

# SAM SYSTEM DESIGN NOTE

## SAM-AD-02-3215

### SAM mechanical installation procedure

Prepared by: Patricio Schurter  
Checked by:  
Version: 0.9  
Date: February 02, 2011

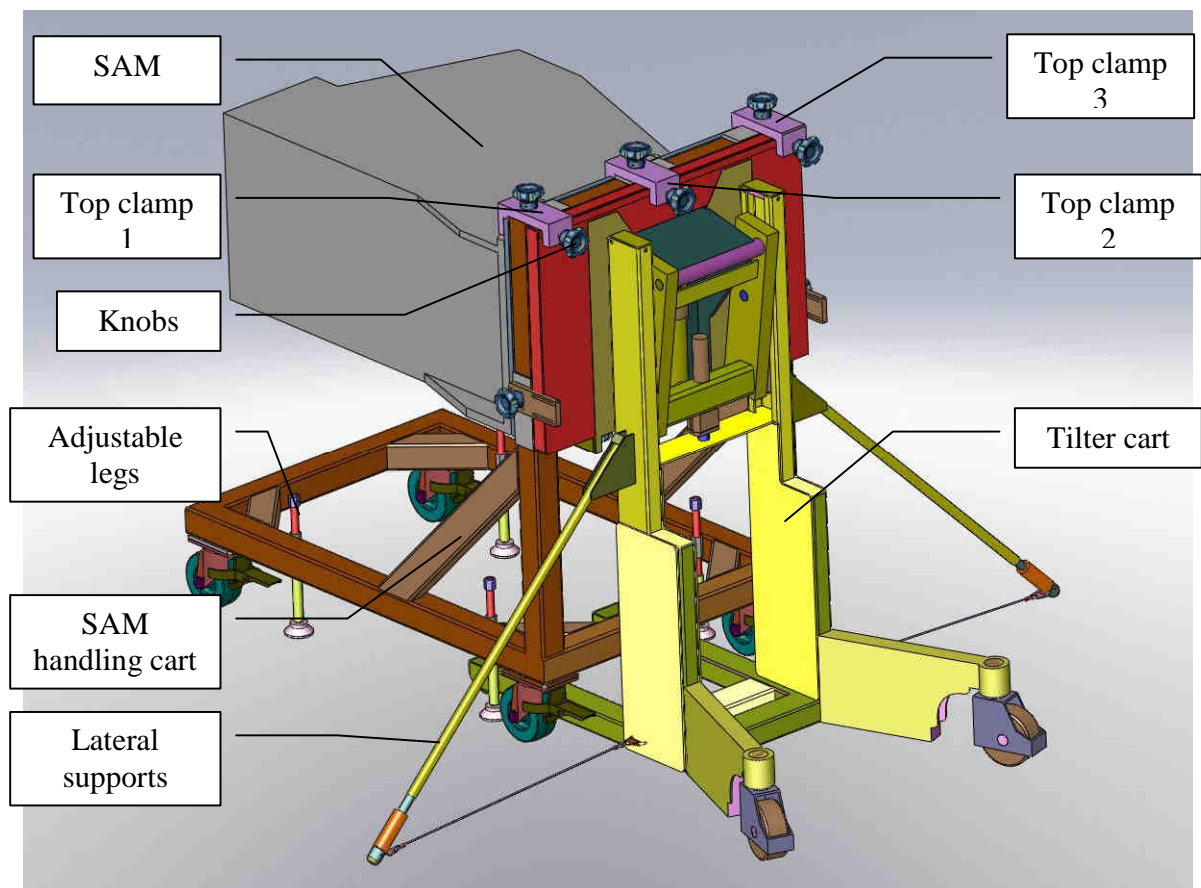
#### Summary

The mechanical installation procedure for the SAM is described.

