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Outline:

• Investigate issue of radial alignment of main PSB bending magnets (jacks and oil injection) and provide a solution for the future.

• Study the fabrication of a new precision tilt measurement tool for the PSB main bending magnets.

• Work out a tool to move magnets in the PSB whose screws are currently not accessible.

• Report about the possibility to align the BRx.BHZ162 with a precision below 1 mm.
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• Situation today: vertical movement OK, radial / longitudinal not used since more than 20 years. Furthermore: pumps for oil film injection not anymore available.

• Solution could be to adapt existing pumps to the oil injection system (connectors), BUT: uncertainty about leak tightness of the jacks.

• Other (better) solution: change jacks.

• Found a good jack which could replace the existing ones with minor modification:
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- Fits with the weight of the magnet (~13T): 2 types of these jacks available (for 6 and 10T)
- Fits with the dimensions in width (existing plate underneath the magnets) and height (needs a steel block to «shim» of around 17 X 17 X 17 cm)
- Easy to align with small effort
- Can be tested in the next YETS, as some are available immediately.
- Exchange scenario to be discussed with transport and RP.
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• Starting with the existing tool for the main quads,
• Needs modification of the length and the parts which have contact with the magnet,
• Needs calibration on a precision table
• Can probably be manufactured in our workshop.
• Drawings need to be made and fabrication launched.
• First test possible in YEST 2015/16
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• For the time being, no good and simple solution found, as nothing available on the market for this size of nuts (36mm), for example «cliquet-type-demultiplication-keys».

• Therefore, the idea is, to have a frame which can be fixed to the magnet which contains a motorized mecanism to turn a very short key (10cm range) with the needed force of ~10-15kg.
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- Even with such a device: not sure to reach all feet, as we can see:
  - Pumps
  - Cables
  - «passerelle»
  - .....
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• More precisely: a procedure needs to be found for the alignment of the vacuum chamber (injection).

• Meeting held in December with magnet and vacuum people.

• Solution:
  • to fabricate a plate which can easily be referenced to the magnet references / target points
  • To place a plumb line at the edge of these plate (edge is in the direction of the chamber), and thus position / align the chamber accordingly.