



Gantry Report



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Assembly Plate Pins



Just completed recessing and re-measuring the module mounting pins on all 5 TOB R-phi assembly plates that we currently have.

The problem:

- In the process of re-measuring 3 modules on one of our assembly plates we found large overall shifts (50-75 micron) and angles (10-30) in two of them. Sensor to sensor alignment and angles were unchanged and within specification, but with respect to the module mounting pins there were large differences.***
- After discovering this, we took 3 modules that were <10 microns off in all their fiducial specifications and re-measured them on all 5 TOB assembly plates in all 3 positions on our OGP machine.***
- The results of this showed, 1 position on 2 separate assembly plates that had obvious problems with the position of the pins. This also turned out to be the positions where the two modules, in our original re-measure with large overall shifts, had been built.***
- This suggested that the pins at these locations were not straight or some how damaged.***



Assembly Plate Pins



The solution:

- ***At the 2 bad positions, we found one had a bent pin and the other had a large angle and was protruding 3mm past the module mounting clip.***
- ***We then decided to check and recess all pins as far as possible to eliminate any offset from the top of the pin and where the module clip rests on the pin. These distances ranged from 1-3mm.***
- ***Then we re-measured our 3 “test” modules on all positions on all plates(5) after the pins had been checked, recessed and re-measured.***
- ***Results – all re-measurements were within specification for individual and sensor to sensor angles. 6 re-measurements out of the 45 done had 1 or 2 fiducials at the far end of the module that were out of the 30 micron x position specification. I think this will be hard to avoid with the large aspect ratio between the pins and the length of the modules in the y direction.***



Assembly Plate Pins



Conclusions:

- 1. We need to double check that the assembly plate pins are put in straight and to max depth possible. This is a good time to find this out since we have 12 new plates just about ready to be commissioned.**
- 2. We will check all new plates by re-measuring “test” modules on them to make sure we are getting consistent measurements. We had re-measured a few modules in the past without seeing a problem, but had not tested all plate positions.**
- 3. During production, we plan to do weekly re-measurements of our assembly plate pin positions with respect to the plate fiducials. This will be to make sure we catch any change in a pin position before many modules have been made on it. This only takes a few minutes to do on the OGP.**
- 4. I will present the module re-measure data in more detail with graphs etc. in the future, but wanted to alert people at Tracker Week to the problem we found in a couple of our assembly plates. Our TEC R6 plate looks fine. We still need to double check our TOB stereo plate.**