#### 1. Introduction

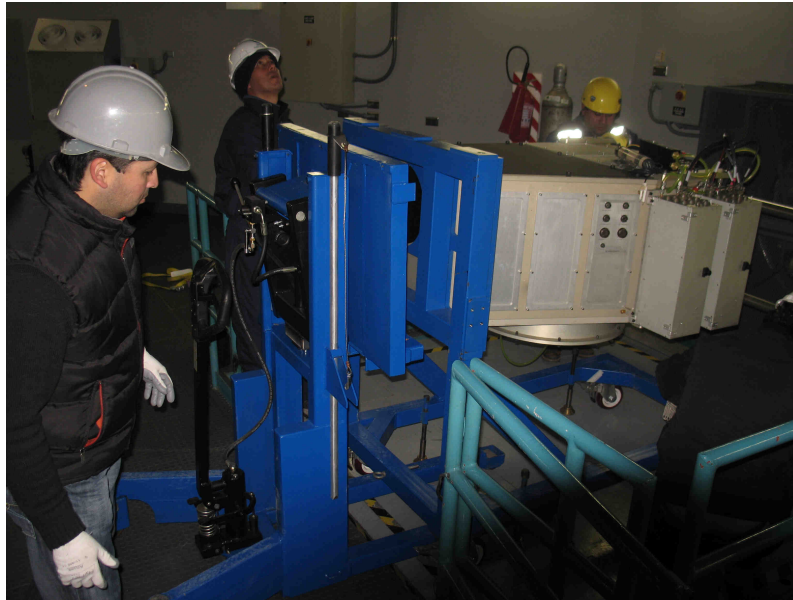
The installation of the SAM module consists of several steps that include joining the handling cart with the tilter cart. These elements are shown on Fig. 1.

Prior to installation the ISB must be rotated so that the port where Sam is installed must be facing UP.



## 2. From the storage area to the dome level

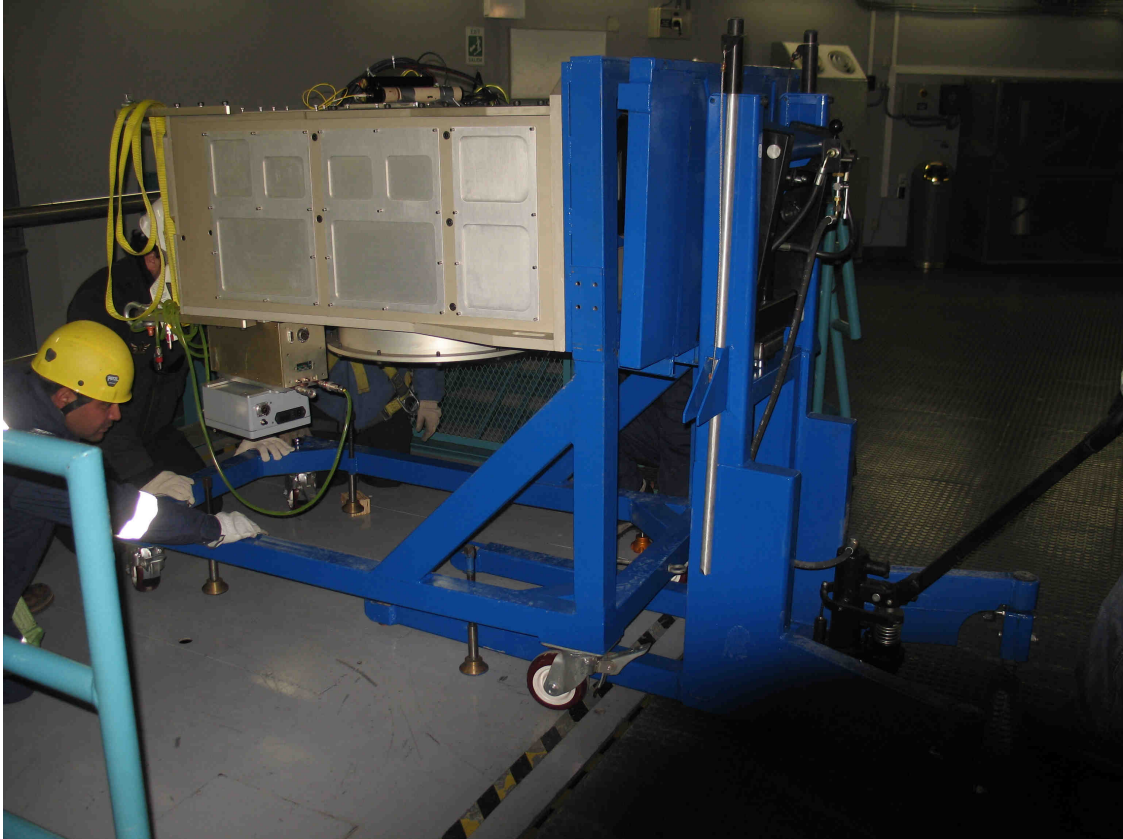
First, SAM must be moved from the storage area to the elevator platform, on its handling cart, along the tilter mechanism and the fixing clamps to join both carts. At this stage, the carts are not joined. It is important to include a set of standoffs (planks, hard rubber, etc.) of ~1" thick to help the joining of the cart to the tilter.



