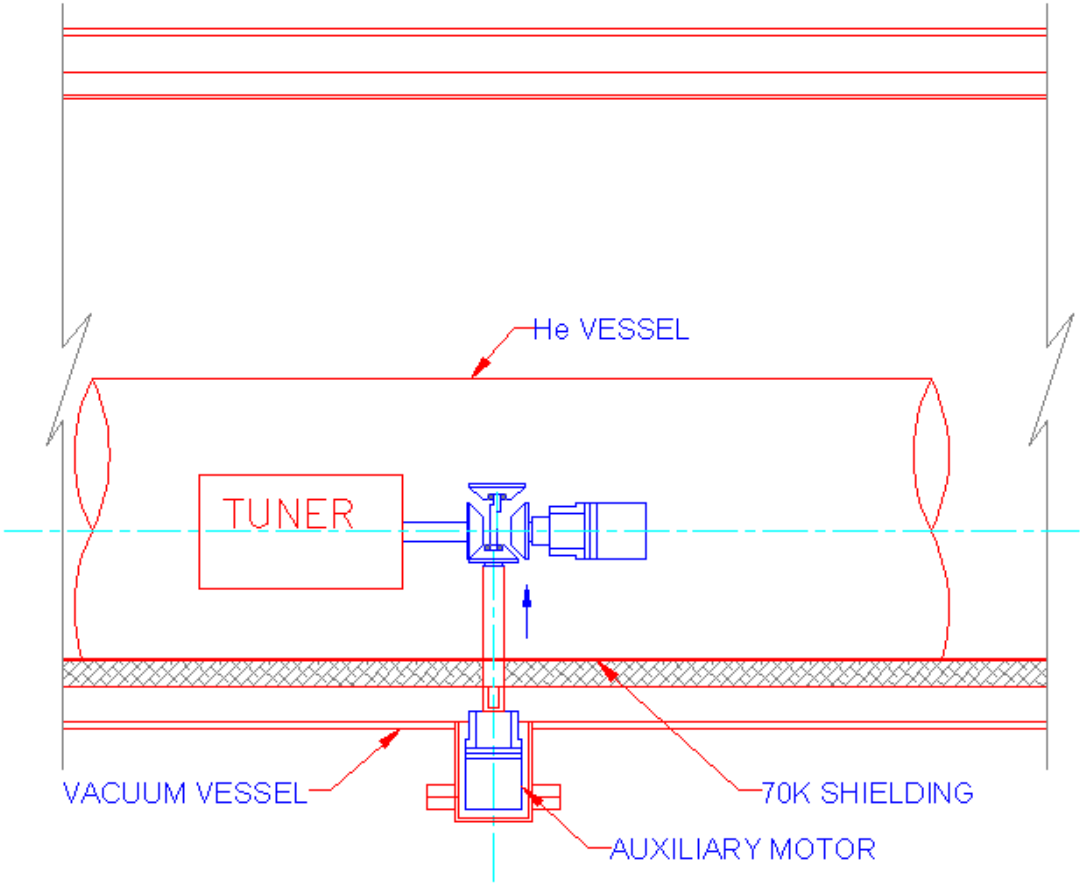


- A gear box with bevel gears is provided between the primary motor and the tuner.

- There is an auxiliary gear with protruding shaft in this gear box.

- In the event of failure of primary motor the flange on the vacuum vessel will be opened.

2nd Stage- Primary tuning motor is disengaged and auxiliary motor is coupled



- An inverted cup type structure is fixed on the port. This will carry the motor and provide it rigidity to take the reaction torque.
- The two bevel gears are connected by a rigid shaft and while fixing the auxiliary gear the first gear gets disengaged.
- This shaft is thermally intercepted at 70K

It may look somewhat like this

IT IS JUST SOME LOUD THINKING.

We want to ask whether we should spend some time on this concept or it is not worth the trouble.

The obvious disadvantage is:

- The tuner's motor coupling will have to change
- During the time this auxiliary system is engaged there will be some heat in leak

The possible advantage is

- Rapid disengagement of defective motor.
- Inexpensive system only few auxiliary mechanisms to be kept ready.
- Availability time for the machine increases.