### 3. On the dome level

#### 3.1 Join the carts

After locating an appropriate location, both carts must be joined. To properly join them, SAM's handling cart has to be adjusted using its four adjustable legs to match the angle of the tilter cart. Some lifting of the tilter platform may be necessary. Once this is achieved both carts can be joined by fastening the knobs below SAM's mounting surface, and by fastening the knobs that clamp both carts together. After joining the carts, the lateral supports of the tilter cart must be deployed.



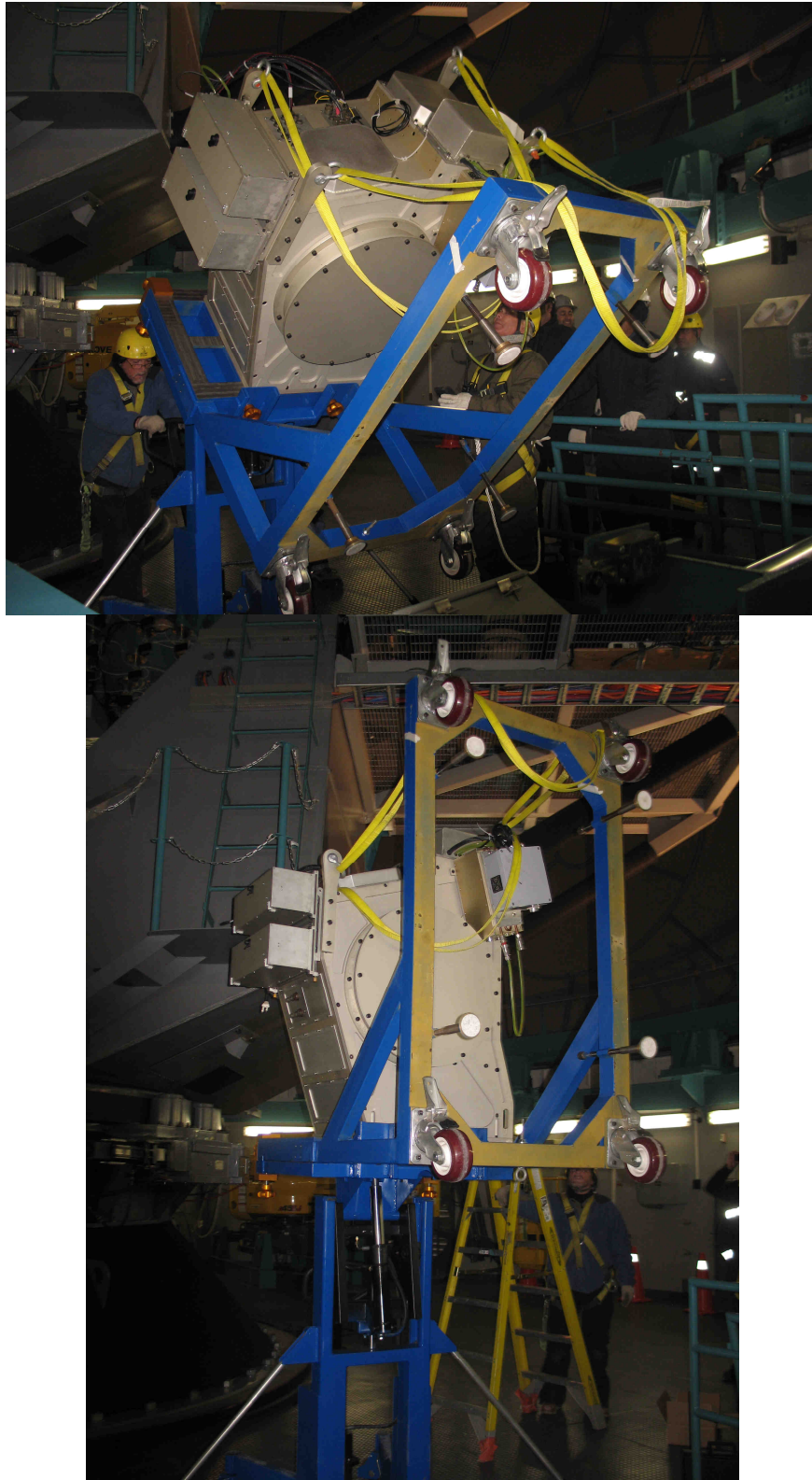
### 3.2 Place shackles and lifting straps

Shackles must be placed on SAM on the shackle holders along with appropriate straps.



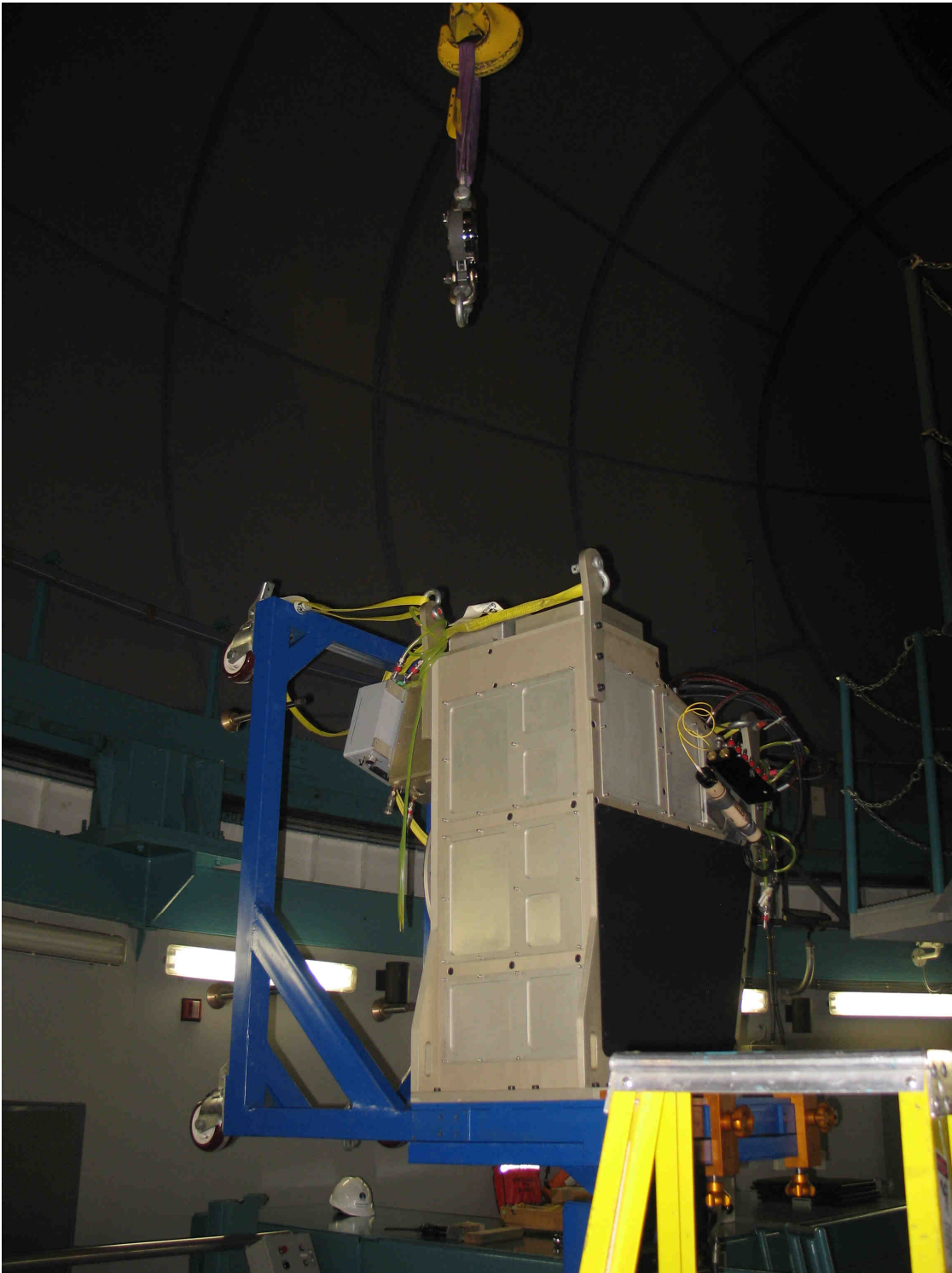
### 3.3 Tilt SAM to 90 degrees

Tilt SAM and its handling cart by means of the tilter controls. To do this, place the selector handle of the tilter to the “tilt” position, open the shutoff valve by rotating it to the vertical position, and “pump” the hydraulic system to achieve the desired position.



### 3.4 Lift SAM about 7cm

Lift SAM around 7cm. This is necessary to safely transfer the load to the hoist.



### 3.5 Hook SAM to the hoist

Once Sam is vertical, place the lifting straps on the hoist hook.



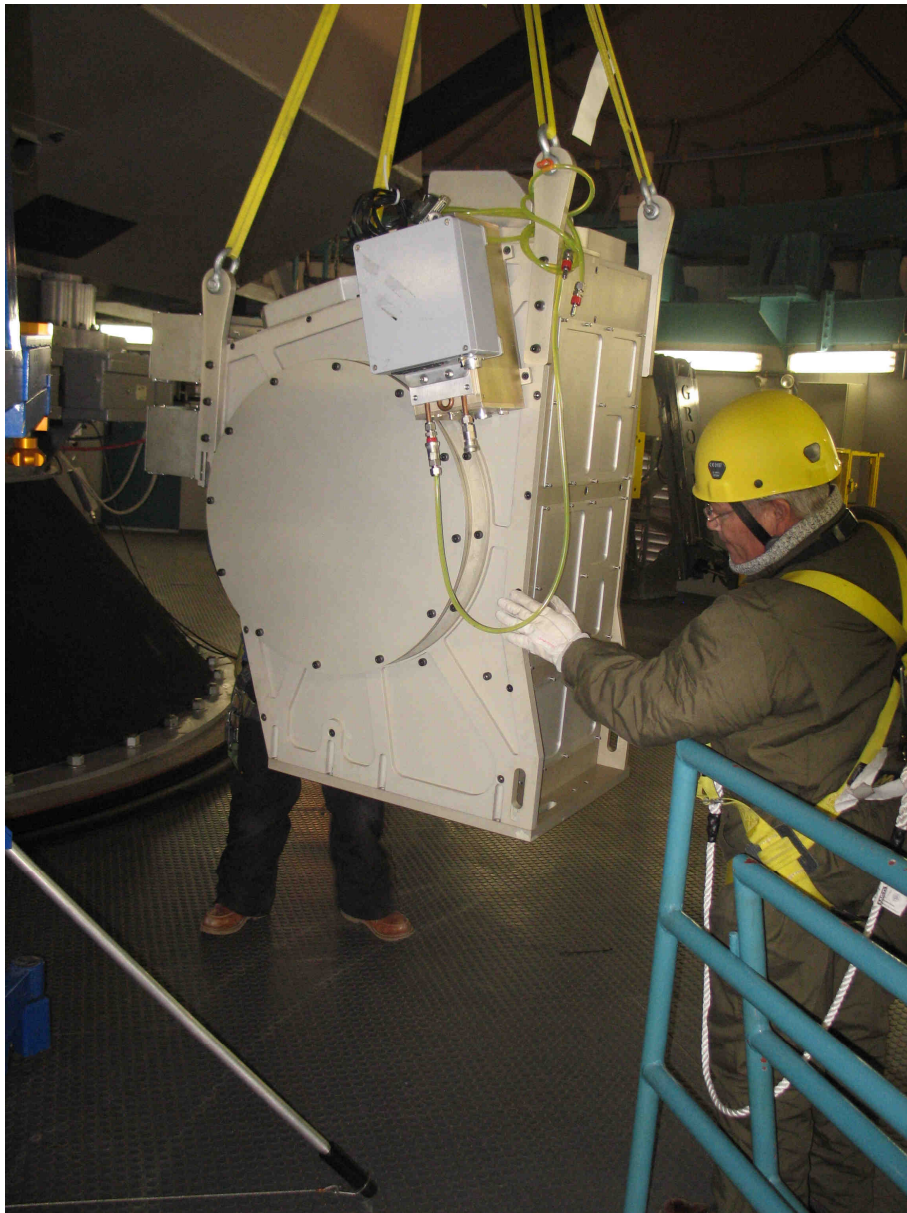
### 3.6 Tense the straps

Start lifting the hoist until the straps start to tense. Loosen the 15 bolts around SAM's mounting face. Check that the two fixing bolts inside SAM are not placed.

### 3.7 Transfer the load to the hoist

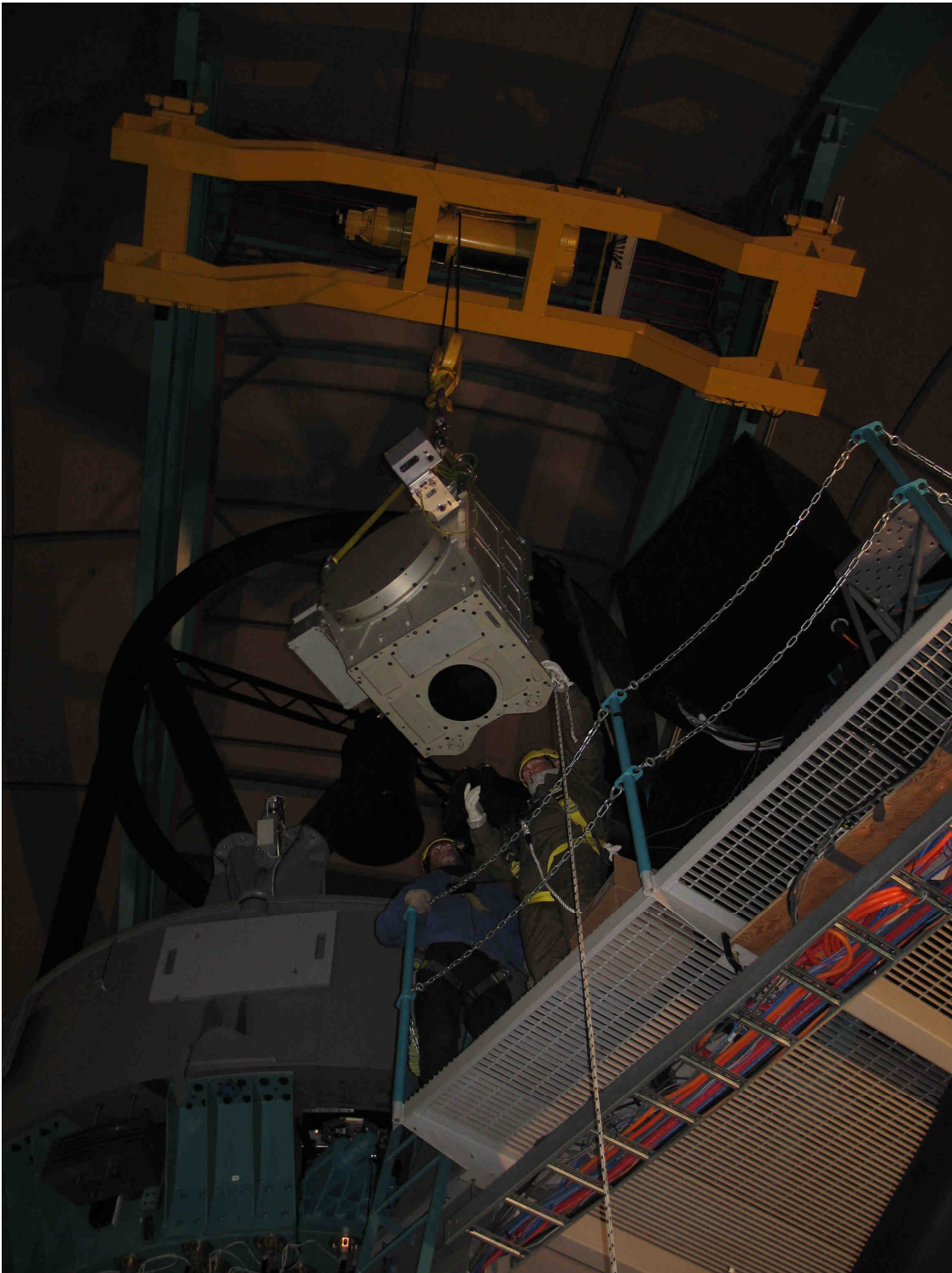
Start to lower the tilter cart by the following procedure:

- 3.7.1 Place the selector lever to the “lift” position
- 3.7.2 Fully close the shutoff valve by making it horizontal
- 3.7.3 Press the handle lever on the cart
- 3.7.4 Start turning the shutoff valve **VERY SLOWLY** until the cart starts descending
- 3.7.5 Check that all the bolts have been removed and that SAM is correctly balanced
- 3.7.6 Keep lowering the cart until SAM is completely hanging from the hoist



### 3.8 Pre-locate SAM

Lift SAM and locate it near the ISB port



### 3.9 Fix SAM to the ISB

Carefully lower SAM until its mounting surface is close to the ISB. Align SAM with the ISB mounting surface using the two location pins on SAM. Carefully lower SAM until it is completely supported by the ISB. Place and fasten all the fixing bolts that hold SAM to the ISB. There are 16 bolts: 7 on the top side (there are 8 holes on SAM, but the hole on the top-left doesn't have a matching thread on the ISB), 3 on the right side, 4 on the bottom, and 2 on the left side, behind the left cover. Fasten the bolts according to standard procedure.



### 3.10 Remove the lifting straps from SAM

Unhook the straps and remove the shackles from SAM

#### 4. Revision History

V0.9: First draft. 2011-04-04.